

# UCLA

# General Catalog

2001-2003

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University



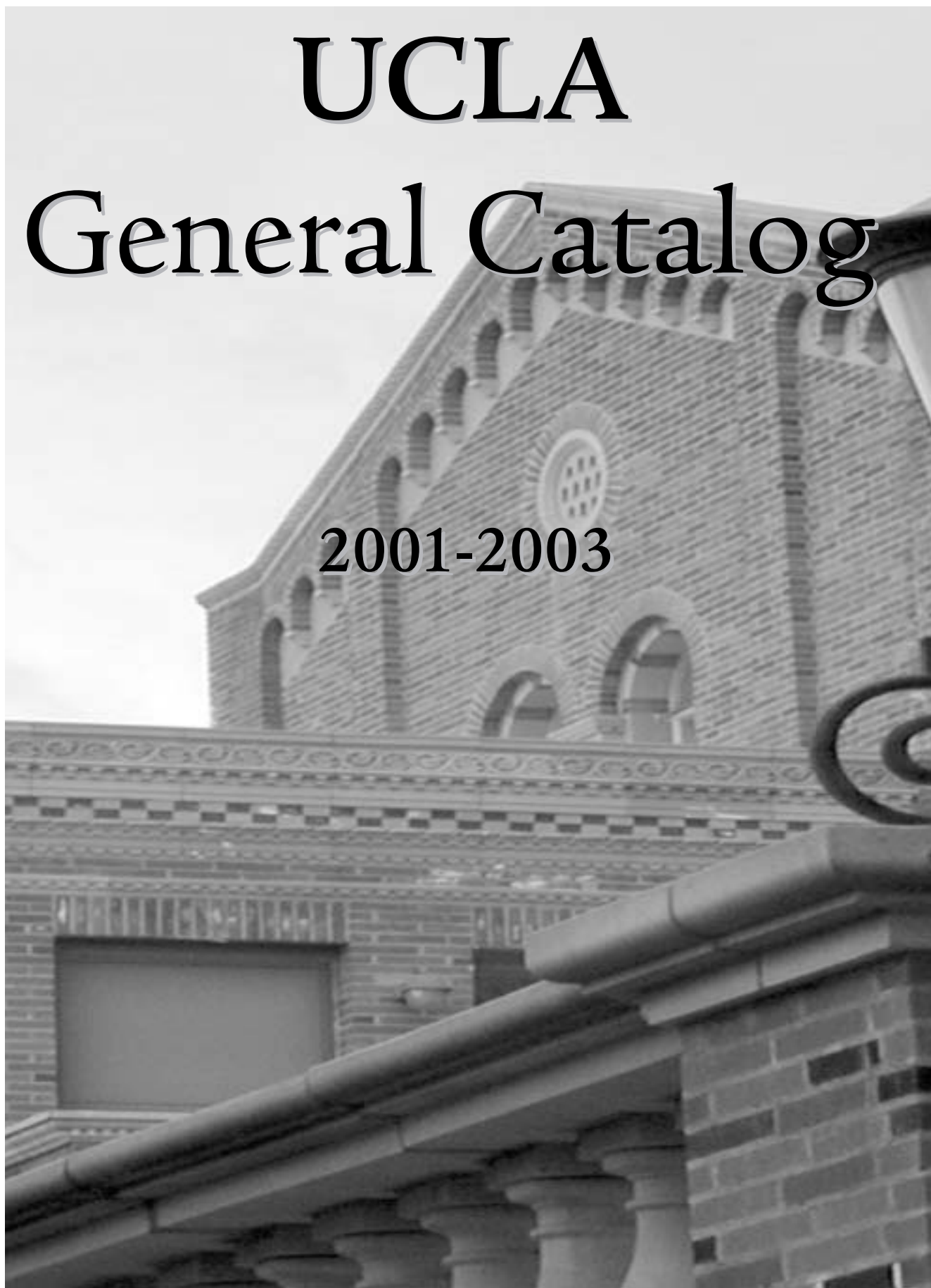
Teaching

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# UCLA General Catalog

2001-2003



## **UCLA® General Catalog**

Associate Registrar/Publications Manager: Anita Cotter

Assistant Registrar/Catalog Editor: Kathleen Copenhaver

Research Analyst and Text Editor: Leann J. Hennig

Layout and Design, Text Editor, Online Design and Production: James Hudgens

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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 Health, and Public Policy and Social Research, 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 online 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 Planning Office Library, Office of Academic Planning and Budget, 2107 Murphy Hall.



# Chancellor's Message

**T**he *UCLA General Catalog* for 2001-03 presents the vast range of instructional offerings at UCLA's College of Letters and Science and 11 professional schools. These pages document the rich comprehensiveness of UCLA, while reflecting the University's commitment to high standards, curricular innovation, and interdisciplinary approaches to learning.

Faculty and students at UCLA come together in a true community of scholars to advance knowledge, address societal challenges, and pursue intellectual and personal fulfillment. Every facet of scholarly life here benefits immeasurably from the instructional process and its intersection with the research enterprise. In addition, public service is an integral part of our mission, and the University is actively engaged with the surrounding region in myriad ways.

Leadership in teaching, research, and public service make UCLA a beacon of excellence in higher education. I encourage you to peruse this volume—both to learn about one of the world's premier academic programs, and to discover the excitement of the intellectually stimulating and diverse university community that is UCLA.

A handwritten signature in cursive script, reading "Albert Carnesale".

Albert Carnesale  
Chancellor

# Table of Contents

## **UCLA MAJORS AND DEGREES . . . . . 6**

- Undergraduate Minors and Specializations . . . . . 8
- Graduate Concurrent and Articulated Degrees . . . . . 8

## **ABOUT UCLA . . . . . 9**

- Life on Campus . . . . . 11
- Research Programs . . . . . 12
- Supporting Resources . . . . . 16
- Supplementary Educational Programs . . . . . 21
- Student Services . . . . . 22
- Student Activities . . . . . 30

## **UNDERGRADUATE STUDY . . . . . 33**

- Undergraduate Admission . . . . . 33
- Registration . . . . . 38
- Financial Support . . . . . 41
- Majors and Degrees . . . . . 43
- Degree Requirements . . . . . 44
- Undergraduate Research . . . . . 46
- Internships and Service . . . . . 46
- Lower Division Programs . . . . . 48
- Advising and Academic Assistance . . . . . 49
- Academic Excellence . . . . . 51

## **GRADUATE STUDY . . . . . 53**

- Graduate Admission . . . . . 53
- Registration . . . . . 57
- Financial Support . . . . . 60
- Degree Requirements . . . . . 61

## **ACADEMIC POLICIES . . . . . 63**

- Academic Credit . . . . . 63
- Grades . . . . . 64
- Absence and Readmission . . . . . 66
- Transcripts and Records . . . . . 67
- Degrees . . . . . 69
- Graduation . . . . . 71

## **COLLEGE AND SCHOOLS . . . . . 73**

- College of Letters and Science . . . . . 73
- Graduate School of Education and Information Studies . . . . . 87
- Henry Samueli School of Engineering and Applied Science . . . . . 89
- John E. Anderson Graduate School of Management . . . . . 96
- School of the Arts and Architecture . . . . . 98
- School of Dentistry . . . . . 106
- School of Law . . . . . 107
- School of Medicine . . . . . 109
- School of Nursing . . . . . 111
- School of Public Health . . . . . 113
- School of Public Policy and Social Research . . . . . 119
- School of Theater, Film, and Television . . . . . 122

## **CURRICULA AND COURSES . . . . . 129**

- African Studies . . . . . 130
- Afro-American Studies . . . . . 132
- American Indian Studies . . . . . 136
- Anesthesiology . . . . . 137
- Anthropology . . . . . 138
- Applied Linguistics and Teaching English as a  
Second Language . . . . . 147
- Archaeology . . . . . 154
- Architecture and Urban Design . . . . . 156
- Art . . . . . 160
- Art History . . . . . 162
- Arts and Architecture . . . . . 167
- Asian American Studies . . . . . 167
- Atmospheric Sciences . . . . . 171
- Biological Chemistry . . . . . 176
- Biology (See Organismic Biology, Ecology, and Evolution)
- Biomathematics . . . . . 178
- Biomedical Engineering . . . . . 181
- Biomedical Physics . . . . . 184
- Biostatistics . . . . . 186
- César E. Chávez Center for Chicana and Chicano Studies . . . . . 189
- Chemical Engineering . . . . . 192
- Chemistry and Biochemistry . . . . . 196
- Chemistry/Materials Science . . . . . 204
- Civil and Environmental Engineering . . . . . 205
- Classics . . . . . 209
- Communication Studies . . . . . 215
- Community Health Sciences . . . . . 218
- Comparative Literature . . . . . 222
- Computer Science . . . . . 228
- Cybernetics . . . . . 234
- Dentistry . . . . . 235
- Design | Media Arts . . . . . 236
- Diversified Liberal Arts . . . . . 239
- Earth and Space Sciences . . . . . 239
- East Asian Languages and Cultures . . . . . 246
- East Asian Studies . . . . . 256
- Economics . . . . . 257
- Education . . . . . 265
- Electrical Engineering . . . . . 274
- Engineering Schoolwide Programs . . . . . 281
- English . . . . . 282
- English Composition (Writing Programs) . . . . . 290
- Environmental Health Sciences . . . . . 291
- Environmental Science and Engineering . . . . . 294
- Epidemiology . . . . . 295
- Ethnomusicology . . . . . 298
- European Studies . . . . . 303
- Family Medicine . . . . . 306
- Film, Television, and Digital Media . . . . . 306
- Folklore and Mythology . . . . . 312
- Foreign Literature in Translation . . . . . 315

French and Francophone Studies . . . . .	316	Obstetrics and Gynecology . . . . .	465
General Education Clusters . . . . .	319	Ophthalmology . . . . .	465
Geography . . . . .	320	Oral Biology . . . . .	465
Germanic Languages . . . . .	326	Organismic Biology, Ecology, and Evolution . . . . .	466
Gerontology . . . . .	331	Organizational Studies . . . . .	474
Health Services . . . . .	331	Orthopaedic Surgery . . . . .	474
History . . . . .	335	Pathology and Laboratory Medicine . . . . .	474
History/Art History . . . . .	345	Pediatrics . . . . .	476
Honors Collegium . . . . .	346	Philosophy . . . . .	476
Human Genetics . . . . .	350	Physics and Astronomy . . . . .	481
Indo-European Studies . . . . .	352	Physiological Science . . . . .	487
Information Studies . . . . .	353	Physiology . . . . .	492
Institute of the Environment . . . . .	357	Policy Studies . . . . .	494
Integrated Manufacturing Engineering . . . . .	359	Political Science . . . . .	498
International Development Studies . . . . .	359	Psychiatry and Biobehavioral Sciences . . . . .	504
International Relations . . . . .	360	Psychology . . . . .	508
Islamic Studies . . . . .	361	Public Health Schoolwide Programs . . . . .	520
Italian . . . . .	363	Public Policy and Social Research Schoolwide Programs . . . . .	523
Labor and Workplace Studies . . . . .	367	Radiation Oncology . . . . .	523
Latin American Studies . . . . .	367	Radiological Sciences . . . . .	523
Law . . . . .	374	Religion, Study of . . . . .	524
Lesbian, Gay, Bisexual, and Transgender Studies . . . . .	376	Romance Linguistics and Literature . . . . .	525
Life Sciences . . . . .	377	ROTC Programs . . . . .	528
Linguistics . . . . .	378	Scandinavian Section . . . . .	531
Management . . . . .	386	Slavic Languages and Literatures . . . . .	533
Materials Science and Engineering . . . . .	396	Social Welfare . . . . .	538
Mathematics . . . . .	399	Sociology . . . . .	542
Mathematics/Economics . . . . .	408	Spanish and Portuguese . . . . .	548
Mechanical and Aerospace Engineering . . . . .	409	Speech . . . . .	554
Medicine . . . . .	416	Statistics . . . . .	554
Microbiology and Immunology . . . . .	417	Surgery . . . . .	557
Microbiology and Molecular Genetics . . . . .	419	Theater . . . . .	557
Molecular and Medical Pharmacology . . . . .	423	Urban Planning . . . . .	566
Molecular Biology . . . . .	424	Urban Studies . . . . .	571
Molecular, Cell, and Developmental Biology . . . . .	426	Urology . . . . .	571
Molecular, Cellular, and Integrative Physiology . . . . .	432	Women's Studies . . . . .	571
Molecular Toxicology . . . . .	433	World Arts and Cultures . . . . .	576
Music . . . . .	434		
Musicology . . . . .	439		
Near Eastern Languages and Cultures . . . . .	442	<b>APPENDICES . . . . . 584</b>	
Near Eastern Studies . . . . .	450	Appendix A: Regulations and Policies . . . . .	584
Neurobiology . . . . .	451	Appendix B: University Administrative Officers . . . . .	593
Neurology . . . . .	453	Appendix C: Endowed Chairs . . . . .	595
Neuroscience, Undergraduate . . . . .	454	Appendix D: Distinguished Teaching Awards . . . . .	596
Neuroscience, Graduate . . . . .	456		
Nursing . . . . .	459	<b>INDEX . . . . . 599</b>	

# UCLA Majors

## 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 . . . . . M.A.

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

**Applied Linguistics and Teaching English as a Second Language Department**  
Applied Linguistics . . . . . C.Phil., Ph.D.  
Applied Linguistics and Teaching English as a Second Language . . . . . M.A.  
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 Interdepartmental Program**  
Asian American Studies . . . . . B.A., M.A.

**Atmospheric Sciences Department**  
Atmospheric, Oceanic, and Environmental Sciences . . . . . B.S.  
Atmospheric Sciences . . M.S., C.Phil., 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.

**César E. Chávez Center for Chicana and Chicano Studies, Center for Interdisciplinary Instruction**  
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 Interdepartmental Program**  
Communication Studies . . . . . B.A.

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

**Cybernetics Interdepartmental Program**  
Cybernetics . . . . . B.S.

**Earth and Space Sciences Department**  
Earth Sciences . . . . . 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 Languages and Cultures Department**  
Asian Humanities . . . . . B.A.

Asian Religions . . . . . B.A.  
Chinese . . . . . B.A.  
East Asian Languages and Cultures . . . . . M.A., C.Phil., Ph.D.  
Japanese . . . . . B.A.  
Korean . . . . . B.A.

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

**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.  
English/Greek . . . . . B.A.  
English/Latin . . . . . B.A.

**European Studies Interdepartmental Program**  
European Studies . . . . . B.A.

**Folklore and Mythology Interdepartmental Program**  
Folklore and Mythology . . . . . M.A., Ph.D.

**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 . . . . . 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.

**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**  
African Languages . . . . . B.A.  
Linguistics . . . . . B.A., M.A., C.Phil., Ph.D.  
Linguistics and Anthropology . . . . . B.A.  
Linguistics and Computer Science . . . . B.A.  
Linguistics and East Asian Languages and Cultures . . . . . 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.  
General Mathematics . . . . . B.S.  
Mathematics . . B.S., M.A., M.A.T., C.Phil., Ph.D.  
Mathematics/Applied Science . . . . . B.S.  
Mathematics of Computation . . . . . B.S.

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

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

**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.

**Near Eastern Studies Interdepartmental Program**  
Near Eastern Studies . . . . . B.A.

**Neuroscience Interdepartmental Program**  
Neuroscience . . . . . B.S.

**Organismic Biology, Ecology, and Evolution Department**  
Biology . . . . . B.S., M.A., C.Phil., Ph.D.  
Ecology, Behavior, and Evolution . . . . B.S.  
Marine Biology . . . . . B.S.  
Plant Biology . . . . . 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.  
General Physics . . . . . B.A.  
Physics . . . . . B.S., M.S., M.A.T., Ph.D.

**Physiological Science Department**  
Physiological Science . . . . . B.S., M.S., Ph.D.

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

# and Degrees

## Psychology Department

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

## Romance Linguistics and Literature

**Interdepartmental Program**  
Romance Linguistics and  
Literature . . . . . M.A., C.Phil., Ph.D.

## Slavic Languages and Literatures Department

Russian Language and Literature . . . . . B.A.  
Russian Studies . . . . . B.A.  
Slavic Languages and  
Literatures . . . . . B.A., M.A., C.Phil., Ph.D.

## Sociology Department

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

## Spanish and Portuguese Department

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

## Statistics Department

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

## Study of Religion Interdepartmental Program

Study of Religion . . . . . B.A.

## Women's Studies Interdepartmental Program

Women's Studies . . . . . B.A., M.A., 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

Library and Information  
Science . . . . . M.L.I.S., Ph.D.

## HENRY SAMUELI SCHOOL OF ENGINEERING AND APPLIED SCIENCE

### Biomedical Engineering Interdepartmental Program

Biomedical Engineering . . . . . M.S., Ph.D.

### Chemical 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., Engr.

### Integrated Manufacturing Engineering Interdepartmental Program

Integrated Manufacturing Engineering . . . . . M.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.S., C.Phil., Ph.D.

## SCHOOL OF THE ARTS AND ARCHITECTURE

### Architecture and Urban Design Department

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.A., M.F.A.

### Ethnomusicology Department

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

### 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.A., 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.

## SCHOOL OF MEDICINE

### Biological Chemistry Department

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

### Biomathematics Department

Biomathematics . . . . . M.S., Ph.D.

### Biomedical Physics Interdepartmental Program

Biomedical Physics . . . . . M.S., Ph.D.

### Human Genetics Department

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

### Microbiology and Immunology Department

Microbiology and Immunology . . . . . M.S., Ph.D.

### Molecular and Medical Pharmacology Department

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

## Neurobiology Department

Anatomy and Cell  
Biology . . . . . M.S., C.Phil., Ph.D.

## Neuroscience Interdepartmental Program

Neuroscience . . . . . Ph.D.

## Pathology and Laboratory Medicine Department

Experimental Pathology . . . . . M.S., Ph.D.

## Physiology Department

Physiology . . . . . M.S., Ph.D.

## SCHOOL OF NURSING

### Nursing Department

Nursing . . . . . B.S., M.S.N., 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 PUBLIC POLICY AND SOCIAL RESEARCH

### Policy Studies Department

Public Policy . . . . . M.P.P.

### Social Welfare Department

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

### Urban Planning Department

Urban Planning . . . . . M.A., Ph.D.

## 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.

### Theater Department

Theater . . . . . B.A., M.A., M.F.A., 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

**College of Letters and Science**

African Studies  
Afro-American Studies  
American Indian Studies  
Anthropology  
Applied Developmental Psychology  
Arabic and Islamic Studies  
Armenian Studies  
Asian American Studies  
Asian Humanities  
Atmospheric and Oceanic Sciences  
Chicana and Chicano Studies  
Classical Civilization  
Cognitive Science  
Comparative Literature  
East Asian Languages  
English  
French  
Geochemistry  
Geography  
Geography/Environmental Studies  
Geology

Geophysics and Planetary Physics  
German  
Germanic Languages  
Gerontology  
Greek  
Hebrew and Jewish Studies  
History of Science and Medicine  
Italian  
Language, Interaction, and Culture  
Latin  
Latin American Studies  
Lesbian, Gay, Bisexual, and Transgender Studies  
Linguistics  
Mathematics  
Museum Studies  
Music History  
Naval Science  
Near Eastern Languages and Cultures  
Neuroscience  
Philosophy  
Political Science  
Portuguese  
Russian Language  
Russian Literature  
Russian Studies  
Scandinavian  
Spanish  
Spanish Linguistics  
Statistics

Teaching English as a Second or Foreign Language  
Women's Studies

**School of Public Policy and Social Research**  
Public Policy

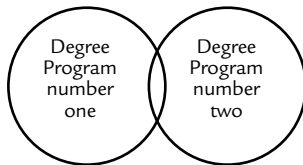
## SPECIALIZATIONS

**College of Letters and Science**

Computing  
Anthropology  
Chemistry  
Cybernetics  
Economics  
Geography  
Linguistics  
Mathematics  
Mathematics/Economics  
Molecular, Cell, and Developmental Biology  
Organismic Biology, Ecology, and Evolution  
Psychology  
Sociology  
Diversified Liberal Arts (Certificate Program)  
International Relations  
Labor and Workplace Studies  
Organizational Studies  
Urban Studies

# Graduate Concurrent and Articulated Degrees

## CONCURRENT DEGREES

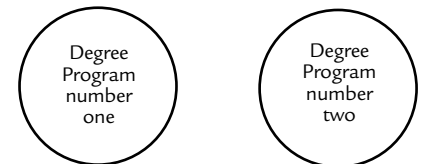


Concurrent degree programs allow students to reduce the number of courses required for two degrees, since some courses may apply to both degrees.

Afro-American Studies, Interdepartmental M.A. — Law, J.D.  
American Indian Studies, Interdepartmental M.A. — Law, J.D.  
Architecture and Urban Design, M.Arch. I — Urban Planning, M.A.  
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.  
History, M.A. — Information Studies, M.L.I.S.  
Islamic Studies, Interdepartmental M.A. — Public Health, M.P.H.  
Latin American Studies, Interdepartmental M.A. — Urban Planning, M.A.

*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.*

## ARTICULATED DEGREES



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

Management, M.B.A. — Computer Science, M.S.  
Management, M.B.A. — Information Studies, M.L.I.S.  
Management, M.B.A. — Latin American Studies, Interdepartmental M.A.  
Management, M.B.A. — Law, J.D.  
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. — Urban Planning, M.A.  
Public Policy, M.P.P. — Law, J.D.  
Social Welfare, M.S.W. — Law, J.D.  
Urban Planning, M.A. — Law, J.D.

African Studies, Interdepartmental M.A. — Public Health, M.P.H.  
Latin American Studies, Interdepartmental M.A. — Education, M.Ed. in Curriculum  
Latin American Studies, Interdepartmental M.A. — Information Studies, 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, 13 UCLA academic departments are ranked among the top 10 in the country and 30 are ranked among the top 20.

Distinguished faculty at UCLA includes 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 Policy and Social Research, and, in the health sciences, the Schools of Dentistry, Medicine, and Public Health.

Undergraduates may earn a Bachelor of Arts or Bachelor of Science degree in one of 118 different disciplines; graduate students may earn one of 89 master's and 110 doctoral and professional degrees.

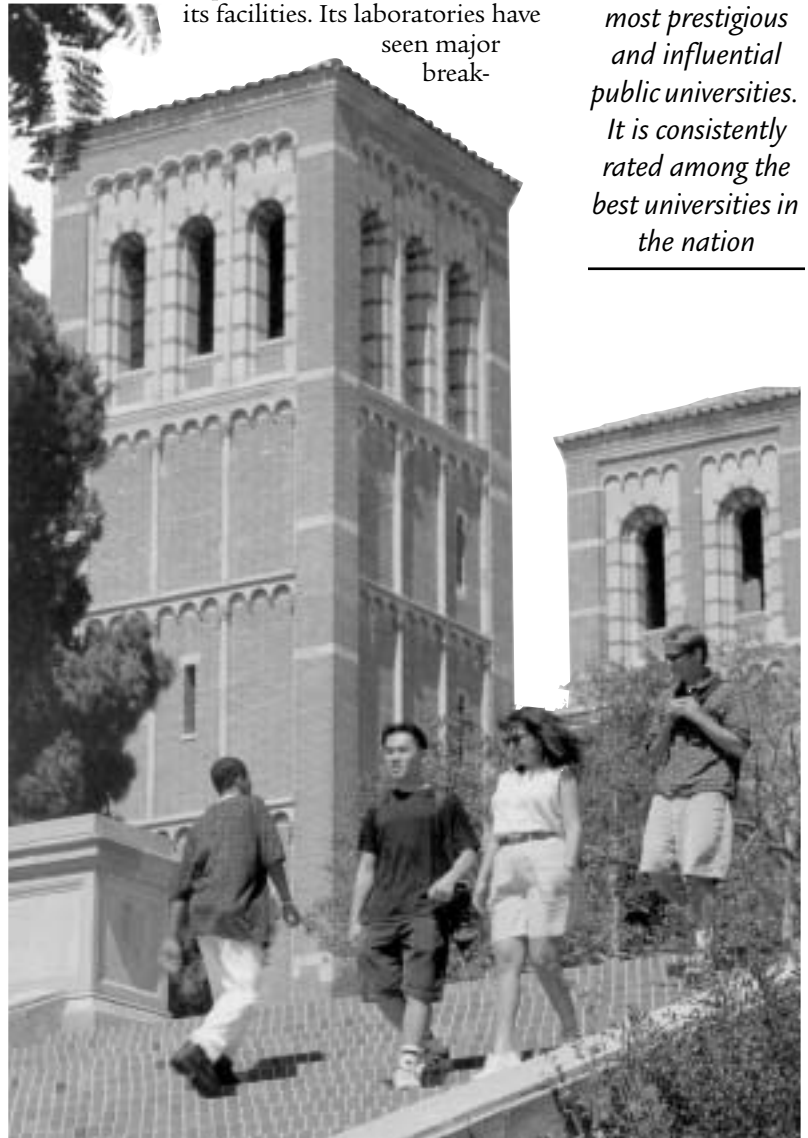
Academic programs undergo continuous review and evaluation to maintain their excellence, and new degree programs are added as they are approved by the Academic Senate or The Regents.

## RESEARCH

Pushing the boundaries of the known, UCLA researchers—faculty 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 a record \$530.5 million in 1999-00 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 break-



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*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*

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*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

**T**he 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 three law schools, as well as schools of architecture, business administration, education, engineering, and many others.

The UC campuses have a combined enrollment exceeding 173,640 students, over 90 percent of them California residents. About one fourth 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 nine 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 nine campuses the University has 20 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, provosts, 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 policy-making at both campuswide and systemwide levels.

## A BRIEF HISTORY OF UCLA

**W**ith 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 715-bed teaching hospital that is now one of the largest and most highly respected in the world.



throughs 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 a new state-of-the-art hospital to open in 2004, UCLA furthers its tradition of medical outreach and assures the highest quality of care to Los Angeles and the world. Low-income families receive top-quality treatment from School of Dentistry clinics on campus, in Venice, or in east Los Angeles. 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 clinic at Skid Row's Union Rescue Mission and its midwifery practice. 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's archives. These relationships create opportunities for partnerships and growth that ensure UCLA's preeminence into 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 291 buildings on 419 acres house the College of Letters and Science plus 11 professional schools and serve more than 36,890 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 Hall, and students contemplating a Rodin or Lachaise in the 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.saonet.ucla.edu/uars/prospect/tours.htm>. ☎310-825-8764

The Campus Visits Program, sponsored by the UCLA Alumni Association, arranges individual and group tours throughout the year for everyone else. Reservations are required. ☎310-206-0616

## A LARGE CAMPUS WITH A COMFORTABLE FEEL

The general campus population, some 33,093 students, is enriched by an additional 3,797 in the health sciences schools of Dentistry, Medicine, Nursing, and Public Health. While such numbers sound daunting, the University provides orienta-



tion 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 2000-01 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 18 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 2000 entering freshman class had an average high school GPA of 4.05, with an average composite score on the Scholastic Assessment Test (SAT) of 1,277 out of a possible 1,600.

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 more than 120 foreign countries to study at UCLA. Ethnic minorities comprise 59.5 percent of the undergraduates and 41.9 percent of the graduate student population, and international students and scholars presently number over 3,300, making this one of the most popular American universities for students from abroad.



## 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/oru.htm>.

### 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 more than 200 scientists involved in every aspect of research on the nervous system 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. ☎310-825-1868

#### Center for Medieval and Renaissance Studies

The Center for Medieval and Renaissance Studies supports the research activities of some 20 academic departments 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. ☎310-825-1880

#### 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. ☎310-206-8552

The center helps administer the William Andrews Clark Memorial Library, located about 10 miles from UCLA, which specializes in seventeenth- and eighteenth-century British works. It also has a renowned collection centering on Oscar Wilde and his

*The Clark Library's renowned collection*

*centers on Oscar Wilde and his era*



*The Center for 17th- and 18th-Century Studies sponsors innovative research and cultural programs*



*The Dental Research Institute promotes training as it focuses on disease in the orofacial region*



era and significant holdings of modern fine printing and Western Americana. ☎323-731-8529

### Center for the Study of Women

The Center for the Study of Women draws on the energies of more than 240 faculty 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. ☎310-825-0590

### Cotsen Institute of Archaeology

The Cotsen Institute of Archaeology studies and seeks to understand the 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 40 researchers and many graduate students and volunteers in 10 associated academic departments. Facilities include the Information Center (regional office of the California Archaeological Inventory), Ceramics Laboratory, Computer Imaging of Archaeological Data, Obsidian Hydration and Lithics Analysis Laboratory, Paleoethnobotany Laboratory, Rock Art Archive, 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. ☎310-206-8934

### Crump Institute for Molecular Imaging

The Crump Institute for Molecular Imaging 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 which include the development of multimedia computer-based learning technologies. ☎310-825-6539

### 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. ☎310-206-8045

### Institute of American Cultures

The Institute of American Cultures 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. ☎310-206-2557

### Center for African American Studies

The 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. ☎310-825-7403

### American Indian Studies Center

The American Indian Studies Center serves as an educational and research catalyst and includes a library, master's and postdoctoral fellowship programs, a publishing unit that produces books and a quarterly journal, and a student/community relations unit. ☎310-825-7315

### Asian American Studies Center

The Asian American Studies Center seeks to increase the knowledge and understanding of the experiences of Asian Pacific 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, postdoctoral fellowships, and B.A., undergraduate minor, and master's programs. ☎310-825-2974

### Chicano Studies Research Center

The Chicano Studies Research Center 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. ☎310-825-2363



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*The Crump Institute uses imaging technologies to collect and analyze biological data*



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

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## Institute of Geophysics and Planetary Physics

The Institute of Geophysics and Planetary Physics is a multicampus research unit of the University of



*The African Studies Center is one of the major inter-disciplinary centers for African studies in the U.S.*



*The Near Eastern Studies center includes the richest variety of Near and Middle Eastern studies courses in the Western Hemisphere*



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, mete-

oritics, 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. ☎310-825-1580

## Institute of Industrial Relations

The interdisciplinary research program of the Institute of Industrial Relations 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. ☎310-794-5957

## Institute of Plasma and Fusion Research

The Institute of Plasma and Fusion Research is dedicated to research of plasma physics, fusion energy, and the application of plasmas in other disciplines. Students, professional research staff, and faculty 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 development, 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. ☎310-825-1642

## Institute for Social Science Research

The Institute for Social Science Research promotes interdisciplinary research on contemporary sociological, psychological, political, and economic problems and community issues. Research components include the Center for American Politics and Public Policy, Center for the Study of Urban Pov-

erty, Center for the Study of Society and Politics, Center for Social Theory and Comparative History, Survey Research Center, Social Science Data Archive, and Organizational Research Program. Training in survey research methodology is available to students through participation in the annual Los Angeles County Social Survey. The institute publishes the *ISSR Working Papers in the Social Sciences*. ☎310-825-0711

## International Studies and Overseas Programs

International Studies and Overseas Programs oversees four study centers that are designated ORUs.

### African Studies Center

The James S. Coleman African Studies Center 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 Health, Public Policy and Social Research, 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. ☎310-825-3686

### Center for European and Russian Studies

The Center for European and Russian Studies 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. ☎310-825-4060

### Center for Near Eastern Studies

The von Grunebaum Center for Near Eastern Studies coordinates research and academic programs related to the Near East. It administers the degree programs in Near Eastern Studies and 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. ☎310-825-1181

### Latin American Center

The Latin American Center is a major regional, national, and international resource on Latin America and hemispheric issues. The center sponsors and coordinates research, academic and public programs, 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 center promotes the use of UCLA Latin American resources for the benefit of the campus, the broader community, and the public at large. ☎310-825-4571

### Jules Stein Eye Institute

The Jules Stein Eye Institute is one of the best equipped centers for research and treatment of eye diseases in the world. This comprehensive facility is devoted to the study of vision, the care of patients with eye disease, and education in the broad field of ophthalmology. Outpatient, inpatient, and surgical facilities are provided. ☎310-825-5000

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

### Molecular Biology Institute

The Molecular Biology Institute (MBI) promotes molecular biology research and teaching at UCLA. The institute houses the laboratories of 30 MBI members, as well as the administration of the Molecular Biology Interdepartmental Ph.D. Program, the UCLA-DOE Laboratory of Structural Biology and Laboratory Medicine, and the UCLA ACCESS to Programs in the Molecular, Cellular, and Integrative Life Sciences. ☎310-825-1018

### Neuropsychiatric Institute

The Neuropsychiatric Institute and affiliated units—including the Neuropsychiatric Hospital, the Department of Psychiatry and Biobehavioral Sciences, and one organized research unit, the Mental Retardation Research Center—provide UCLA's leadership in the study and treatment of disorders of human behavior, the brain, and the mind.

### Mental Retardation Research Center

The Mental Retardation Research Center provides laboratories and clinical facilities for research and training in mental retardation and related aspects of human development. Interdisciplinary activities range from anthropological studies to molecular aspects of inherited metabolic diseases. ☎310-825-5189

### UCLA-DOE Laboratory of Structural Biology and Molecular Medicine

The UCLA-DOE Laboratory of Structural Biology and Molecular Medicine, 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. ☎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—which is developing new strategies for Mars exploration—and the Jonsson Comprehensive Cancer Center—one of only 38 comprehensive centers in the nation.

Interdisciplinary activities in the social sciences include the nationally respected Business Forecasting Project in UCLA's John E. Anderson Graduate School of Management and the Center for the Study of Evaluation in the Graduate School of Education and Information Studies, which is at the forefront of efforts to improve the quality of schooling in America.

In the health sciences, research ranges from neurological and neuromuscular diseases at the Reed Neurological Research Center to epidemiology, immunology, and the clinical management of AIDS at the UCLA AIDS Institute and the Center for Clinical AIDS Research and Education. The Fernald 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 Center for Clean Technology in the Henry Samueli School of Engineering and Applied Science fosters research on the interaction between technology and the environment, focusing on pollution prevention and control. On other frontiers, an Artificial Intelligence Laboratory designed exclusively for research in this burgeoning field operates under the wing of the Computer Science Department.

The Center for the Study of Urban Poverty initiates new research on issues related to urban poverty and sponsors seminars in the field. The Center for Communication Policy is a national leader in communications public policy issues such as technological innovations in telecommunications and the social and political impact of these changes.




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



*At any given time, over 5,000 funded research programs are in progress at UCLA. Campus research centers, laboratories and Institutes are listed at [www.research.ucla.edu/oru.htm](http://www.research.ucla.edu/oru.htm)*

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## 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 of Cultural History

The Fowler Museum of Cultural History 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, Oceania, and Latin America. 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.fmch.ucla.edu>. ☎310-825-4361

#### Grunewald Center for the Graphic Arts

Housed in the UCLA Hammer Museum, the Grunewald Center for the Graphic Arts holds a distinguished collection of over 45,000 prints, drawings, and photographs, 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. ☎310-443-7078

#### 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, Lachaise, Lipchitz, Moore, Miro, Hepworth, 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. ☎310-443-7000

#### 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 "Dialogues on Art," are presented throughout the week. For information on programming, hours, and docent tours, see <http://www.hammer.ucla.edu>. ☎310-443-7000

#### Wight Art Building

The Wight Art Building, located in the Dickson Art Center on north campus, includes exhibition space of 6,000 square feet dedicated to campus exhibitions and student-organized programs. ☎310-206-6467

### LIBRARIES

The UCLA Library, a campuswide network of libraries serving programs of study and research in many fields, is among the top ten ranked research libraries in the U.S. The total collections number more than 7.4 million volumes, and more than 90,000 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. ORION2 contains records for all UCLA Library holdings and other campus collections, including the Research and Study Center of the Film and Television Archive, Chicano Studies Research Center Library, Ethnomusicology Archive, Institute for Social Science Research Data Archives Library, and Instructional Media Library. ORION2 also provides library item location and circulation status.

The California Digital Library, a library for the entire University of California system, provides access to the Melvyl Catalog, the California Periodicals Database, numerous abstracting and indexing databases, and gateways to other systems. The Melvyl Catalog contains information on library holdings at all nine 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.

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*The Center for Graphic Arts holds a distinguished collection of over 45,000 prints, drawings, and photographs and artists' books from the Renaissance to the present*

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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 Dickson Art Center, the Arts Library collects material on architecture, art history, design, film, television, history of architecture, 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. Arts Special Collections, housed in the Young Research Library, contain noncirculating materials, including the Princeton Index of Christian Art, 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>.

### Charles E. Young Research Library

The Young Research Library primarily serves graduate research in the humanities, social sciences, education, public policy, and urban planning. 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 and social sciences, 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/url>.

### 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>.

### Eugene and Maxine Rosenfeld Management Library

Located in the John E. Anderson Graduate School of Management complex, the 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/resources/library>.

### Hugh and Hazel Darling Law Library

The 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 foreign and comparative law holdings. The Law Library reports to the dean of the School of Law. See <http://www.law.ucla.edu/Library>.

### Louise M. Darling Biomedical Library

The 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. See <http://www.library.ucla.edu/libraries/biomed>.

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

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## Music Library

The collections of the Music Library in the Schoenberg Music Building include books, music scores, 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. Music 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; it also houses the Archive of Popular American Music, a special collection of published and manuscript sheet music, recordings, and related materials. See <http://www.library.ucla.edu/libraries/music>.



### Richard C. Rudolph East Asian Library

Located in the Young Research Library, the East Asian Library collects Chinese, Japanese, and Korean vernacular-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>.

*Music Special Collections include rare books, scores, and opera librettos*

## Science and Engineering Library

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

## SPECIAL ARCHIVES AND COLLECTIONS

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

### Cultural Center Collections

The Center for African American Studies Library contains materials reflecting the African American experience in the social sciences, arts, and humanities. The American Indian Studies Center Library 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 features Asian and Pacific American resources.

Materials related to Chicano and Latino cultures are housed in the Chicano Studies Research Center Library, and the Clark Memorial Library contains rare books, manuscripts, and other noncirculating materials on English culture (1640 to 1750). The English Reading Room features a noncirculating collection of English and American literature, literary history, and criticism.

### Instructional Media Library

The Instructional Media Library, located in Powell Library, 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. The library monitors compliance with University guidelines and federal copyright law governing the use of video recordings. Reference books from educational and feature film distributors are available. The staff assists in researching media on any subject and obtaining materials from outside sources. See <http://www.oid.ucla.edu/Imlib>. ☎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/Imlab>. ☎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 original film and television materials serve both the UCLA community and national and international constituencies.

The Motion Picture Collection, with more than 37,000 films, is the country's largest collection after the Library of Congress. Among its outstand-



ing collections are 27 million feet of Hearst Metro-tone News film dating back to 1919. Other noteworthy holdings include studio print libraries from Twentieth Century-Fox, Paramount Pictures, Warner Brothers, Columbia Studios, New World Pictures, Universal Studios, and Orion. Special collections document the careers of William Wyler, Hal Ashby, Tony Curtis, Rosalind Russell, Stanley Kramer, Cecil B. DeMille, Harold Lloyd, 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 35,000 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>. ☎310-206-FILM

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

### Other Collections

The Ethnomusicology Archive houses sound recordings of folk, ethnic, and non-Western classical music, while the Institute for Social Science Research Data Archive Library contains a collection of statistical databases for the social sciences. The Seeds University Elementary School 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 and students in pursuit of their research and instructional goals, and leverage the volume purchasing power of the

University. See <http://www.ats.ucla.edu>. ☎310-825-6635

Training and consulting services include classes in statistical applications, high-performance computing, and scientific visualization. See <http://www.ats.ucla.edu/stat/training.htm>. ☎310-825-7431

Access to over 300 online training courses in topics ranging from basic word processing to programming and local area network management is also available. See <http://computer-training.ucla.edu>.

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.ats.ucla.edu/software>. ☎310-206-4780



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### Advanced Technologies

Advanced Technologies offers integrated services to faculty. 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 UCLA's SP/Cluster Program, 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/at>. ☎310-825-7426

### 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>. ☎310-206-7133

### Student Computer Laboratories

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

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*The UCLA  
Film and  
Television  
Archive is the  
world's largest  
university-  
based  
collection of  
motion  
pictures and  
broadcast  
programming*

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## 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 Organismic Biology, Ecology, and Evolution 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.obee.ucla.edu.dickey>. ☎310-206-6084

### 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>. ☎310-825-7281

### 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.japanesegarden.ucla.edu>. ☎310-825-4574

### Marine Science Center

The Marine Science Center coordinates marine-related teaching and research on campus and facilitates interdepartmental interaction of faculty 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>. ☎310-206-8247

### Mathias Botanical Garden

The Mathias Botanical Garden is a living museum with one of the most important botanical collections in the United States. 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>. ☎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 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, Geography, Organismic Biology, Ecology, and Evolution, and Physics and Astronomy, and the Institute of the Environment utilize Stunt Ranch and other NRS sites. See <http://nrs.ucop.edu/reserves/Stunt.html>. ☎310-206-3887

### UCLA Ocean Discovery Center

The UCLA Ocean Discovery Center at the Santa Monica Pier is a marine science learning center serving K-12 classes from schools in the greater Los Angeles area. Interactive lessons and activities introduce students to the basic concepts of marine environmental studies, marine biology, oceanography, and meteorology. The center is also open to the public, using the same conceptual approach to teach visitors about their connections to Santa Monica Bay and the world ocean. See <http://www.odc.ucla.edu>. ☎310-393-6149



# SUPPLEMENTARY EDUCATIONAL PROGRAMS

In addition to the regular academic programs that are described in the Curricula and Courses section of this catalog, the following optional programs are available to UCLA's undergraduate and graduate students.

## EDUCATION ABROAD PROGRAM

Each year more than 1,700 undergraduate and graduate students from UC campuses study at distinguished universities throughout the world through the Education Abroad Program (EAP). UCLA students remain registered here while overseas and receive UC units and grade points for work completed abroad.

Currently, EAP offers study opportunities at more than 100 different universities in 34 countries: Australia, Austria, Barbados, Brazil, Canada, Chile, China, Costa Rica, Denmark, Egypt, France, Germany, Ghana, Hong Kong, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Philippines, Russia, Singapore, South Africa, Spain, Sweden, Taiwan, Thailand, Turkey, United Kingdom, and Vietnam.

Participants can spend up to a full academic year abroad, enjoying a unique opportunity to enhance language skills, take courses in their major, and become involved in the culture of the host country. One-term programs are available in Austria, Barbados, Brazil, Canada, Chile, China, Costa Rica, Denmark, France, Germany, Hong Kong, Hungary, India, Indonesia, Israel, Italy, Japan, Korea, Mexico, Netherlands, Russia, Singapore, Spain, Sweden, Taiwan, and Thailand. Summer programs are offered in Denmark and Mexico. In Costa Rica there is a one-term tropical biology field study program, and field study programs are available in Mexico.

For all programs a special orientation program and, when necessary, intensive language training are included. During the year UC faculty members at the host university assist with scholastic or personal problems.

EAP is open to all undergraduate students who have (1) at least a B average (3.0 GPA) overall at the time of application and (2) the support of the UCLA EAP Selection Committee. Some programs have a language requirement as well. Most programs require junior standing (90 units minimum) at departure; seniors and transfer students are welcome.

Graduate students who have completed at least one year of graduate work and have the approval of their graduate adviser and the dean of the

Graduate Division may participate at most study centers.

Costs for participation in EAP vary, but University financial aid and special EAP scholarships are available to those who qualify. Applications must be filed several months in advance. See <http://www.isop.ucla.edu/eap>. ☎310-825-4995

## SUMMER SESSIONS

Throughout the summer, UCLA offers more than 500 courses from approximately 60 UCLA departments in six-, eight-, nine-, and 10-week sessions. 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.

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 the 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 the 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. Registra-



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*Each year  
more than  
1,700  
undergraduate  
and graduate  
students from  
UC campuses  
study at  
distinguished  
universities  
throughout the  
world through  
the Education  
Abroad  
Program*

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tion information is available in 1147 Murphy Hall. See <http://www.summer.ucla.edu>. ☎310-794-8333

## UCLA EXTENSION

With over 100,000 adult student enrollments each year, UCLA Extension is one of the largest




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*Student computer laboratories are available throughout the campus, each with hardware, peripherals, software, and services that cater to specific areas of study*

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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. See <http://www.unex.ucla.edu>. ☎310-206-6201

To obtain the current *UCLA Extension Catalog*, contact the Registration Office. ☎310-825-9971

## 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 online *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, an e-mail account, and space for personal webpages. BOL internet access software is available at the UCLA Store and can be downloaded from the BOL site. See <http://www.bol.ucla.edu>. ☎310-825-7452

#### Computer Laboratories

Student laboratories are supported through the Academic Technology Services (ATS) Commons Laboratory and the College Library Instructional Computing Commons (CLICC), a collaborative effort between ATS, Humanities Computing, Social Sciences Computing, the Office of Instructional Development, and College Library. Some 16 computer laboratories are available throughout the campus, each with computers, peripherals, software, and services that cater to specific areas of study. See <http://computerlabs.ucla.edu>. ☎310-206-0271



## Course Web Pages

The Instructional Enhancement Initiative, which was launched by the College of Letters and Science, assures that all Letters and Science undergraduate courses, except independent studies and other similar courses, provide an individual course website for faculty, 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.uclastore.ucla.edu/textbooks/lecturenotes>. ☎310-206-0882

Academic Publishing provides custom course readers, obtaining 5,000 copyright authorizations each year. See <http://www.uclastore.ucla.edu/textbooks/ap>. ☎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; 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 email 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>.

## 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 1 a.m. Tuesday and Tuesday through Saturday from 6 a.m. to 1 a.m., including holidays. See <http://www.ursa.ucla.edu>. ☎310-208-0425

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 OnLine 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, provides information for veterans and eligible dependents about veterans' educational benefits and tutorial assistance; 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

### Ashe Student Health and Wellness Center

The Arthur Ashe Student Health and Wellness Center in Westwood Plaza is an outpatient clinic for UCLA students. Most services are prepaid by registration fees, and a current BruinCard is required for service. Core (prepaid) services include visits, most procedures, X rays, and most 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. ☎310-825-4073

The cost of services received outside the Ashe Center, such as the Emergency Room, is each student's financial responsibility. Students are required to purchase supplemental medical insurance either through the UCLA-sponsored Medical Insurance Plan or other plans that provide adequate coverage.

Consult the Ashe Center site 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 or UCLA Family Practice on a fee-for-service basis.

UCLA provides a student Medical Insurance Plan to cover services not offered at the Ashe Center. Adequate medical insurance is a condition of registration. See Registration in the Undergraduate Study and Graduate Study sections of this catalog.





## Mental Health Services

Services for mental health range from routine counseling and psychotherapy to a phone hot line.

### Student Psychological Services

Student Psychological Services offers short-term personal counsel and psychotherapy at two locations: the Mid-Campus Office in 4223 Math Sciences (☎310-825-0768) and the South Campus Office in A3-062 CHS (☎310-825-7985).

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.

Service is confidential and free to regularly enrolled students. Students are seen individually by appointment or may choose from a number of groups. Emergency counseling is also available. See <http://www.saonet.ucla.edu/sps.htm>.

SPS 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).

### UCLA Peer Helpline

UCLA Peer Helpline is a crisis intervention and referral hot line staffed by UCLA students and staff members. Students can call and talk to a trained peer counselor about school stress, relationship problems, loneliness, depression, drug problems, suicide, or anything else that is on their mind. See <http://www.ucla.edu/emergency/helpline.html>. ☎310-825-HELP

### 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>. ☎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 and local living areas or Westwood Village. ☎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 32, campus libraries, and residence halls. ☎310-825-9800

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. ☎310-206-8240

Cardiopulmonary resuscitation (CPR) and basic emergency care courses are offered by the Center for Prehospital Care and can be organized most days and times. ☎310-794-8797

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>. ☎310-825-5689

### UCLA Emergency Numbers

Police, Fire, or Medical Emergency	911
UCLA Police Department (24 hours)	(310) 825-1491
UCLA Emergency Medical Center (24 hours)	(310) 825-2111
Campus Escort Service (dusk to 1 a.m.)	(310) 794-WALK
Helpline (Monday through Thurs- day 5 p.m. to midnight, Fri- day through Sunday 8 p.m. to midnight)	(310) 825-HELP

## ASSOCIATED STUDENT SERVICES

Founded when UCLA opened in 1919, the Associated Students UCLA provides services to the campus community through student government, publications, 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 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>. ☎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 Union of Students with Disabilities. See <http://students.asu-cla.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.asu-cla.ucla.edu/CEC>. ☎310-825-1958

The Cultural Affairs Commission sponsors WorldFest, a celebration of campus diversity, and the Jazz/Reggae Festival. ☎310-825-6564

## Publications and Broadcast Media

Publications and media provide a training ground for aspiring writers, journalists, photographers, and radio announcers while serving the communication needs of the campus community. Most publications offices are in Kerckhoff Hall.

### Daily Bruin

The *Daily Bruin*, with a circulation of 20,000, 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, design-

ers, photographers, and advertising sales representatives; new staff members are welcome. See <http://www.dailybruin.ucla.edu>. ☎310-825-9898

### Newsmagazines

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

### UCLA Yearbook

The UCLA yearbook, *BruinLife*, is one of the largest student publication efforts on campus. Available each spring, it contains photographs and information on undergraduate students, graduating seniors, athletic teams, fraternities and sororities, and campus activities. A separate publication, the *Freshman Record*, is produced for new UCLA students. Students who would like to participate may contact the yearbook staff. ☎310-825-2640



### KLA Radio

The UCLA radio station, KLA Radio, provides music, news, public service programming, and sports coverage during the academic year. Studios are in Ackerman Union; all positions, including on-air, news staff, and advertising representatives, are open to students. ☎310-825-9105

### UCLA Restaurants

ASUCLA operates more than a dozen restaurants and three coffee houses on campus assuring a range of eating options from Taco Bell 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.uclastore.ucla.edu/information/restaurant.html>.

### 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.ucla.edu>.

The UCLA Store-Ackerman Union has seven departments. The Textbooks department carries required and recommended texts for most under-

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*With a circulation of 20,000, the Daily Bruin is one of the largest daily newspapers in Los Angeles*

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graduate 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. BearWear specializes in UCLA emblematic merchandise. Fast Track carries active footwear and sportswear for men and women, plus an extensive Clinique counter. Market is a convenience store, with snacks, health and beauty aids, and cut flowers. ☎310-825-7711




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*New freshman and transfer students who are admitted for Fall Quarter and apply for on-campus housing by the stated deadline are guaranteed University housing*

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UCLA Store–Health Sciences (☎310-825-7721) specializes in books and supplies for students in dentistry, medicine, 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, film, 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 copy centers and a post office to a hair salon. Most are located in Ackerman Union.



Students preparing to graduate can use the Campus Photo Studio for their senior yearbook portraits. Graduation Etc. sells and rents caps, gowns, and hoods for degree ceremonies and provides announcements, diploma mounting, and other graduation-related products and services. ☎310-825-2587

On the lighter side, ASUCLA operates a game room called Xcape with pinball, video, and electronic games. ☎310-206-0829

## 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* booklet is mailed to all students when they are accepted for admission. It contains a campus housing application plus details of all residence options and is the best guide for finding the right kind of accommodation for different lifestyles and budgets. See <http://www.housing.ucla.edu>. ☎310-825-4271

### 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 two village-type complexes accommodate nearly 6,700 undergraduates. Four more residential houses accommodate 160 transfer and upper division students. All on-campus housing is coed and within walking distance to classrooms.

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 completed application must be postmarked by the deadlines set by the housing office. Students applying for Winter or Spring Quarter are assigned on a space-available basis in the order applications are received. See [http://www.housing.ucla.edu/housing\\_site/oncampus/index.htm](http://www.housing.ucla.edu/housing_site/oncampus/index.htm).

Per-person costs for the academic year start at just under \$6,900. Consult the housing office for the range of price options. See [http://www.housing.ucla.edu/housing\\_site/oncampus/rates.htm](http://www.housing.ucla.edu/housing_site/oncampus/rates.htm)

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>. ☎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

The UCLA Community Housing Office provides information and listings for University-owned apartments, cooperatives, private apartments, roommates, rooms in private homes, and short-term housing. Rental listings are updated daily. Fraternity and sorority housing provides another option for members of the Greek system.

Within walking distance of campus, the University maintains five off-campus apartment buildings for full-time undergraduate 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://www.housing.ucla.edu/housing\\_site/apartments/undergrad.htm](http://www.housing.ucla.edu/housing_site/apartments/undergrad.htm). ☎310-825-4271

Off-campus apartments for married, single-parent, and single graduate students include unfurnished one-, two-, and three-bedroom units 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 the application. See [http://www.housing.ucla.edu/housing\\_site/apartments/UASouth.htm](http://www.housing.ucla.edu/housing_site/apartments/UASouth.htm). ☎310-398-4692

Many of the 41 fraternities and sororities at UCLA own chapter houses. Complete information and membership requirements is provided by Fraternity and Sorority Relations. See <http://www.greek-life.ucla.edu/housing.htm>. ☎310-825-6322

The Community Housing Office 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/housing/cho.htm>. ☎310-825-4491

## Banking

Automatic Teller Machines representing most major banks are located in Ackerman Union and near restaurants and shops around campus.

Students at UCLA may join the Westwood Student Federal Credit Union, which has an office in Kerckhoff Hall. See <http://www.fffcu.org>.

The University Credit Union has an office in Westwood Village and a branch office in Ackerman Union. See <http://www.ucu.org>.

## Campus Ombuds Office

The Campus Ombuds Office 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 Ombuds Office is in the Strathmore Building. See <http://www.saonet.ucla.edu/ombuds>. ☎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).

## Center for Women and Men

The Center for Women and Men offers services to all UCLA students, with special focus on gender related issues and concerns and reentry/nontraditional student services.

The center presents workshops and support groups on topics such as assertiveness training, child care, career and leadership development, healthy relationships, mentorship for women in the sciences, men's issues, returning to school, single parenting, sexual violence prevention and education, and health and wellness. It also offers referrals for medical, legal, career planning, personal counseling, and other services both on and off campus. 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.

The center is a designated Sexual Harassment Information Center and campus Harassment Information Center available to all UCLA students. See <http://www.thecenter.ucla.edu>.



## Central Ticket Office

Tickets for UCLA events are available at the Central Ticket Office (CTO) in the 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.cto.ucla.edu>. ☎310-825-2101



## Child Care

UCLA Child Care Services operates three child care centers near the University and student housing. Care is provided for children two months to five years old at most centers. Fees range depending on the age of the child, the site, and schedule selected. A limited number of state grants is available for eligible student families. See <http://www.child-care.ucla.edu>. ☎310-825-5086

The Outreach Program helps parents make off-campus child care arrangements and coordinates a Choosing Child Care Forum each month. ☎310-825-8474

The *Working Parents Newsletter* addresses issues of concern to working parents and is available through department subscription. ☎310-206-3078

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*The UCLA Central Ticket Office offers student discount tickets to campus athletic and cultural events and local movies*

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The University Parents Nursery School is a multi-cultural cooperative school for two- to five-year-old children of UCLA students, faculty, and staff; priority is given to students living in Family Student Housing. Hours are weekdays 7:30 a.m. to 5:30 p.m. There is also a morning and an afternoon program. The nursery school is located in the UCLA University Village Child Care Complex, 3233 South Sepulveda Boulevard. ☎310-397-2735

### Dean of Students

The Office of the Dean of Students 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>. ☎310-825-3871

### 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 allows them to share viewpoints with American students and the community. See <http://www.intl.ucla.edu>. ☎310-825-1681

### Office of International Students and Scholars

The Office of International Students and Scholars (OISS) assists students with questions about immigration, employment, government regulations, financial aid, academic and administrative procedures, cultural adjustment, and personal matters. OISS is a designated Sexual Harassment Information Center for international students and a Harassment Information Center available to all UCLA students. In addition, OISS provides visa assistance for faculty researchers and postdoctoral scholars.

### Dashew International Student Center

The Dashew International Student Center seeks to improve student and community relationships and

helps international students with language, housing, and personal concerns. It also sponsors cultural, educational, and social programs.

### Lesbian, Gay, Bisexual, and Transgender Resource Center

The Lesbian, Gay, Bisexual, and Transgender (LGBT) Resource Center provides education, information, and advocacy services for the UCLA community. The center offers support groups, educational workshops, and training seminars and maintains a small library of books and periodicals. The staff provides confidential assistance and support to students, faculty, and staff who feel they have experienced harassment or discrimination or who wish to connect to the campus LGBT community. See <http://www.lgbt.ucla.edu>.

### 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 and the Americans with Disabilities Act of 1990. Free support services include readers, note takers, sign language interpreters, Learning Disabilities Program, special parking, registration assistance, fee deferments authorized by the California Department of Rehabilitation, on-campus transportation, campus orientation and accessibility, proctor and test-taking arrangements, tutorial referral, housing assistance, support groups, workshops, special materials, adaptive equipment, and referral to the Disabilities and Computing Program. Accommodations are varied and specifically designed to meet the documented disability-related needs of each student. All contact and assistance are confidential. See <http://www.saonet.ucla.edu/osd>. ☎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.

### 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 Assistance-Ridesharing (CAR) Office is the best place for information on transportation options. Many students form or join existing UCLA carpools or vanpools. More than 130 vanpools commute to UCLA from nearly 80 southern California communities. Full- and part-time riding opportunities are available, and regis-



tered two- and three-person student carpools are given top priority to receive parking (see below).

These and other commuting options, including an extensive network of public transit, are described in the *UCLA Commuter Guide* available at Parking Services in the Strathmore Building at Strathmore Place and Westwood Plaza. See <http://www.transportation.ucla.edu>. ☎310-794-RIDE

### 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, previous attendance, 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 and ask for a free Ride-Guide. All members of a proposed student carpool must apply in person as a group. ☎310-825-3681

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 quarter.

Student Parking Request forms, along with important quarterly due dates and information on how to apply for a parking permit, are available by phone or in person at Parking Services. Parking request forms can also be downloaded at <http://www.transportation.ucla.edu>. ☎310-825-9871

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. ☎310-267-2004

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, Documentation, and Distribution Services, which offers full-

service document processing and delivery for the campus community. See <http://www.mail-doc.ucla.edu>. ☎310-794-6371

The United States Postal Service also operates two express post offices for the campus, including a branch in Ackerman Union.

### Student Legal Services

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



### UCLA Alumni Association

Celebrating more than 65 years of serving the UCLA community, the UCLA Alumni Association has nearly 75,000 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 Bruin Fest, Spring Sing, class reunions, 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 West Alumni Center on Westwood Plaza. See <http://www.uclalumni.net>. ☎310-825-ALUM or, outside Los Angeles County, 800-825-ALUM

### UCLA 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 follow-



ing functions: confirmation of student status; I.D. card for faculty, staff, and students; residence halls access card; library card; recreation card; debit card (if activated) for purchases at all campus stores and restaurants; AT&T Calling Card (if this feature is elected); and time-management card for departments using the Kronos system.

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 with URSA.

BruinCard centers are in 123 Kerckhoff Hall, 107 UCLA Wilshire Center, and 150A Sproul Hall. See <http://www.bruincard.ucla.edu>. ☎310-825-2336

To report lost or stolen cards, call ☎310-206-3199.

### UCLA Career Center

The UCLA Career Center, located in the Strathmore Building, offers career planning and employment assistance free to all UCLA students. Services are in the Career Center and in two specialized service centers: Engineering and Science Career Services in Boelter Hall and EXPO Internship and Study Abroad Services in the Strathmore Building. See <http://www.career.ucla.edu>.

#### 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 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 BruinTraks™ online listings available on the web. 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 BruinView™ 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.

## 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 about 600 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>. ☎310-825-7041

All student organizations are eligible to use the services of Student Event Management, which offers technical and logistical consulting for student events, including cost estimates and event management. ☎310-825-6690

Two major CSP divisions are the Community Programs Office and Fraternity and Sorority Relations.

#### Community Programs Office

The UCLA Community Programs Office (CPO) was established in 1970 by concerned students, staff, and faculty who felt that the pedagogical role of students should not only consist of classroom instruction but should be relevant to social issues as well.

Currently, the CPO houses 30 student-initiated community and student support projects that encompass educational, legal, social, medical, and academic services to underserved communities in the Los Angeles area. CPO is unique in its multicultural and ethnically diverse environment and the experience it offers in campus and community programming. See <http://www.saonet.ucla.edu/cpo>. ☎310-825-5696

#### Fraternity and Sorority Relations

Fraternities and sororities have been at UCLA since the 1920s. Today UCLA counts some 50 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, which 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.greeklife.ucla.edu>.

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

## PERFORMING ARTS

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

### Department Events

The Ethnomusicology Department provides students with the opportunity to perform in various world music and ethnic 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 jazz to opera. In addition, the Gluck Fellows Music Performance 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 is a week long celebration of film, video, new media, animation, screenwriting, and TheaterFest, which 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, 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 Creative Work showings or *Pau Hana*, that feature many world dance forms. See <http://www.wac.ucla.edu>.

### UCLA Performing Arts

Since 1937, UCLA Performing Arts 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 Performing Arts presents more than 200 public concerts and events each year, often sponsoring debut performances of new works by major artists. Through UCLA Performing Arts, the campus hosts a varied and active perfor-

mance program, ranging from regular concerts by the Los Angeles Chamber Orchestra to events with Luciano Pavarotti, Yo-Yo Ma, Alvin Ailey American Dance Theater, Kathleen Battle, 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.performingarts.ucla.edu>.  
◆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 now ranks first in the U.S. in the number of National Collegiate Athletic Association (NCAA) championships won (85). In 1999-00 the UCLA athletic programs (men and women) placed second in the Sears 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://www.uclabruins.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, and Dot Richardson.

### 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 competitions and site of many outdoor events, including the U.S. Olympic Festival '91. 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 1,050, 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.




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**UCLA**  
*Performing Arts 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*

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## 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; Stanford University; University of Southern California; University of Oregon; Oregon State University; Washington State University; and the University of Washington. UCLA teams have won an overall total of 66 NCAA men's championships—second highest in the nation—including 18 in volleyball, 15 in tennis, 11 in basketball, eight in track and field, seven in water polo, three in soccer, two in gymnastics, and one each in golf and swimming. Students can participate on the varsity level in football, basketball, track, baseball, tennis, volleyball, water polo, golf, soccer, and cross-country. For more information, contact the Athletic Office. ☎310-825-8699

## 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 19 NCAA titles—fifth highest in the nation—including eight in softball, four in track and field, three each in gymnastics and volleyball, and one in golf. UCLA has also won four collegiate water polo titles. Other nationally ranked teams are those in basketball, swimming, tennis, cross-country, and soccer. For more information, contact the Athletic Office. ☎310-825-8699

## 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>. ☎310-825-3701

### Intramural and Club Sports

The UCLA Intramural Sports Program consists of team, dual, and individual sports competition in tournament or league play. Over 2,200 teams and 16,000 participants compete throughout the year in various sports activities ranging from basketball to water polo. UCLA Students and RecCard holders are eligible. Varying skill levels are offered in almost all activities, and the emphasis is on friendly competition.

The Club Sports Program 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 ice hockey, men's and women's rugby and lacrosse, cycling, snow skiing, and surfing.

## Outdoor Adventures

Outdoor Adventures 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, kayaking, and hiking. ☎310-206-1252

## Class Programs

Noncredit recreation classes in aquatics, dance, fine arts, martial arts, outdoor studies, tennis, and sports skills are offered for beginning and intermediate levels. Private lessons in tennis, fitness activities, swimming, racquetball, and golf are also available. Students can also participate in cultural events through art exhibitions, the poetry reading program, museum tours, and theater in Los Angeles outings.

Fitness is offered either as a recreation class or on a drop-in basis. A Fitness Pass must be purchased to participate in drop-in fitness classes.

## Facilities

For registered students who prefer independent recreation and exercise, CRA offers access to many facilities. The Wooden Recreation and Sports Center has multiple gymnasiums, nine racquetball/handball courts, two squash courts, a weight training facility, rock wall, exercise/dance and martial arts rooms, 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 areas, play fields, outdoor amphitheater, lighted tennis courts, and various meeting rooms and lounges. The UCLA Marina Aquatic Center offers sailing, windsurfing, kayaking, canoeing, scuba diving, and rowing classes and activities. Students also have the use of Pauley Pavilion, Drake Stadium, Sycamore Tennis Courts, Los Angeles Tennis Center, Intramural Fields, Men's Gym, and Kaufman Hall for recreational sports and activities.

## Youth and Family Programs

Youth and Family Programs offer exciting activities for children 18 months to 17 years. Summer programs include Camp Bruin Kids for ages 5 to 10, Camp Explore for ages 7 to 11, UCLA Summer Programs for High School Students, group and private lessons, and special events. Year-round classes are also offered on Saturday mornings. Activities combine play with skill development and deepen the fun in learning.



# 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>. ☎310-825-8764

## UNDERGRADUATE ADMISSION

Undergraduate Admissions and Relations with Schools  
1147 Murphy Hall  
(310) 825-3101  
<http://www.admissions.ucla.edu>

Prospective UCLA undergraduates should give careful thought to adequate preparation in reading, writing, mathematics, laboratory sciences, languages, 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, obtain the *UC Application for Undergraduate Admission and Scholarships*. It has all necessary forms and instructions and is available from California high school or community college counselors or from any UC undergraduate admissions office. Applicants may also download and print an application from <http://www.ucop.edu/pathways> or, from mid-September to the Fall Quarter deadline, complete the application online.

One application is used for the eight 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 are open for Fall Quarter. For Winter Quarter all majors in the College of Letters and Science, except Communication Studies, are open, as are majors in the Henry Samueli School of Engineering and Applied Science, but the schools of Nursing, Arts and Architecture, and Theater, Film, and Television are closed.

### Notification of Admission

The UC Undergraduate Application Processing Service mails out notices to acknowledge receipt of

applications. Subsequently, UCLA UARS notifies students of the admission decision. The length of time before admission notification varies. In general, Fall Quarter freshman applicants are notified in late March and transfers in late April; Winter Quarter applicants are notified in late September.

Students who are offered admission are asked to sign and return a Statement of Intent to Register and a Statement of Legal Residence. A nonrefund-



able deposit, also required at this time, is applied to the University registration 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. For details, see <http://www.admissions.ucla.edu>.

### Application Deadlines

See <http://www.registrar.ucla.edu/calendar> for updates.

Winter Quarter 2002	July 1-31, 2001 (Transfers only)
Spring Quarter 2002	Closed to new applicants
Fall Quarter 2002	November 1-30, 2001 (Freshmen and transfers)

## 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 freshmen applicants.

### Minimum Admission Requirements

To be considered for admission as a freshman, students must meet the subject requirement, the

scholastic requirement, and the examination requirement.

Changes in the minimum requirements for freshman applicants are being phased in over three years, beginning with students entering UCLA in Fall Quarter 2001. See <http://www.admissions.ucla.edu>.

#### 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. College Preparatory Electives	2 years
g. Visual and Performing Arts (Fall 2003)	1 year

*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*

### Subject Requirement

The subject requirement, sometimes called A to F requirements, is a sequence of high school academic courses required for admission to the University. Each course must be completed with at least a grade of C. 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.

- History/Social Science.** Two years of history/social science, including one year of U.S. history or one-half year of U.S. history and one-half year of civics or American government, and one year of world history, cultures, and geography
- 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 two semesters of ninth-grade English can be used to meet this requirement
- Mathematics.** Three years of college preparatory mathematics that include the topics covered in elementary algebra, geometry, and advanced algebra (four years are recommended, including trigonometry and calculus). 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 courses
- Laboratory Science.** Two years of laboratory science (three years are recommended) which provide fundamental knowledge in at least two of these areas – biology, chemistry, and physics. Laboratory courses in Earth/space sciences are acceptable if they have prerequisites or provide basic knowledge in biology, chemistry, or physics. No more than one year of ninth-grade lab-

oratory science can be used to meet this requirement

- 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
- College Preparatory Electives.** Two units (four semesters), in addition to those required above, to be selected from the following subject areas: history, English, advanced mathematics, laboratory science, language other than English, social science, and visual and performing arts. Beginning with applicants for Fall Quarter 2003, the number of college preparatory electives required will be reduced to one unit (two semesters) and augmented by the visual and performing arts (VPA) requirement
- Visual and Performing Arts.** Freshmen entering Fall Quarter 2003 will be required to complete one unit (two semesters) of approved arts courses from any of the four VPA areas (dance, drama/theater, music, and visual arts)

### Scholastic 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 American College Test (ACT) or Scholastic Assessment Test I (SAT I) scores. For details, refer to *Introducing the University* at <http://www.ucop.edu/pathways/infoctr>.

### Examination Requirement

All freshman applicants must submit scores from the following tests:

- Either the ACT composite score OR the SAT I: Reasoning Tests total score
- Three SAT II: Subject Tests which must include
  - Writing AND
  - Mathematics, level 1 or 2, AND
  - One additional test (either English literature, foreign language, science, or social studies)

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

### Admission Selection

Many elements are considered in the selection process, but the primary ones are (1) academic grade-point average, (2) scores on the SAT I or ACT and the three required SAT II tests, (3) quality, content, and level of coursework throughout the entire high school program, including the senior year, and (4) number of and performance in honors and advanced placement (AP) courses.

Freshman applicants who are admitted must have an official, final high school transcript (showing the date of graduation) sent to UCLA. Sixth or seventh semester transcripts are not required.



## 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: 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) or UCLA general education requirements. Applicants who have completed the English composition and mathematics requirements in their academic program and who have 90 transferable quarter units by the time they enroll in the University receive priority admission consideration.

For details on transfer admission requirements, refer to the guidelines in the application. See <http://www.admissions.ucla.edu/transfer>.

### Intercampus Transfers

Undergraduate students registered in a regular session at any campus of the University (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 Undergraduate 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.

## 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 certifi-



cate of completion which 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. To demonstrate that command, they are required to take the UCLA English as a Second Language Placement Examination (ESLPE) before 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 English as a second language 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.toefl.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.



## COLLEGE OF LETTERS AND SCIENCE

### ADVANCED PLACEMENT CREDIT

All UCLA course equivalents consist of lower division advanced placement units. Students may not repeat for units or grade points an AP Test credit that has been given UCLA course number equivalency, such as History 13A-13B-13C.

AP Test	UCLA Course Equivalents	Credit Allowed for GE Requirements
Art History	8 units	No application for art
Art Studio: General Portfolio or Drawing Portfolio	8 units	No application for art
Biology	Life Sciences 15 (4 units) plus 4 units	4 units toward life sciences requirement
Chemistry	8 units	Score 3—No application for chemistry Score 4 or 5—4 units toward physical sciences requirement
Computer Science	Four units maximum for both tests.	
Computer Science (A Test)	2 unassigned units	No application for computer science
Computer Science (AB Test)	4 unassigned units	Satisfies quantitative reasoning requirement
Economics		
Macroeconomics	Score 3—4 unassigned units	Score 3—No application for economics
	Score 4 or 5—Economics 2 (4 units)	Score 4 or 5—4 units toward social analysis requirement
Microeconomics	Score 3—4 unassigned units	Score 3—No application for economics
	Score 4 or 5—Economics 1 (4 units)	Score 4 or 5—4 units toward social analysis requirement
English	Eight units maximum for both tests.	
Composition and Literature <b>or</b> Language and Composition		
	Score 3—8 unassigned units	Score 3—Satisfies Subject A requirement
	Score 4 or 5—English Composition 3 (8 units)	Score 4 or 5—Satisfies Subject A and English Composition Writing 1 requirements
Environmental Science	Score 3—4 unassigned units	Score 3—No application for environmental science
	Score 4 or 5—Geography 5 (4 units)	Score 4 or 5—4 units toward life sciences requirement
Government and Politics		
Comparative	4 units	4 units toward social analysis requirement
United States	4 units	4 units toward social analysis requirement; satisfies American History and Institutions requirement
History		
European	History 1C (4 units) plus 4 units	4 units toward historical analysis requirement
United States	Score 3—8 units	Score 3—No application for U.S. history
	Score 4 or 5—History 13A-13B-13C (8 units)	Score 4 or 5—8 units toward historical analysis requirement
		Score 3, 4, or 5—Satisfies American History and Institutions requirement
Languages and Literatures		
French Language	Score 3—French 4 (8 units)	Score 3, 4, or 5—4 units toward language and linguistics requirement
	Score 4—French 5 (8 units)	
	Score 5—French 6 (8 units)	
French Literature	8 units	No application for French literature
German Language	Score 3—German 3 (8 units)	Score 3—Satisfies foreign language requirement
	Score 4—German 4 (8 units)	Score 4 or 5—4 units toward language and linguistics requirement
	Score 5—German 5 (8 units)	
Latin (Vergil, Latin Literature)	Score 3—Latin 1 (4 units per test)	Score 4 or 5—Satisfies foreign language requirement
	Score 4 or 5—Latin 3 (4 units per test)	
Spanish Language	Score 3—Spanish 4 (8 units)	Score 3, 4, or 5—4 units toward language and linguistics requirement
	Score 4—Spanish 5 (8 units)	
	Score 5—Spanish 6 (8 units)	
Spanish Literature	8 units	No application for Spanish literature
Mathematics	Eight units maximum for both tests.	
Mathematics (AB Test: Calculus)	Score 3—4 units	4 units toward physical sciences requirement
	Score 4 or 5—Mathematics 31A (4 units)	4 units toward physical sciences requirement
Mathematics (BC Test: Calculus)	Score 3—8 units	8 units toward physical sciences requirement
	Score 4 or 5—Mathematics 31A, 31B (8 units)	8 units toward physical sciences requirement
Music	Eight units maximum for both tests.	
Music Literature (no longer offered)	8 units	No application for music
Music Theory	8 units	No application for music
Physics	Eight units maximum for both tests.	
Physics (B Test)	8 units	No application for physics
Physics (C Test)	8 units	No application for physics
Psychology	Score 3—4 unassigned units	Score 3—No application for psychology
	Score 4 or 5—Psychology 10 (4 units)	Score 4 or 5—4 units toward social analysis requirement
Statistics	Score 3—4 unassigned units	Satisfies quantitative reasoning requirement
	Score 4 or 5—Statistics 10 (4 units)	Satisfies quantitative reasoning requirement



# HENRY SAMUELI SCHOOL OF ENGINEERING AND APPLIED SCIENCE

## ADVANCED PLACEMENT CREDIT

Students may fulfill part of the school requirements with credit allowed at the time of admission for College Board Advanced Placement Tests with scores of 5, 4, or 3. Students with AP Test credit may exceed the 213-unit maximum by the amount of this credit. Information below is current as of publication, but is subject to change.

<b>AP Test</b>	<b>Credit Allowed on School Requirements</b>	<b>AP Test</b>	<b>Credit Allowed on School Requirements</b>
Art History . . . . .	8 lower division unassigned units	Languages and Literature	
Art Studio . . . . .	8 lower division unassigned units	French Language . . . . .	Score 3 – French 4 (4 units), 4 lower division unassigned units Score 4 – French 5 (4 units), 4 lower division unassigned units Score 5 – French 6 (4 units), 4 lower division unassigned units
Biology . . . . .	Life Sciences 15 (4 units), 4 lower division unassigned units	French Literature . . . . .	8 lower division unassigned units
Chemistry . . . . .	8 lower division units (credit determined on an individual basis)	German Language . . . . .	Score 3 – German 3 (4 units), 4 lower division unassigned units Score 4 – German 4 (4 units), 4 lower division unassigned units Score 5 – German 5 (4 units), 4 lower division unassigned units
Computer Science: 4 units maximum for both tests		Latin (Vergil, Latin Literature)	Score 3 – Latin 1 (4 units per test) Score 4 or 5 – Latin 3 (4 units per test)
Computer Science (A Test) . . . . .	2 lower division unassigned units	Spanish Language . . . . .	Score 3 – Spanish 4 (4 units), 4 lower division unassigned units Score 4 – Spanish 5 (4 units), 4 lower division unassigned units Score 5 – Spanish 6 (4 units), 4 lower division unassigned units
Computer Science (AB Test) . . . . .	Score 3 – 4 lower division unassigned units Score 4 or 5 – Computer Science 31 (4 units)	Spanish Literature . . . . .	8 lower division unassigned units
Economics		Mathematics: 8 units maximum for both tests	
Macroeconomics . . . . .	Score 3 – 4 lower division unassigned units Score 4 or 5 – Economics 2 (4 units)	Mathematics (AB Test) . . . . .	Score 3 – 4 lower division units Score 4 or 5 – Mathematics 31A (4 units)
Microeconomics . . . . .	Score 3 – 4 lower division unassigned units Score 4 or 5 – Economics 1 (4 units)	Mathematics (BC Test) . . . . .	Score 3 – 8 lower division units Score 4 or 5 – Mathematics 31A, 31B (8 units)
English: 8 units maximum for both tests		Music: Students with credit for both Music Theory and Music Literature are allowed maximum credit of 4 lower division units for Music Theory and 4 lower division units for Survey of Music	
Composition and Literature . . . . .	Score 3 – 8 lower division unassigned units, Subject A Score 4 or 5 – English Composition 3 (5 units), 3 lower division unassigned units, Subject A	Music Literature (no longer offered)	8 lower division unassigned units
Language and Composition . . . . .	Score 3 – 8 lower division unassigned units, Subject A Score 4 or 5 – English Composition 3 (5 units), 3 lower division unassigned units, Subject A	Music Theory . . . . .	8 lower division unassigned units
Environmental Science . . . . .	Score 3 – 4 lower division unassigned units Score 4 or 5 – Geography 5 (4 units)	Physics: Students with credit for Physics B and C—Mechanics or Physics B and C—Electricity and Magnetism are allowed maximum credit of 4 lower division units for Physics B and 4 lower division units for Physics C. Students with credit for Physics C—Mechanics, and C—Electricity and Magnetism are allowed maximum credit of 8 lower division units for Physics C	
Government and Politics		Physics (B Test) . . . . .	8 lower division unassigned units
Comparative . . . . .	4 lower division units toward social sciences	Physics (C—Mechanics) . . . . .	4 lower division units (credit determined on an individual basis)
United States . . . . .	4 lower division units toward social sciences; satisfies American History and Institutions requirement	Physics (C—Electricity and Magnetism)	4 lower division units (credit determined on an individual basis)
History		Psychology . . . . .	Score 3 – 4 lower division unassigned units Score 4 or 5 – Psychology 10 (4 units)
European . . . . .	History 1C (4 units), 4 lower division unassigned units	Statistics . . . . .	Score 3–4 lower division unassigned units Score 4 or 5—Statistics 10 (4 units)
United States . . . . .	Score 3 – 8 lower division unassigned units; satisfies American History and Institutions requirement Score 4 or 5 – History 13A-13B-13C (8 units); satisfies American History and Institutions requirement		



## REGISTRATION

Enrollment and Degree Services  
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 paid through the UCLA Student Billing Statement, also called the BAR statement, mailed monthly to students' UCLA mailing address by the Student Accounting Office.
2. Enrollment in classes is completed via URSA at (310) 208-0425 or <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>.

Once students receive their BAR statement, payments can be mailed, deposited in the Administrative Main Cashier's drop slot at 1125 Murphy Hall, or paid by credit card via CyberPay, which is accessed through URSA OnLine. After the published deadline, payments must be made in person at 1125 Murphy Hall and are assessed an additional late fee.

### Annual Fees for 2001-02

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

University registration fee	\$ 713.00
Educational fee	2,716.00
Ackerman Student Union fee	51.00
Undergraduate Students Association fee	72.27
Wooden Recreation Center fee	36.00
Seismic fee for Ackerman/Kerckhoff	113.00
Student Health Insurance Plan	535.00
<b>Total for California residents</b>	<b>\$4,236.27</b>
Nonresident educational fee	3,086.00
Nonresident tuition fee	10,244.00
<b>Total for nonresidents</b>	<b>\$14,850.27</b>

## Annual Undergraduate Fees

Although the exact cost of attending UCLA varies, there are some fees that all UCLA students must pay. Each entering and readmitted student is required to submit a Statement of Legal Residence to Undergraduate Admissions and Rela-

tions with Schools (UARS) 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.

Fees are subject to change without notice. See <http://www.registrar.ucla.edu/fees> for updates. The registration 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 this time. 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 fourth week are required to pay the course materials fee, which is billed through the BAR statement, for the entire quarter.

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

## Miscellaneous Fees

Miscellaneous fees include charges for late registration fee payment. Late fees also apply if students file their Study List late or do not pay off BAR statement 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/misc-fee.htm>.

## 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 adequate medical/health insurance must be maintained during all registered terms.

The USHIP fee is billed each term along with other UCLA fees. USHIP fulfills all of the requirements mandated for adequate medical/health insurance as defined by the University. The Ashe Student Health and Wellness Center is the primary health care 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 Out of USHIP

Students may waive out of USHIP if they (1) maintain active enrollment in an adequate medical/health insurance plan that meets all established requirements, (2) apply for a USHIP waiver



## Annual Budget Estimates for Undergraduate California Residents

Estimates cover three regular session terms, using the 2001-02 academic year as an example. Nonresidents must add annual tuition, which was \$10,244 at the time of publication, but still under review by The Regents. Fees are subject to change without notice. For housing information, see <http://www.housing.ucla.edu>.

	Commuter from Home	On-Campus Housing	Off-Campus Housing
University fees	\$ 4,236.27	\$ 4,236.27	\$ 4,236.27
Books and supplies	1,116.00	1,116.00	1,116.00
Food and rent	2,925.00	8,565.00	7,008.00
Transportation	1,053.00	486.00	720.00
Personal	1,977.00	1,764.00	1,902.00
<b>Total Budget Estimate</b>	<b>\$11,307.27</b>	<b>\$16,167.27</b>	<b>\$14,982.27</b>

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 qualifying adequate private medical/health insurance. Follow the Online Services link from <http://www.studenthealth.ucla.edu>.

### Deadlines for Waiving Out of USHIP

Third party individuals may not waive out of USHIP for another student. Waivers must be submitted by the stated deadlines whether or not fees have been paid by that date. Deadlines are strictly enforced.

The schedule for waiving out of USHIP is as follows:

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

The California State Legislature requires as a condition of enrollment that students 18 years and younger take the hepatitis B vaccination series. The vaccine is given in three doses. The second dose is given one month after the first, and the third is given five months after the second. Students who have not had the vaccine should start the series before their first term begins. Because this is a state requirement, students who have not completed the immunization series by the time their third term begins will not be allowed to enroll.

Students who have already been immunized may fill out the form at <http://www.studenthealth.ucla.edu/student/hepb/hepbreq.asp>.

### 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 provost or 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 University registration, educational, student union, 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 registration 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.

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

The online *Schedule of Classes* 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 online at <http://www.ursa.ucla.edu> or by telephone at (310) 208-0425. For most students, URSA OnLine is the easiest way to enroll in classes and gain real-time access to academic,

financial, and personal records. 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, 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 5 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—which is available for purchase in the UCLA Store.

See Enrollment in the online *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 another college 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.

At the discretion of the appropriate campus authorities on both campuses, California Senate Bill 1914 allows 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 concurrent 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

Undergraduates 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 Enrollment and Degree Services, 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 Letters and Science Counseling Services in A316 Murphy Hall; students in Arts and Architecture should contact the Student Services Office



in 1100 Dickson; Theater, Film, and Television students should consult the Student Services Office in 103 East Melnitz Building; Engineering students should see the Student Services Office in 6426 Boelter Hall.

### Simultaneous UC Enrollment

Undergraduates 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 GE 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, Letters and Science Counseling Office, A316 Murphy Hall; Arts and Architecture Theater, Film, and Television, Engineering and Applied Science, and Nursing students, their respective Student Affairs Office.

## 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 is March 2 (or the Friday before that date if March 2 falls on a weekend). Applications received after the deadline are only considered if funds are still available.

The *Financial Aid Handbook* contains complete details on all aid. Obtain a free copy at the Financial Aid Office, A129J Murphy Hall, UCLA, Box 951435, Los Angeles, CA 90095-1435.

### 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.

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 need-based aid must provide financial infor-



mation 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. The FAFSA is available from California high schools and colleges and from the UCLA Financial Aid Office and should be filed by March 2. Be sure to indicate that a report 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 Undergraduate Admission and Scholarships* may use the application to apply for undergraduate scholarships.

### Continuing Students

Continuing students, including international students, may obtain financial aid applications beginning in January at the Financial Aid Office.

## TYPES OF FINANCIAL AID

The four basic types of aid are scholarships, grants, loans, and work-study employment. Since most students are eligible for several of these, the Financial Aid Office usually offers a combination.



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. Most scholarships are merit based, while grants, loans, and work study are generally need based.

### Scholarships

Scholarships do not have to be repaid. The Undergraduate Scholarship Program at UCLA rewards academic excellence and assists with the expenses of an undergraduate education.

Financial need is required only 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. Students must reapply each year for continued consideration.

### 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 yearly stipend to cover the amount of their need. Regents Scholars also receive special privileges.

### National Merit Scholarships

UCLA sponsors a number of four-year scholarships for entering freshmen who are finalists in the National Merit Scholarship competition. Finalists who are admitted to UCLA must select UCLA as their institution of choice and must meet UCLA's scholarship criteria in order to receive a UCLA Merit Scholarship. Awards range from \$500 to \$2,000.

### UCLA Alumni Association Scholarships

Alumni Scholarships are available to California high school graduates who will be UCLA freshmen in the Fall Quarter and to community college transfer students. 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 \$500 to \$10,000; transfer awards are \$500 each. The Dr. Ralph Bunche Scholarship Awards, 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 communities. In addition to the monetary awards, Alumni Scholars receive special privileges. Recipients who receive work study or loans as part of a financial aid package receive additional alumni grant monies.

### ROTC Scholarships

ROTC Scholarships are awarded on a competitive basis to U.S. citizens regardless of parents' income and provide tuition, a book allowance, fees, and a tax-free monthly allowance during the academic year. Obtain applications for four-year scholarships by calling—Army, (310) 825-7381; Air Force, (310) 825-1742; Navy, (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. Applications for Army scholarships can also be obtained by calling (800) 872-7682. Completed applications should be submitted prior to July 15 (Army) or August 15 (Air Force and Navy) for early consideration, but no later than December 1 (all services) of the year preceding college matriculation. Two-year scholarship applications are also available and are considered when received.

### 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 the basis of many financial aid packages, since they are often combined with other forms of aid to meet the full costs of education. Amounts for 2001-02 range from \$400 to \$3,300, depending on federal funding, and are determined by student financial resources and the family's financial resources. U.S. citizens and eligible noncitizens may apply by filing the FAFSA. The University requires all eligible undergraduates to apply for a Federal Pell Grant.

### Cal Grants A and B

California residents who have not completed more than nine quarters or six semesters of college work prior to September 2001 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 are applied toward registration fees. They are based on need and academic achievement and are renewable each year. Cal Grant B awards are intended to assist low-income families and are renewable annually. First-year freshmen receive a quarterly stipend. In subsequent years recipients receive a stipend plus funds toward educational and registration fees.

### State University Grants

State grants provide eligible students with financial assistance from state funds. Awards range from \$100 to \$4,000. All undergraduate students are considered.

### Federal Supplemental Educational Opportunity Grants

Federal Supplemental Educational Opportunity Grants are for undergraduates with financial need. Awards range from \$100 to \$4,000. Recipients must be U.S. citizens or eligible noncitizens.



## 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 attend a debt management session before funds are released.

All loan recipients must come to the Student Loan Services Office (A227 Murphy Hall) for a loan exit interview 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. Call for an interview before graduating, transferring, or withdrawing from UCLA. ☎310-825-9864

### Federal Perkins Loans

Low-interest Federal Perkins loans are available to all students who are U.S. citizens or eligible non-citizens. Repayment begins six or nine months after students terminate at least half-time study. Repayment terms are fully explained when students accept the loan. Minimum repayment is \$90 per quarter, including interest, up to a maximum of 10 years.

### Federal Nursing Loans

To be eligible for a nursing loan, applicants must be U.S. citizens or eligible noncitizens and students in the School of Nursing. Up to \$3,000 is available per academic year. For more information, contact the financial aid counselor either in the Financial Aid Office or in the School of Nursing.

### Emergency Educational Loans

Students need not be receiving financial aid to apply for emergency loans. They may borrow up to \$100 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.

### Federal Family Education Loan Program

Federal Stafford Loans are long-term need-based loans made by banks and credit unions. They are available to U.S. citizens and eligible noncitizens who are enrolled in at least a half-time program at UCLA. Freshmen may borrow up to \$2,625, sophomores up to \$3,500, and juniors and

seniors up to \$5,500 per academic year, to a maximum of \$23,000.

Unsubsidized Federal Stafford Loans for Middle-Income Borrowers are not based on need. Although repayment can be deferred until after graduation, interest begins to accrue while students are in school. Students must file a FAFSA to be considered for the program.

Through Federal Parent Loans for Undergraduate Students (PLUS) parents may be eligible to borrow up to the cost of a student's education for the academic year minus any estimated financial aid. These loans are not deferrable.

## Work-Study Program

Federal Work-Study (FWS) is a need-based program designed to expand part-time job opportunities for students. The program allows them to work a maximum of 20 hours per week while attending school. An academic year's work-study award may range from \$1,000 to \$2,000, but gross earnings may not exceed the amount awarded.

Under FWS, the federal government pays a portion of the hourly wage; the employer contributes the balance. Whenever possible, work is related to student educational objectives. Employment may be on or off campus. Hourly pay rates comply with minimum wage laws and vary with the nature of the work, experience, and capabilities. To be eligible, students must be U.S. citizens or eligible noncitizens.

Off-campus community service positions are also available in nonprofit organizations and governmental agencies. Students who are placed in these positions may petition the Financial Aid Office for an increase in work-study funding up to a maximum of \$5,000.

Whether employed on or off campus, students must maintain full-time enrollment (12 units for undergraduates, 8 units for graduate students) to be exempt from Social Security and Medicare taxation.

## MAJORS AND DEGREES

Students may choose from over 118 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, counse-



lors 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 for Change of 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 undergraduates must satisfy in order to graduate: Subject A 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.

## Subject A

Because proficiency in English composition is so important to successful performance in many courses, Subject A 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 680 or better on the SAT II Subject Test in Writing OR
3. Presenting transfer credit for an acceptable college-level course in English composition (passed with a grade of C or better) at another institution OR
4. Passing the Subject A Examination (all freshmen from California high schools should have taken the Universitywide Subject A 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 either English Composition A or 2 (determined by performance on the Subject A 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 Subject A requirement is a requisite to English Composition 3 and all subsequent English courses.

## English as a Second Language

The English as a Second Language Placement Examination (ESLPE) is required of all entering UCLA students whose native language is not English and who have not otherwise satisfied the English as a Second Language (ESL) requirement. 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. Undergraduate students may take the ESLPE once only. Unauthorized retakes of the examination result in an invalid examination score.

Nonnative-speaking first-year students who have taken the Subject A Examination are evaluated on the basis of their Subject A composition and informed if they need to take the ESLPE before the term in which they are to register. Failure to take the ESLPE results in a hold on student records. Results of the ESLPE and the Subject A Examination are reviewed to determine which track (Subject A or ESL) is a more appropriate placement. Students placed in the Subject A track may satisfy the Subject A requirement by following the guidelines listed above. If students are placed in the ESL track, they must complete the requirement by taking the designated courses through the ESL track.



Nonnative-speaking transfer students with grades of B or better in the English Composition 3 and English 4 equivalent courses at their transfer institution are exempt from the ESL requirement. Other students must take the ESLPE and may be required to take one or more ESL courses beginning in their first term in residence at UCLA 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 nonpassing score on the examination, students are placed in one or more of the credit-bearing courses — English as a Second Language 33A, 33B, 33C, and 35. Students must begin taking courses during their first term in residence at UCLA and must complete the courses in sequence with grades 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 fulfill major requisite requirements and 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 requirement in American History and Institutions 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 M104A, M104B, M104C, M158A, M158B, M158C, M158E
  - Asian American Studies M153
  - Chicana and Chicano Studies M159A, M159B
  - Economics 183
  - English 80, 85, M104A, M104B, M104C, 115A, 170A, 170B, 171A, 171B, 172A, 172B, 173A, 173B, 173C, 174A, 174B, 174C
  - Geography 136
  - History 13A, 13B, 13C, 145A, 145B, 146, 147A, 147B, 147C, 148A, 148B, 148C, 149A, 149B, 150A, 150B, 150C, 151A, 151B, 152A, 152B, M153, 154A, 154B, 154C, 154D, 155A, 155B, 156A through 156H, 157A, 157B, M158A through M158E, M159A, M159B, 160A, 160B, 161, 162, 163, 164
  - 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 II Subject Test in American 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 151A, 151B, 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, which defines the total number of units to be completed, (2) scholarship requirement, which defines a minimum grade-point average, (3) residence requirement, which defines the amount of study that must be undertaken in residence at the UCLA campus, and (4) course requirements, which 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.



## UNDERGRADUATE RESEARCH

### UNDERGRADUATE RESEARCH CENTERS

The Undergraduate Research Centers (URC) assist students in the humanities and social sciences (2211 Campbell Hall, 310-825-2935) and in the life and physical sciences (2121 Life Sciences, 310-794-4227) by supporting scholarly, critical, and creative research. The centers provide mentoring and tutorials, house the Student Research Program (SRP), and administer stipends and scholarships. They also sponsor student research groups and two student-run publications—the *Undergraduate Science Journal* and *Westwind, A Journal of Undergraduate Research and Writing*; organize campuswide conferences and events; and coordinate the Summer Research Institute (SRI), which 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.college.ucla.edu/ugresearch/index.html>.

#### Student Research Program

Housed in 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 Honors Collegium 99 and receive 1 unit of course credit for each 50 hours of research completed during the quarter. See <http://www.college.ucla.edu/ugresearch/srp.html>.

#### Research Stipends

Undergraduate Research Development Stipend (URDS) awards are 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 through SRP. The commitment to the SRP project is for Winter and Spring Quarters, and stipends are set at \$1,000 per term. Applications are accepted during Fall Quarter only, and the deadline for submission of applications is late November.

#### 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) with financial need. 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 only.

### 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 independent studies 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.

### 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.care.ucla.edu>.

### INTERNSHIPS AND SERVICE

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.

### QUARTER IN WASHINGTON, D.C.

The Center for American Politics and Public Policy (CAPPP) selects 30 undergraduates each fall and spring to participate in its Quarter in Washington, D.C. Program, which offers an exciting opportu-



nity to combine UCLA courses with research and field experience in areas related to the policy-making process of the federal government. Students live in Washington for 12 weeks, dividing their time between courses taught by UC faculty and a part-time field placement. They are registered as UCLA students and earn credit for all courses taken. Most courses emphasize politics and public policy. The core course is multiple-listed in political science and sociology. At least one course in a subject other than political science, such as economics or history, is offered each quarter. All courses take advantage of Washington's unique resources for study and research.

Center administrators help students find a field placement, which is central to a research seminar each student takes, in a Washington organization. Placements have included ABC News, the Brookings Institute, CNN, the Department of Justice, the Kennedy Center, Studio Theatre, the Center for Strategic and International Studies, various members of Congress, and the White House. For information, contact the CAPP Office in 4250 Public Policy Building or e-mail [capp@issr.ucla.edu](mailto:capp@issr.ucla.edu). See <http://www.capp.ucla.edu>. ☎310-206-3109

## SERVICE LEARNING

The Center for Experiential Education and Service Learning (CEESL) enhances undergraduate education by providing opportunities to participate in "experiential" learning. In courses supported by CEESL, students work outside the classroom at internships or public service positions. They participate in their communities and gain insights into a range of professional fields, while applying and testing academic theories. CEESL is located in 160 Powell Library. See <http://www.oid.ucla.edu/Ceesl>. ☎310-825-7867

Placements are available in the form of internships or short-term projects such as community service work, local industry and business positions, and out-of-state opportunities. Students combine service experiences with research and writing to receive academic credit. For example, a CEESL student interning at a talent agency researched and wrote a paper on racial stereotypes in the acting profession; a student working with ESL students at an elementary school wrote a paper on the politics of English-only legislation and its impact on teaching; students volunteering at a health clinic researched and produced educational pamphlets on AIDS prevention in Russian and Armenian for recent immigrants in the community.

## Supported Courses

Every term CEESL supports unique courses that incorporate community work with course readings, lectures, and discussions. The courses and seminars create opportunities for students to work with an instructor and to interact with their peers in a structured environment. Courses supported by CEESL are mainly for upper division students. Lower division students may participate

in courses that offer a portion of course credit for community service and fieldwork.

Upper division students looking for a more intensive service or field experience may enroll in immersion programs or in sequential courses. Immersion programs are structured around a block of courses with focus on the study and observation of a single topic (for example, social and cultural stigma). They require a full-time commitment for one or two terms, for which students earn 12 to 16 units per term. The Developmental Disabilities Immersion Program (DDIP) and Sociology Immersion Quarter (with changing themes) are two long-standing immersion programs. Sequential courses are taken consecutively for two or three terms. Students receive prefield training during the first term and conduct service and research in subsequent terms.

Students may also design individualized service learning and internship projects to meet their specific academic, personal, and career goals. These are organized through individual studies courses (199 or 199I), in which a CEESL graduate student coordinator helps students develop suitable projects, secure field placements, and identify faculty sponsors.

The deadline for enrollment in CEESL supported courses is the end of the second week of the term.

## Community Service and Internship Sites

All CEESL participants need to secure academically viable placement sites. Hundreds of local and national opportunities are listed in 160 Powell Library and at EXPO Internship and Study Abroad Services. Students may also initiate contact with a site on their own. However, all community service and internship placements must be approved by a CEESL coordinator.

## EXPO INTERNSHIP AND STUDY ABROAD SERVICES

The EXPO Internship and Study Abroad Services, a branch of the UCLA Career Center, offer access to a variety of off-campus learning experiences. Offices are in 200 Strathmore Building. See <http://www.career.ucla.edu/expo>. ☎310-825-0831

## National Internship Program

More than 10,000 UCLA students have learned about the inner workings of government and




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*The Quarter in Washington, D.C. Program offers an exciting opportunity to combine UCLA courses with research and field experience in areas directly related to the policy-making process of the federal government*

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business while serving in the internship program. Bruins serve full-time internships for one or more terms on the staffs of elected officials, public interest groups, government agencies, and media organizations in Sacramento, Washington, DC, and other U.S. cities. Stipends for students in select programs can be arranged.

### Los Angeles Internship Program

Local internships are available throughout the year in fields such as advertising, business, film, media, and politics.

### International Opportunities

EXPO advises students on study, travel, volunteer, international internship, and short-term work opportunities outside the U.S., offering information on overseas study programs open to UCLA students. EXPO maintains a library of current materials related to study, travel, and other opportunities abroad.

## 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 (GSEIS), which helps coordinate programs leading to various instructional credentials or to graduate study.

### Diversified Liberal Arts Program

The Diversified Liberal Arts Program prepares students for teaching degrees while they complete a major in the College. The program is described in the Curricula and Courses section of this catalog. For information, contact Letters and Science Counseling Services, A316 Murphy Hall. See <http://www.college.ucla.edu/up/dlap>.

### Education Studies Minor

The Education Studies minor provides an introductory course sequence for students who want to pursue a career in education. The program office is in 1009 Moore Hall. See <http://www.gseis.ucla.edu/edminor>.

### Mathematics/Education Program

The Mathematics/Education Program allows mathematics majors interested in middle and high school teaching to observe and tutor in classrooms in the Los Angeles area and to begin teacher-education courses. After graduation, they teach for a full year under an emergency teaching credential and may work toward a master's in education and a teaching credential. For information, contact Mathematics Student Services, 6356 Math Sciences. See <http://www.math.ucla.edu/undergrad/matheduc.html>.

### Science Education Program

The Science Education Program, cosponsored by the College and GSEIS, 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 and two summers beyond the baccalaureate. For details, e-mail Dr. Arlene Russell at [rus-sell@chem.ucla.edu](mailto:rus-sell@chem.ucla.edu) or contact any science department undergraduate counseling office.

### Teacher Education Program

The Teacher Education Program allows students to obtain both a Master of Education degree and a Bilingual Cross-Cultural Language Academic Development credential (CLAD or BCLAD) in a full-time, two-year program that provides clinical classroom experience. For details, see UCLA Center X at <http://www.centerx.gseis.ucla.edu/tep>.

## 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 in the junior and senior years, and additional financial aid is available to qualified students. Individual programs are described in the Curricula and Courses section of this catalog.

## LOWER DIVISION PROGRAMS

### Collegium of University Teaching Fellows

The Collegium of University Teaching Fellows (CUTF) permits the finest UCLA advanced graduate students 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 in 160 Powell Library. See <http://www.oid.ucla.edu/Cutf>. ☎310-825-5467



## Honors Collegium

The Honors Collegium 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.college.ucla.edu/up/honors/honorscollegium.html>.

## Lower Division Seminars

Departmentally sponsored, lower division seminars provide students the opportunity to participate in a small classroom setting where they enhance writing, verbal, and analytical skills. Many courses carry GE credit.

## Professional Schools Seminar Program

The Professional Schools Seminar Program (PSSP) offers seminars that explore topics bridging various academic disciplines and professional practice. Students seeking to define their own academic and career goals gain valuable exposure to (1) research frontiers in the professions, (2) policy and ethical issues, and (3) historical and sociological perspectives on professional practice.

Seminars are offered Fall, Winter, and Spring quarters. Enrollment is limited to allow close contact with professional school faculty members; lower division students are preferred. Students must satisfy the Subject A requirement before enrolling in these seminars. GE and honors credit is granted for most seminars. For information, contact the PSSP Office in 160 Powell Library. See <http://www.oid.ucla.edu/Pssp/index.html>. ☎310-825-5467

## ADVISING AND ACADEMIC ASSISTANCE

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

## ORIENTATION

Orientation introduces students to UCLA campus life. During the summer and before the beginning of Winter Quarter, special programs offer students academic counseling and educational planning. During 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.

During the summer, Orientation offers three-day, two-night residence hall live-in programs for

first-year students and one-day programs for transfer students. Prior to Winter Quarter, a one-day program is offered. There is a fee for participation. For more information, contact the Orientation Office in 201 Covell Commons. See <http://www.orientation.ucla.edu>. ☎310-206-6685

## 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 Letters and Science Counseling Services. ASK peer counselors are College undergraduates trained to provide counseling and respond to student questions and concerns in convenient walk-up settings. No appointments are required. Counselors provide petitions, give directions, make referrals, and bridge the gap between campus life and the College office in Murphy Hall.

Students can find ASK counselors weekdays when school is in session at these campus locations: Campbell Hall (southwest corner), Royce Quad, and Science Quad from 10 a.m. to 2 p.m.; the ASK Web Lab, A316C Murphy Hall, from 10 a.m. to 3 p.m.; and adjacent to 1105 Murphy Hall from 10 a.m. to 4 p.m. Students may also e-mail questions to [ASK@college.ucla.edu](mailto:ASK@college.ucla.edu).

## Counseling Assistants

Letters and Science counseling assistants (CAs) are graduate students who help lower division students with course selection, major requirements, and graduate school information. Many CAs serve as teaching assistants and can give unique perspectives on courses and faculty. For information, see the link from <http://www.college.ucla.edu/up/counseling>.

For appointments, go to Window 1, A316 Murphy Hall. CAs are also available weekday afternoons on a walk-in basis in Covell Commons, in selected departments, and online through <http://my.ucla.edu>.

## ACADEMICS IN THE COMMONS

Academics in the Commons, also called Covell Tutorials, offers registered UCLA students free individual and small-group tutoring aimed at developing academic skills and critical thinking. Programs are staffed by carefully selected and trained peer tutors and conveniently located in Covell Commons in Sunset Village. For details on all the tutorials below, see <http://www.college.ucla.edu/up/CT>.



## Academic Workshops

### UNDERGRADUATE STUDY

In addition to the tutorials below, Academics in the Commons offers the Academic Workshop Program, which promotes academic success through a variety of workshops. For specific top-



ics, dates, and times, see <http://www.college.ucla.edu/up/workshops>. ☎310-825-1379

### Composition and ESL Tutorials

The Composition Tutoring Laboratory and UCLA Writing Programs offer individual assistance to students enrolled in English Composition A, 2, and 3 and to students writing papers for other UCLA courses. The laboratory is staffed by trained undergraduate peer tutors with outstanding ability in advanced composition who can help students at any stage of the writing process.

The ESL Tutoring Laboratory assists nonnative-speaking students with English grammar, idioms, pronunciation, listening comprehension, and composition. Priority is given to students enrolled in English as a Second Language 33A, 33B, and 33C, and other ESL courses. Most of the ESL tutors are graduate students pursuing degrees in teaching English as a second language.

Both the Composition and ESL Laboratories are in 228 Covell Commons. ☎310-206-1491

### Mathematics/Sciences Tutorials

Mathematics/Sciences Tutorials provide an organized by-appointment tutorial program for most introductory courses in biology, chemistry, mathematics, and physics. Trained tutors meet in small group sessions on a weekly basis, teaching methods to improve problem-solving skills and test-taking strategies. Requests for tutors must be made during the first three weeks of the term; early registration is strongly advised. Drop-in tutoring is also offered. Schedules vary each term. The tutorials are in 230 Covell Commons. ☎310-206-6965

## Tutorials for Student Athletes

Tutorials for Student Athletes provide tutoring in the evening and on weekends for intercollegiate athletes whose practice and competition schedules prevent them from participating in other tutorial services. Eligible student athletes can receive regular individual or small group assistance in a wide range of courses, provided they request tutoring within the first four weeks of the term. Trained tutors clarify course content, teach study strategies and, in consultation with course instructors, develop problem-solving exercises and practice examinations to build learning and performance skills. The coordinator is in 209 Covell Commons. ☎310-206-8124

## 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 more than 5,500 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 the AAP Office in 1232 Campbell Hall. See <http://www.college.ucla.edu/up/aap>. ☎310-206-7777

### Academic Counseling

Counselors at AAP encourage students to explore their talents, believe in themselves, and aspire to academic and personal excellence. Counselors, including two science 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. ☎310-825-1481

### Graduate Mentor Program

The AAP Graduate Mentor Program (GMP) is grounded in the belief that it is never too early, or too late, to prepare for graduate school. The primary goal of GMP is to increase the number of AAP students who enroll in graduate or professional schools.

### Peer Counselors

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.

### 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 1229 Campbell Hall. ☎310-825-9276

### Rosa Parks Program

The Rosa Parks Program for Community Development (RPP) assists undergraduate students interested in graduate and professional schools. RPP works with the schools of Public Policy and Social Research, Public Health, Law, and Medicine 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. ☎310-206-1557

### Summer Programs

Two six-week AAP academic summer programs—the Freshman Summer Program and the Transfer Summer Program—prepare students to succeed by exposing them to the rigor and demands of academic life and to undergraduate programs, services, and learning resources.

Students enroll in two University courses that meet UCLA requirements for graduation and receive personal attention, in either small groups or individual sessions, from teaching assistants and tutors. They are encouraged to live on campus and to participate in cultural and social events, interact with students of diverse backgrounds, build a network of friends, and broaden their life experiences and world outlook. ☎310-206-1571

### Teachers for Tomorrow

Teachers for Tomorrow (TFT) aims to advance a new generation of socially conscious leaders interested in careers in education. It provides AAP students with opportunities to meet faculty and students in the Graduate School of Education and Information Studies and to get involved in community service programs, internships, and service learning courses. The Joseph Drown Scholarship Program works with AAP students who want to become teachers of mathematics or science. Students in the program work with teachers at local public schools as volunteers, receive a stipend of up to \$3,000, and participate in educational roundtables. ☎310-206-1557

### Tutorial Services

Providing tutorial services for over 450 courses, AAP fosters academic excellence. Most tutors are upper division AAP students who provide the

intellectual challenge, encouragement, and personal support lower division students need to recognize their own authority as thinkers and learners. Most tutoring is done in small groups that foster discussion and allow students to listen to and articulate new and different perspectives.

## ACADEMIC EXCELLENCE

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

### Dean's Honors List and Provost's Honors

The School of the Arts and Architecture, Henry Samueli School of Engineering and Applied Science, and School of Theater, Film, and Television award Dean's Honors to deserving students each term, while the College of Letters and Science awards Provost's Honors. The School of Nursing awards Dean's Honors on an annual basis. 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 eligible 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 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 provost 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. See <http://www.studentgroups.ucla.edu/aldpes>. ☎310-825-3871

#### Golden Key

Golden Key is a national 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 Winter Quarter, and a reception is held in Spring Quarter. For further information, contact the Office of the Dean of Students, 1206 Murphy Hall. See <http://www.studentgroups.ucla.edu/Goldenkey>. ☎310-825-3871

#### Mortar Board

Mortar Board is a national honor society for college seniors which 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 from the Center for Student Programming (105 Kerckhoff Hall) 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>. ☎310-206-5523

Applications are also available from the Office of the Dean of Students in 1206 Murphy Hall. ☎310-825-3871

#### Outstanding Senior Award

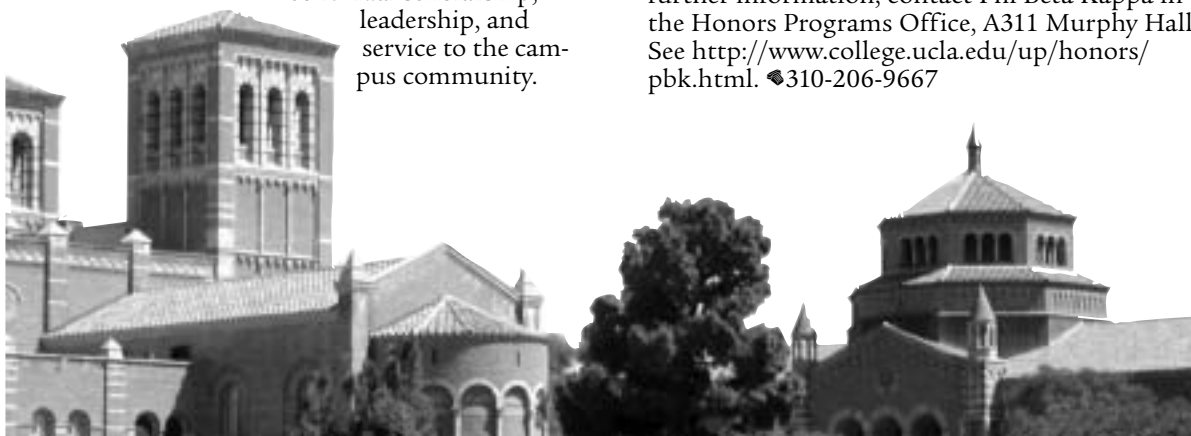
The Outstanding Senior Award recognizes graduating seniors who demonstrate scholastic excellence, creativity in the department, and outstanding service to the University and community. Nominations close in late January. Awards are presented at the annual UCLA Alumni Association Awards Ceremony in May. Award recipients receive senior class rings and life memberships in the Alumni Association. For further information, contact the UCLA Alumni Association in the West Alumni Center, 325 Westwood Plaza. See <http://www.uclalumni.net>. ☎310-206-0545

#### Phi Beta Kappa

Phi Beta Kappa is a national honorary 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. See <http://www.college.ucla.edu/up/honors/pbk.html>. ☎310-206-9667



# 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 post-doctoral fellows 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 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 in the Curricula and Courses section of this catalog.

## APPLYING FOR ADMISSION

Prospective students may apply online at <http://www.gdnet.ucla.edu>. Alternatively, a paper *Application for Graduate Admission* may be obtained in person or by mail from the prospective school or department.

## When to Apply

Most departments and schools have deadlines in November and December for the following Fall Quarter. Consult the *Application for Graduate Admission* for specific deadlines for each major. Some departments also accept applications for Winter and Spring quarters; further information is in this catalog's departmental listings and in the application.



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> and in the application. Submitted materials are not returnable.

### About the UCLA Graduate Division

**T**he 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. 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 academic affairs.

**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 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 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, write to the associate program director at the above address.

### 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. In some cases, these letters may mean the difference between acceptance and rejection. Letters should be sent directly to the prospective department. Forms to be used are included in the application brochure and at <http://www.gdnet.ucla.edu>.

## 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, students must have at least a Very Good general rating to qualify for admission. Students 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 duplicate, for all college and university work. Specific instructions are given in the application brochure.

### 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. The IELTS examination is 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.toefl.org>.

Students whose native language is not English are required to take the UCLA English as a Second Language Placement Examination (ESLPE), in addition to the TOEFL or IELTS examination, before the term in which they are to register. Failure to sit for the ESLPE results in a hold on student records. Those 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.

International students or permanent residents who are not native speakers of English, before they are allowed to serve as teaching assistants, must take and pass either the Test of Spoken English (TSE) offered at TOEFL Centers in their home countries or the SPEAK examination (institutional version of the TSE) on arrival at UCLA. They can “pass” with a score of 50 or “pass conditionally” with a score of 45 if they also are enrolled in an English as a Second Language oral skills course at UCLA. Students should consult with their departments to determine if they require a higher score.

Students who plan to serve as teaching assistants during their first term at UCLA must either take and pass the TSE before arrival or arrive on campus early enough to take the SPEAK examination before instruction begins. UCLA’s Office of Instructional Development (OID) conducts the SPEAK testing. For the examination schedule and other information, see <http://www.oid.ucla.edu/TATP/speak.html>. Students should also contact either their department or the TA Training Program. ☎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., and M.D. degree programs in the Schools of Dentistry, Law, and Medicine, 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, Microbiology and Molecular Genetics, Molecular Biology, Molecular Cell, and Developmental Biology, and Physiological Science in the College of Letters and Science; Anatomy and Cell Biology, Biological Chemistry, Experimental Pathology, Human Genetics, Microbiology and Immunology, Molecular and Medical Pharmacology, and Physiology in the School of Medicine; and Molecular Toxicology in the School of Public Health. For specific information, see the department listing in the Curricula and Courses section of this catalog.

### 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 which 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. See <http://www.uclaaccess.ucla.edu>. ☎310-206-5280

### First-Year Course Requirements

Individual requirements vary based on background and scientific interest and are determined by the steering committee. In general a formal course of study consists of three lecture courses, three laboratory rotations, and three seminar courses. In addition, participation is required in related activities on an informal basis.

Three survey lecture courses to be selected from a list of approved courses maintained in the program office are required (one in molecular biology, one in cellular biology, and an elective in one of several areas).

Students must enroll in one seminar course each term that includes reading and reporting on current research literature.

During their first nine months in residence, students rotate for one term each through three laboratories selected from the UCLA ACCESS fac-





ulty list. They enroll in a 500-level course for 6 units of credit for each rotation.

An additional course in ethics (Microbiology and Molecular Genetics CM234) is required.



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.

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. All degree requirements and University regulations apply just as they do for a first degree. Courses 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

Enrollment and Degree Services  
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 paid through the UCLA Student Billing Statement, also called the BAR statement, mailed monthly to students' UCLA mailing address by the Student Accounting Office.
2. Enrollment in classes is completed via URSA at (310) 208-0425 or <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>.

Once students receive their BAR statement, payments can be mailed, deposited in the Administrative Main Cashier's drop slot at 1125 Murphy Hall, or paid by credit card via CyberPay, which is accessed through URSA OnLine. After the published deadline, payments must be made in person at 1125 Murphy Hall and are assessed an additional late fee.

## Annual Graduate Fees

Although the exact cost of attending UCLA varies, there are some fees that all UCLA students must pay. 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.

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

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

## Annual Fees for 2001-02

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

University registration fee	\$ 713.00
Educational fee	2,896.00
Ackerman Student Union fee	51.00
Graduate Students Association fee	16.50
Wooden Recreation Center fee	36.00
Seismic fee for Ackerman/Kerckhoff	113.00
Student Health Insurance Plan	720.00
<b>Total for California residents</b>	<b>\$4,545.50</b>
Nonresident educational fee	3,086.00
Nonresident tuition fee	10,244.00
<b>Total for nonresidents</b>	<b>\$14,979.50</b>

## Miscellaneous Fees

Miscellaneous fees include charges for late registration fee payment. Late fees also apply if students file their Study List late or do not pay off BAR statement 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 adequate medical/health insurance 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 adequate medical/health insurance as defined by the University. The Ashe Student Health and Wellness Center is the primary health care 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 Out of GSHIP

Students may waive out of GSHIP if they (1) maintain active enrollment in an adequate 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 qualifying adequate private medi-



cal/health insurance. Follow the Online Services link from <http://www.studenthealth.ucla.edu>

### Deadlines for Waiving Out of GSHIP

Third party individuals may not waive out of GSHIP for another student. Waivers must be submitted by the stated deadlines whether or not fees have been paid. Deadlines are strictly enforced.

The schedule for waiving out of GSHIP is as follows:

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

Fall Semester	August 1-20
Spring Semester	December 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 part or all of the 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 generally 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 75 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 registration 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.

### Annual Budget Estimates

The table below provides an estimate of a total budget students might expect based on the regular session terms of the 2001-02 academic year, not including Summer Sessions.

Students admitted to the D.D.S., J.D., M.B.A., M.S.N., M.F.A. in Theater, M.F.A. in Film and Television, and M.D. 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.

Nonresident tuition and certain University fees were under review at the time of publication. 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>.

### Annual Budget Estimates for Graduate Students

Estimates cover three regular session terms, using the 2001-02 academic year as an example. The nonresident annual tuition and other University fees cited below were under review at the time of publication. All fees are subject to change without notice by The Regents.

	Resident	Nonresident
University fees	\$ 4,545.00	\$ 4,735.50
Nonresident tuition		10,244.00
Books and supplies	1,452.00	1,452.00
Living expenses	13,275.00	13,275.00
<b>Total Budget Estimate</b>	<b>\$19,272.00</b>	<b>\$29,706.50</b>



## ENROLLING IN CLASSES

The online *Schedule of Classes* 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 online at <http://www.ursa.ucla.edu> or by telephone at (310) 208-0425. For most students, URSA OnLine is the easiest way to enroll in classes. 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 the URSA and Enrollment sections of the online *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, 9 a.m. to 5 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—which is available for purchase in the UCLA Store.

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

Errors or omissions should be corrected before the College or school deadline 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. There-

fore, students are directed by their departments to enroll full time whenever possible.

Throughout their appointments, teaching assistants (TAs) are required to be registered and enrolled in at least 8 quarter units and graduate student researchers in at least 12 quarter units. TAs or researchers terminate their appointments if they take a leave of absence or withdraw. Course



375 for TAs and independent studies at the 500 level for graduate student researchers may be counted toward the 8- or 12-unit load.

Graduate students holding fellowships must be enrolled in at least 8 units, both before and after advancement to candidacy. The 8-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, Spring) 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, Education and Information Studies, Medicine, or Nursing must complete and return to the Ashe Student Health and Wellness Center the Health Evaluation forms provided by their departments. For clearance information, call (310) 825-4073.

## FINANCIAL SUPPORT

Graduate Student Support  
1228 Murphy Hall

(310) 825-1025

<http://www.gdnet.ucla.edu/asis/infoserv/gdservcs.htm>

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 students is included in the *Application for Graduate Admission*. Readmitted students should also request the *Application for Graduate Admission*, and continuing graduate students should complete the *Fellowship and Assistantship Application for Continuing Students*. Completed applications must be returned by the published deadline during the first week in January. Some departments have earlier deadlines; consult the application brochure for details.

*UCLA Graduate Student Support* describes the full range of financial assistance available. It is published annually and distributed by the Graduate

Division. 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 from the Financial Aid Office beginning in February and should be filed before May 1.

Financial aid awards include work-study and low-interest loans. Students are usually awarded a financial aid package which is a combination of these forms of assistance. Further information is available from the Financial Aid Office, A129J Murphy Hall.



# 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. Professional master's and doctoral degree programs require professional training. Demonstration of achievement in these fields may take various forms, including fieldwork, completion of projects, and training that involves 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*, 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 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) 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, stu-



dents must complete at least one before the University Oral Qualifying Examination (unless 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.

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

After advancement to candidacy, students under Plan I must submit a thesis reporting on results of their original investigation of a problem. While the problem may be one of only limited scope, the thesis must show a significant style, organization, and depth of understanding of the subject.

A thesis committee, consisting of at least three faculty members who hold regular professorial appointments at the University, is nominated by the department and appointed by the dean of the Graduate Division for each student (consult the Graduate Division for more details on committee members' eligibility requirements). The thesis committee, which must be appointed before students may be advanced to candidacy, approves the subject and plan of the thesis, provides the guidance necessary to complete it, then reads and

approves the completed manuscript. Approval must be unanimous among committee members.

Once the thesis committee and other concerned faculty members have approved the subject for the thesis, work may begin. Students are responsible for preparing the thesis in the proper form and for observing filing deadlines.

#### Plan II: Master's Comprehensive Examination

Following advancement to candidacy, students under Plan II must pass a comprehensive examination administered by a committee consisting of at least three faculty members appointed by the department. In some departments the comprehensive examination may serve as a screening examination for admission to doctoral programs. Information concerning this examination and its format 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. 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 the Graduate Division 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 written examination.



# 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 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.

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
<b>Total</b>		<b>12</b>	<b>34.8</b>

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.

## 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). They may not elect the P/NP option for Summer Sessions courses without an approved petition. 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 a 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 (identified by T1, T2, T3, or T4 in the *Schedule of Classes*), 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 Enrollment and Degree 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 provost or dean's office (undergraduates) or departmental office (graduate students).

When students officially withdraw, a percentage of the registration fee is 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 fee 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, Spring), 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.

### Reentering Students

To return to the University after an absence of more than one term, 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) with readmission applications. Coursework is evaluated when official transcripts are received. The paper records of nonregistered students, including transcripts submitted for transfer credit, are

#### Readmission Deadlines

Fall Quarter	August 15
Winter Quarter	November 25
Spring Quarter	February 25



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. ☎310-825-1091

## GRADUATE READMISSION

For details on the policies below, consult *Standards and Procedures for Graduate Study at UCLA* at <http://www.gdnet.ucla.edu/publications.html>.

### 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, Spring) 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.

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 when their leave is due to expire.

Obtain a Request for Leave of Absence form at Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall. See the *Schedule of Classes* calendar for the filing deadline.

### 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*. Forms are available from the departments and should be submitted to Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall, UCLA, Box 951428, Los Angeles, CA 90095-1428. The following materials must accompany the application:

1. A check or money order for the amount of the nonrefundable application fee made payable to The Regents of the University of California
2. The Graduate Petition for Change of Major, if appropriate (students who are reapplying in a new major), along with the UCLA graduate transcript
3. Transcripts of all academic work completed since registration at UCLA as a graduate student

## TRANSCRIPTS AND RECORDS

The permanent record is the transcript, which 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 security paper is blue with a faint background design and a border with the words "University of California, Los Angeles." The reverse of the document includes the transcript legend and authentication details. Transcripts are issued in blue envelopes marked "Official Transcripts Enclosed."

Two versions of official UCLA student records are available from Academic Record Services, 1134 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 avail-



able approximately 30 working days 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, degrees, and “good student” standing for auto insurance. 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 Loan 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).

## ORDERING TRANSCRIPTS

Academic and verification transcripts can be ordered 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 they were registered at UCLA
2. Dates of attendance at UCLA
3. Date of birth
4. Social security number and/or student I.D.
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 request forms containing this information are available in the Murphy Hall North Lobby or at <http://www.registrar.ucla.edu/forms>. Transcripts can also be ordered by faxing a request to (310) 825-6235.

For UCLA Extension courses, order transcripts from UCLA Extension, P.O. Box 24901, Los Angeles, CA 90024.

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) 825-3801 or by contacting [transcripts@registrar.ucla.edu](mailto:transcripts@registrar.ucla.edu).

## FEES AND PAYMENT

Current students’ transcript fees are billed to their BAR 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>.

## 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 certificate, 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.

## 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 following the last date of attendance. Students may view their documents in Academic Record Services, 1134 Murphy Hall. Advance notice of 24 hours is required for viewing. ☎310-825-3801

### 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>.

As needed, students may obtain a free printout of their grades for the most recent graded term from the Registrar's Office, 1113 or 1134 Murphy Hall, by presenting their valid current-term BruinCard.

### Change of Name or Address

Students who wish to change their name on official University records should fill out a UCLA Correction or Change of Name form (available in the Murphy Hall North Lobby) and submit it to Enrollment and Degree Services, 1113 Murphy Hall. All name changes are recorded on the transcript. If students change their address, they should update their address through URSA OnLine or at Enrollment and Degree Services.

## 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

The College and each school enforces minimum progress regulations. Students may be subject to disqualification for failing to meet minimum



progress requirements. See the College and Schools section for specific minimum 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

Students who take courses at a college or university other than UCLA should consult a College or school adviser about Articulation Agreements to determine how the courses will transfer. Articulation Agreements are lists of transferable courses from institutions other than UCLA.

Once students complete the courses, they must have the other institution send transcripts to Undergraduate Admissions and Relations with Schools (UARS), 1147 Murphy Hall, Box 951436, Los Angeles, CA 90095-1436. They must also go to UARS to submit a Transcript Locator Card (also known as a Transfer Credit Evaluation

Request) to initiate a credit evaluation. 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 other than UC Santa Cruz (unless the letter-grade option is elected at UCSC) are computed in the UCLA grade-point average.

### UCLA Extension

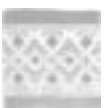
Students who wish to receive degree credit for work taken through UCLA Extension should take courses that correspond in number to the undergraduate courses offered in regular session. The designation XL or XLC before the number of the Extension course signifies that the course is equivalent to the regular session course bearing the same number. Grades earned by Arts and Architecture and Letters and Science undergraduate students in courses prefixed by XLC are computed in the UCLA grade-point average. No degree credit is given for courses numbered X300 through X499. Remember that 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 OnLine or order one at a College counseling office (Academic Advancement Program, 1209 Campbell Hall; Honors Programs, A311 Murphy Hall; Letters and Science Counseling Services, A316 Murphy Hall).



Students should review questions about their DPR with departmental undergraduate advisers or College counselors, as appropriate. Students who entered UCLA prior to Fall Quarter 1988 should consult their College counseling office.

### School of the Arts and Architecture

Degree Progress Reports are available via URSA OnLine as well as on request from the Office of Student Services, 1100 Dickson Art Center. Students should consult an adviser in the Office of Student Services when they have questions about degree requirements or when they print a DPR. Questions regarding major requirements should be referred to the departmental counselor.

### Henry Samueli School of Engineering and Applied Science

Students at a high sophomore level and above must submit a "satisfied" Academic Program Proposal to the Office of Academic and Student Affairs, 6426 Boelter Hall. All engineering students may pick up a Graduation Evaluation Report at 6426 Boelter Hall. The report outlines each category requirement for an engineering degree and the courses completed for each category. Students may schedule an appointment at the Office of Academic and Student Affairs to have an official degree check completed one term prior to their graduation term.

### School of Nursing

Students may initiate a request for an updated degree check by contacting the student services coordinator in the Student Affairs Office, 2-200 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>.

## 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.



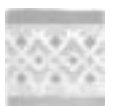
### Declaration of Candidacy

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 Telephone (option 6# on the Student Records Menu) 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 purchase the UCLA Declaration of Candidacy form at any UCLA Store and file it at 1113 Murphy Hall.

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 (option 6# on the Student Records Menu of URSA Telephone or in the DPR and Study List of URSA OnLine). 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 I.D. 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 (1100 Dickson Art Center for Arts and Architecture students, 6426 Boelter Hall for Engineering students, 2-200 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.

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 over URSA Telephone 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 OnLine.

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 mailer form and remit the mailing fee. Obtain recorded diploma availability information at (310) 825-8883. The Registrar's Office retains diplomas for five years from graduation date.

## Change of Name

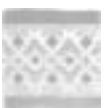
To be reflected on the diploma, name changes must be submitted to Academic Record Services, 1134 Murphy Hall, by the last day of the degree expected term. Students submitting name changes after that date must request a replacement diploma at 1113 Murphy Hall and pay an additional fee.

## Duplicate Diplomas

If the original diploma is destroyed, a duplicate may be ordered by contacting the Registrar's Office, Diploma Reorder, 1113 Murphy Hall. 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 or provost 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

**Brian P. Copenhaver, Provost**

UCLA  
A316 Murphy Hall  
Box 951430  
Los Angeles, CA 90095-1430

(310) 825-1965 (Letters and Science Counseling)  
<http://www.college.ucla.edu>

*“The Idea of a Multiversity” is a city of infinite variety. Some get lost in the city; some rise to the top within it; most fashion their lives within one of its subcultures. . . . It offers . . . a vast range of choices, enough literally to stagger the mind. In this range of choices . . . (one) encounters the opportunities and the dilemma of freedom.”*

*Clark Kerr, The Uses of the University*

With over 23,719 students and more than 800 faculty, UCLA’s College of Letters and Science is the largest academic unit in the UC system.

Four academic divisions of humanities, physical sciences, social sciences, and life sciences provide the framework for more than 125 majors leading to the Bachelor of Arts or Bachelor of Science as well as to master’s and doctoral degrees.

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 posed, and knowledge 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.

For a complete list of Letters and Science degrees, see the table in the front of this catalog.

## ORGANIZATION OF THE COLLEGE

The primary units of the College are the academic departments, which are grouped in four divisions: Humanities, Life Sciences, Physical Sciences, and Social Sciences. Each division is

headed by a dean who reports directly to the provost. A fifth division, Honors and Undergraduate Programs, provides academic programs, academic services, and scholarships for undergraduate students. It is headed by the vice provost for undergraduate education.



## Humanities

The Humanities Division promotes, through scholarly inquiry and 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 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 ways we communicate. Historians of religion, music, and art 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. Pauline Yu is the divisional dean.

## Life Sciences

Faculty 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 physiologists, plant and animal ecol-

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*Undergraduate programs in the College stress a liberal arts education that brings together perspectives from many fields in a unified approach to learning*

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ogists, and evolutionary biologists. Scientists in biology, microbiology and molecular genetics, and molecular biology conduct research in cell and developmental biology. Neurochemists, neurophysiologists, psychobiologists, and behavior biologists study the underlying mechanisms of the neural basis of behavior. Physiological scientists examine the regulation of human movement, neural control of breathing, and environmental conditions, such as weightlessness, that affect bone and muscle structure and function. Cognitive scientists are concerned with the nature of knowledge—how people learn, remember, associate, and think, and how computers relate to human thought processes. Fred Eiserling is the divisional dean.

### 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. 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, and observational. Faculty 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. Roberto Peccei is the divisional dean.

### Social Sciences

Departments in the Social Sciences Division are guided by the ideal of creating a deeper understanding of cultures and heritages and helping young people make sense of the rapidly changing world. By studying and comparing diverse cultures with their own, students gain self-knowledge and global awareness. Anthropology students study human communities and social systems, archaeological records, and artifacts. Communication studies students learn about the mass media of today and their technological advances, social uses, and abuses. Leading economists investigate the applications of economic principles to business decisions. The geographic purview extends from studying the effects of location on human behavior to the Earth's ecosystem. Courses in history bring about understanding of the forces that have shaped the many societies and cultures of this country and the world. Political scientists study the motivations of political behavior and the relations between today's superpowers. UCLA sociologists examine subjects ranging from the everyday interaction of people to the complexities of social organizations. Scott L. Waugh is the divisional dean.

### Honors and Undergraduate Programs

The Honors and Undergraduate Programs Division provides academic programs, services, and scholarships through a number of units including:

**Academic Advancement Program.** The Academic Advancement Program (AAP) is a multiracial and multicultural program working to retain and graduate some 7,000 students. ☎310-825-1481

**Academics in the Commons.** Free individual and small-group tutorials are offered through Academics in the Commons at Covell Commons. Staffed by trained peer tutors, the program helps develop critical thinking and independent learning.

**Honors Programs.** The Honors Programs Office provides academic counseling and services to students in the College Honors Program, the Education Abroad Program, and the Individual Majors Program, as well as to Departmental Scholars. It oversees Honors Collegium courses and administers Phi Beta Kappa nominations. ☎310-825-1553

**Letters and Science Counseling Services.** Letters and Science Counseling Services assists students with academic regulations and procedures, help them select courses, and advise them of options available to enhance their university education. Other services include workshops to help students develop their academic strengths. ☎310-825-3382

**Orientation Program.** The Orientation Program prepares new students to face the personal and academic challenges of study at UCLA through individual counseling, small group discussions, workshops, and presentations. ☎310-206-6685

**Preprofessional Advising.** For information on preparing for professional degrees, see the preprofessional advising site at <http://www.college.ucla.edu/up/pao>.

**Scholarship Resource Center.** The Scholarship Resource Center helps UCLA students find scholarships, request applications, draft personal statements, or proofread and prepare applications. Counselors help students with scholarship-related questions and point them to relevant resources.

**Undergraduate Research Centers.** Undergraduate Research Centers assist students in the humanities and social sciences and in the life and physical sciences by supporting scholarly, critical, and creative research. The centers provide individual research counseling, house research and mentoring programs, and administer stipends and scholarships.

## UNDERGRADUATE DEGREE REQUIREMENTS

For a complete list 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, UCLA 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 undergraduates must satisfy in order to graduate: (1) Subject A or English as a Second Language and (2) American History and Institutions. Students who do not satisfy the Subject A requirement prior to enrollment must pass an approved course or other program prescribed by their UC campus of residence. Only after satisfying the Subject A 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, English composition, quantitative reasoning, foreign language, and general education.

### STRUCTURE OF A DEGREE

#### University Requirements

1. Subject A or English as a Second Language
2. American History and Institutions

#### College Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. College Writing
  - Writing I Requirement
  - Writing II Requirement
5. Quantitative Reasoning
6. Foreign Language
7. General Education

#### Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy the University, College, or department requirements are referred to as electives and are used to meet the minimum unit requirement for graduation.

## Unit Requirement

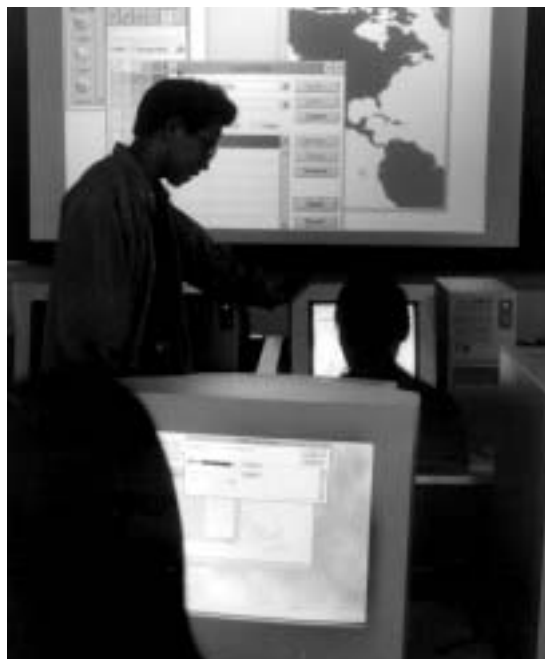
Students must satisfactorily complete for credit a minimum of 180 units for the bachelor's degree. For students entering Fall Quarter 1999 and thereafter, at least 60 of the 180 units must be upper division courses numbered 100 through 199. A maximum of 216 units (228 for double majors and special programs) is permitted. Students with advanced placement (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

Sixty-eight of the last 80 units completed for the bachelor's degree must be earned in residence in the College. No more than 16 of the 68 units may be completed in UCLA Summer Sessions. While enrolled in the College, students must complete at least 40 upper division units, including 24 upper division units in the major. These academic residence requirements apply to all students, both continuing and transfer.



## College Writing Requirement

Students must complete the University's Subject A or English as a Second Language (ESL) requirement prior to completing the College writing requirement.

Beginning Fall Quarter 1999, new students admitted to the College are required to complete a two-quarter College writing requirement—Writing I and Writing II. Continuing and returning students fulfill the requirements in effect prior to Fall Quarter 1999. Under the new requirement, two courses in English composition are required for graduation. Both courses must be taken for a letter grade, 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 an equivalent course approved by the College Faculty Executive Committee, within the first three quarters 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 better on the SAT II Subject Test in Writing 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 is satisfied by selecting a course from a list of courses approved by the College Faculty Executive Committee. Writing II courses are listed in the *Schedule of Classes* at <http://www.registrar.ucla.edu/schedule> and are available in Letters and Science Counseling Services offices. Most Writing II courses may also be applied toward General Education (GE) requirements or toward some preparation for the major requirements. It is strongly recommended that the requirement be fulfilled within the first six quarters of enrollment.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum 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 (a grade of C- 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

In the College of Letters and Science, students must demonstrate basic skills in quantitative reasoning. All courses taken to satisfy the Quantitative Reasoning requirement must be completed with a grade of Passed or C or better. The Quantitative Reasoning requirement can be satisfied by achieving a SAT I mathematics score of 600 or better, a SAT II mathematics subject test score of 550 or better, or by completing one of the following courses: Anthropology M80, Biostatistics 100A, 100B, Computer Science 10C, 10F, Economics M40, Geography M40, Mathematics 2 (or any higher numbered course except 38A, 38B, and 104), Philosophy 31, Political Science 6, Program in Computing 10A, 10B, 10C, Sociology M18, 109A, Statistics 10, M11, M12.

### Foreign Language Requirement

The Foreign Language requirement can be satisfied by one of the following methods: (1) completing a college-level foreign language course equivalent to UCLA's level three or above or (2) scoring 3, 4, or 5 on the College Board Advanced Placement (AP) foreign language examination in French, German, or Spanish, 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 these regularly scheduled examinations. Students who wish to demonstrate proficiency in a language which 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 (Linguistics) 1A-1B-1C or 15 (Swahili); 7A-7B-7C or 17 (Zulu); 11A-11B-11C or 25 (Yoruba); 31A-31B-31C or 35 (Bambara); 41A-41B-41C or 45 (Hausa); 51A-51B-51C (Amharic); 61A-61B-61C (Wolof); 75 (Chichewa); 85 (Setswana)

Afrikaans (Germanic Languages) 105A, 105B

Ancient Near East (Near Eastern Languages) 120A-120B-120C (Ancient Egyptian); 140A-140B-140C (Sumerian)

Arabic (Near Eastern Languages) 1A-1B-1C

Armenian (Near Eastern Languages) 101A-101B-101C or 104A-104B-104C

Berber (Near Eastern Languages) 101A-101B-101C

Bulgarian (Slavic Languages) 103A-103B-103C

Chinese (East Asian Languages) 1, 2, and 3, or 1A and 2A, or 3R or 8

Czech (Slavic Languages) 102A-102B-102C

Dutch (Germanic Languages) 103A-103B, and 103C, or 104A-104B

French 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 10A-10B-10C

Hungarian (Slavic Languages) 101A-101B-101C

Indigenous Languages of the Americas (Linguistics) 17 or 18A-18B-18C (Quechua)

Iranian (Near Eastern Languages) 1A-1B-1C or 20A-20B-20C (Persian)

Italian 1, 2, and 3, or 1A and 2A

Japanese (East Asian Languages) 1, 2, and 3, or 8

Korean (East Asian Languages) 1, 2, and 3, or 1A, 2A, and 3A, or 8

Latin (Classics) 1, 2, and 3, or 16

Polish (Slavic Languages) 102A-102B-102C

Portuguese (Spanish and Portuguese) 1, 2, 3

Romanian (Slavic Languages) 101A-101B-101C or 104

Russian (Slavic Languages) 1, 2, and 3, or 10 or 11A-13B (two units each) or 15A-15B

Scandinavian 1, 2, and 3, or 8 (Swedish); 11, 12, 13 (Norwegian); 21, 22, 23 (Danish)

Semitics (Near Eastern Languages) 140A-140B, 141 (Akkadian)

Serbian/Croatian (Slavic Languages) 103A-103B-103C

South and Southeast Asian Languages (East Asian Languages) 40A-40B-40C (Hindi); 50A-50B-50C (Vietnamese); 60A-60B-60C (Thai); 70A-70B-70C (Tagalog); 80A-80B-80C (Indonesian)

Spanish (Spanish and Portuguese) 1, 2, and 3, or 2A and 3A

Turkic Languages (Near Eastern Languages) 101A-101B-101C (Turkish); 111A-111B-111C (Uzbek); 115A-115B-115C (Azeri)

Ukrainian (Slavic Languages) 101A-101B-101C

Yiddish (English) 101A, 101B, and 101C, or 102B



## General Education Requirements

The general education (GE) requirements of the College introduce undergraduates to the richness and diversity of the various academic disciplines, broaden their intellectual perspective, and prepare them to be educated members of society. Within four of the divisions of the College—Humanities, Physical Sciences, Social Sciences, and Life Sciences—students are encouraged to explore the different possibilities for further university study.

### Advanced Placement Credit

To apply advanced placement (AP) credit toward GE requirements, see the AP chart in the Undergraduate Study section of this catalog or consult a College counselor.

### 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 at UCLA. Written verification from the college dean at the other UC campus is required. Consult a College counselor regarding eligibility for this option.

### Intersegmental GE Transfer Curriculum

Transfer students from California community colleges have the option to fulfill UCLA lower divi-

sion 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 to use IGETC must complete it entirely before enrolling at UCLA. Otherwise, students must fulfill the Letters and Science GE requirements.

Students who are unable to complete one or two IGETC courses for good cause may petition the community college for partial completion of IGETC. If the petition is approved by the community college, the remaining courses must be completed with a minimum grade of C within one calendar year of admission to UCLA. Failure to complete IGETC coursework within the specified time period results in a permanent denial of IGETC certification, and students are required to complete the Letters and Science GE requirements.

## GENERAL EDUCATION REQUIREMENTS

**Humanities Division** — Four (4) courses. One course must be from the literature subgroup and no more than two courses may be from any single subgroup.

Humanities – Literature  
Humanities – Philosophy  
Humanities – Language and Linguistics  
Humanities – Culture and Civilization  
Humanities – The Arts

**Physical Sciences Division** — Three (3) courses. Two courses must be complementary and one must include a laboratory and/or demonstration component. (Students who entered prior to Fall Quarter 1999 with 45 units or more are exempt from the complementary requirement.)

**Social Sciences Division** — Four (4) courses. Two courses must be from each subgroup.

Social Sciences — Historical Analysis  
Social Sciences — Social Analysis

**Life Sciences Division** — Three (3) courses. One course must include a laboratory and/or demonstration component.

**Exemptions** — Each student is exempt from two GE courses. Exemptions depend on the major selected and which division that major is in. Special programs such as the GE Cluster courses also carry exemptions.

Students with a major in the Humanities Division are exempt from two courses, one in the subgroup of their major and one in another humanities subgroup. Students with a major in the Physical Sciences Division are exempt from two courses in the physical sciences group. Students with a major in the Social Sciences Division are exempt from two courses in the subgroup of their major. Students with a major in the Life Sciences Division are exempt from two courses in the life sciences group.

Courses required to satisfy the major or other courses taken in the major department may not be used to satisfy the general education requirements. However, courses outside the major which are required as preparation for the major may be used to satisfy these requirements.

**Substitutions** — Two lower division seminars which have been approved for general education credit may be substituted for courses on the GE course list. Students may make no more than one such substitution per GE group (Humanities, Physical Sciences, Social Sciences, Life Sciences). An annual list of GE seminars is published in the *General Education Handbook*, and descriptions are listed in the *Schedule of Classes* under Special Programs.



78 COLLEGE OF LETTERS AND SCIENCE GENERAL EDUCATION COURSE EXEMPTIONS

Each student is exempt from two GE courses. Exemptions depend on the major selected and which division that major is in, as outlined in the tables below.

MAJORS	GE COURSE EXEMPTIONS
<b>HUMANITIES DIVISION</b>	
African Languages . . . . .	1 Humanities and 1 Humanities-Literature
American Literature and Culture . . . . .	1 Humanities and 1 Humanities-Literature
Ancient Near Eastern Civilizations. . . . .	1 Humanities and 1 Humanities-Culture and Civilization
Arabic . . . . .	1 Humanities and 1 Humanities-Literature
Art History. . . . .	1 Humanities and 1 Humanities-The Arts
Asian Humanities . . . . .	1 Humanities and 1 Humanities-Literature
Asian Religions . . . . .	1 Humanities and 1 Humanities-Culture and Civilization
Chinese . . . . .	1 Humanities and 1 Humanities-Literature
Classical Civilization . . . . .	1 Humanities and 1 Humanities-Culture and Civilization
Comparative Literature . . . . .	1 Humanities and 1 Humanities-Literature
East Asian Studies . . . . .	1 Humanities and 1 Humanities-Culture and Civilization
English . . . . .	1 Humanities and 1 Humanities-Literature
English/Greek . . . . .	1 Humanities and 1 Humanities-Literature
English/Latin . . . . .	1 Humanities and 1 Humanities-Literature
French . . . . .	1 Humanities and 1 Humanities-Literature
French and Linguistics . . . . .	1 Humanities and 1 Humanities-Language and Linguistics
German . . . . .	1 Humanities and 1 Humanities-Literature
Greek . . . . .	1 Humanities and 1 Humanities-Literature
Greek and Latin . . . . .	1 Humanities and 1 Humanities-Literature
Hebrew . . . . .	1 Humanities and 1 Humanities-Literature
Iranian Studies. . . . .	1 Humanities and 1 Humanities-Culture and Civilization
Italian. . . . .	1 Humanities and 1 Humanities-Literature
Italian and Special Fields. . . . .	1 Humanities and 1 Humanities-Literature
Japanese. . . . .	1 Humanities and 1 Humanities-Literature
Jewish Studies . . . . .	1 Humanities and 1 Humanities-Culture and Civilization
Korean . . . . .	1 Humanities and 1 Humanities-Literature
Latin. . . . .	1 Humanities and 1 Humanities-Literature
Linguistics . . . . .	1 Humanities and 1 Humanities-Language and Linguistics
Linguistics and all special fields . . . . .	1 Humanities and 1 Humanities-Language and Linguistics
Music History . . . . .	1 Humanities and 1 Humanities-The Arts
Near Eastern Studies. . . . .	1 Humanities and 1 Humanities-Culture and Civilization
Philosophy. . . . .	1 Humanities and 1 Humanities-Philosophy
Portuguese. . . . .	1 Humanities and 1 Humanities-Literature
Religion, Study of . . . . .	1 Humanities and 1 Humanities-Culture and Civilization
Russian Language and Literature . . . . .	1 Humanities and 1 Humanities-Literature
Russian Studies . . . . .	1 Humanities and 1 Humanities-Culture and Civilization
Scandinavian Languages . . . . .	1 Humanities and 1 Humanities-Literature
Slavic Languages and Literatures . . . . .	1 Humanities and 1 Humanities-Literature
Spanish . . . . .	1 Humanities and 1 Humanities-Literature
Spanish and Linguistics. . . . .	1 Humanities and 1 Humanities-Language and Linguistics
Spanish and Portuguese . . . . .	1 Humanities and 1 Humanities-Literature

MAJORS	GE COURSE EXEMPTIONS
<b>PHYSICAL SCIENCES DIVISION</b>	
Applied Mathematics . . . . .	2 Physical Sciences
Astrophysics. . . . .	2 Physical Sciences
Atmospheric, Oceanic, and Environmental Sciences . . . . .	2 Physical Sciences
Biochemistry . . . . .	2 Physical Sciences
Chemistry . . . . .	2 Physical Sciences
Chemistry/Materials Science. . . . .	2 Physical Sciences
Cybernetics . . . . .	2 Physical Sciences
Earth Sciences . . . . .	2 Physical Sciences
General Chemistry. . . . .	2 Physical Sciences
General Mathematics . . . . .	2 Physical Sciences
General Physics . . . . .	2 Physical Sciences
Geology . . . . .	2 Physical Sciences
Geophysics. . . . .	2 Physical Sciences
Mathematics . . . . .	2 Physical Sciences
Mathematics/Applied Science. . . . .	2 Physical Sciences
Mathematics/Economics . . . . .	2 Physical Sciences
Mathematics of Computation . . . . .	2 Physical Sciences
Physics . . . . .	2 Physical Sciences

MAJORS	GE COURSE EXEMPTIONS
<b>SOCIAL SCIENCES DIVISION</b>	
Afro-American Studies. . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
Anthropology. . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
Asian American Studies. . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
Chicana and Chicano Studies . . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
Communication Studies . . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
Economics . . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
European Studies. . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
Geography . . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
Geography/Environmental Studies. . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
History . . . . .	1 Social Sciences and 1 Social Sciences-Historical Analysis
History/Art History. . . . .	1 Social Sciences and 1 Social Sciences-Historical Analysis
International Development Studies. . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
Latin American Studies . . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
Political Science . . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
Sociology . . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis
Women's Studies. . . . .	1 Social Sciences and 1 Social Sciences-Social Analysis

MAJORS	GE COURSE EXEMPTIONS
<b>LIFE SCIENCES DIVISION</b>	
Biology . . . . .	2 Life Sciences
Cognitive Science . . . . .	2 Life Sciences
Ecology, Behavior, and Evolution . . . . .	2 Life Sciences
Marine Biology. . . . .	2 Life Sciences
Microbiology and Molecular Genetics. . . . .	2 Life Sciences
Molecular, Cell, and Developmental Biology. . . . .	2 Life Sciences
Neuroscience . . . . .	2 Life Sciences
Physiological Science . . . . .	2 Life Sciences
Plant Biology . . . . .	2 Life Sciences
Psychobiology . . . . .	2 Life Sciences
Psychology . . . . .	2 Life Sciences



Courses marked with an asterisk (e.g., Honors Collegium \*9. Greeks and Barbarians: Multiculturalism in the Ancient World) are listed in more than one category and can fulfill GE requirements in only one of the cross-listed categories. All honors sections of courses listed below also fulfill GE requirements.

## A. HUMANITIES

Four courses, with at least one from Group A1 and no more than two courses from any single subgroup:

### A1. LITERATURE

#### Afrikaans (Germanic Languages)

114. German Exile Culture in Los Angeles

#### Classics

40. Survey of Greek Literature in Translation  
41. Survey of Latin Literature in Translation  
41W. Discovering Roman Literature

#### Comparative Literature

1A. World Literature: Antiquity to Early Middle Ages  
1B. World Literature: Late Middle Ages to the 17th Century  
1C. World Literature: Age of Enlightenment to the 20th Century  
1D. Great Books from the World at Large  
2AW. Survey of Literature: Antiquity to Early Middle Ages  
2BW. Survey of Literature: Late Middle Ages to the 17th Century  
2CW. Survey of Literature: Age of Enlightenment to the 20th Century  
2DW. Survey of Literature: Great Books from the World at Large  
4AW. Literature and Writing: Antiquity to Early Middle Ages  
4BW. Literature and Writing: Late Middle Ages to the 17th Century  
4CW. Literature and Writing: Age of Enlightenment to the 20th Century  
4DW. Literature and Writing: Great Books from the World at Large

#### English

4W. Critical Reading and Writing  
4HW. Critical Reading and Writing (Honors)  
10A. English Literature to 1660  
10B. English Literature, 1660 to 1832  
70. Major British Authors before 1800  
75. Major British Authors, 1800 to the Present  
80. Major American Authors  
85. American Novel  
88J. Lower Division Seminar: Introduction to Asian American Fiction  
88L. Lower Division Seminar: Poetics of Myth  
88M. Lower Division Seminar: Three Philosophical Novels  
88M. Lower Division Seminar: When Myth Systems Collide -- 20th-Century Literature and Culture Confront Traditional Myths  
90. Shakespeare  
95A. Introduction to Poetry  
95B. Introduction to Drama  
95C. Introduction to Fiction  
96. The Short Story in England and America

#### Folklore and Mythology

88. Poetics of Myth

#### French (French and Francophone Studies)

12. Introduction to Study of French Literature (in French)  
114A, 114B, 114C. Survey of French Literature (in French)

#### German (Germanic Languages)

50A. Great Works of German Literature in Translation: Medieval Period through Classicism  
50B. Great Works of German Literature in Translation: Romanticism to the Present  
140A. Introduction to German Poetry (in German)  
140B. Introduction to German Drama (in German)  
140C. Introduction to German Narrative Prose (in German)

#### Honors Collegium

\*9. Greeks and Barbarians: Multiculturalism in the Ancient World  
16. Contemporary Fiction and Psychology of the Self  
21W. Rise and Fall of Modernism  
\*28. Misleading Mirror: Self-Portraits in Word and Image  
33W. Art of Engagement

40W. Transformations of Cultural Stories across Disciplines and Texts  
\*43. Male Identity and Sexuality in Ancient Rome  
46W. Literature of Testimony  
47. Literature of Colonization and Colonization of Literature  
\*50A. Greek Views of Humanity  
\*55. Culture and History of Utopias  
59W. Literature and Culture of the American South  
74. Life Crises in Literature  
80. Literature of Diversity: Cultural Experience in America  
83W. Politics and Rhetoric of Literature  
86. Federico Garcia Lorca and Literature of New York  
134. Quest for Identity and the American Dream

#### Italian

50A. Masterpieces of Italian Literature in English: Middle Ages and Renaissance  
50B. Masterpieces of Italian Literature in English: Baroque Period to the Present

#### Japanese (East Asian Languages)

60. Images of Japan: Humanistic Tradition

#### Jewish Studies (Near Eastern Languages)

175. Modern Hebrew Novel as a Film

#### Portuguese (Spanish and Portuguese)

40A, 40B. Portuguese, Brazilian, and African Literature in Translation  
120A, 120B. Introduction to Portuguese Literature (in Portuguese)  
130A, 130B. Brazilian Literature and Identity: Introduction (in Portuguese)

#### Russian (Slavic Languages)

25. Russian Novel in Translation  
25W. Russian Novel in Translation

#### Scandinavian

50. Introduction to Scandinavian Literature  
50W. Introduction to Scandinavian Literature

#### Spanish (Spanish and Portuguese)

60A, 60B, 60C. Hispanic Literatures in Translation  
88A. Lower Division Seminar: Reaching 2001 (Fantasy of Reality and Reality of Fantasy)

## A2. PHILOSOPHY

### Honors Collegium

\*6. Historical Construction of Reality  
32W. Creativity and Culture: Making Things New in the Arts, Humanities, Social Sciences, and Sciences  
\*50A. Greek Views of Humanity

### Philosophy

1. Beginnings of Western Philosophy  
2. Introduction to Philosophy of Religion  
4. Philosophical Analysis of Contemporary Moral Issues  
5A. Philosophy in Literature  
6. Introduction to Political Philosophy  
7. Introduction to Philosophy of Mind  
8. Introduction to Philosophy of Science  
21. Skepticism and Rationality  
22. Introduction to Ethical Theory  
22W. Introduction to Ethical Theory

## A3. LANGUAGE AND LINGUISTICS

### Chicana and Chicano Studies

M170. Latinos and Literacy

### Classics

55. Origins and Nature of English Vocabulary

### Communication Studies

M40. Language and Gender: Introduction to Gender and Stereotypes in English, Japanese, and Russian





**English**

88K. Lower Division Seminar: Introduction to English Etymology

**German (Germanic Languages)**

70. Origin of Language

**Honors Collegium**

19. Rhetoric on Trial: Legal Advocacy, Ancient and Modern

56. Language as a Window to the Mind

M128. Latinos and Literacy

131. Beating Time through Time: Language, Verse, and Culture

**Japanese (East Asian Languages)**

M40. Language and Gender: Introduction to Gender and Stereotypes in English, Japanese, and Russian

**Language**

Formal University foreign language instruction at level four or higher; no more than one course at level four or higher may be used

**Linguistics**

1. Introduction to Study of Language

2. Language in the U.S.

3. American Sign Language: Structure and Culture

10. Structure of English Words

20. Introduction to Linguistics

**Portuguese (Spanish and Portuguese)**

M35. Spanish, Portuguese, and Nature of Language

**Russian (Slavic Languages)**

M40. Language and Gender: Introduction to Gender and Stereotypes in English, Japanese, and Russian

**Spanish (Spanish and Portuguese)**

M35. Spanish, Portuguese, and Nature of Language

**A4. CULTURE AND CIVILIZATION****Ancient Near East (Near Eastern Languages)**

10W. Jerusalem: The Holy City

**Art History**

\*88A. Lower Division Seminar: Buddha's Life and Teachings in Art, Texts, and Worship

**Chinese (East Asian Languages)**

50. Chinese Civilization

**Classics**

\*10. Survey of Classical Greek Culture

\*20. Survey of Roman Civilization

30. Introduction to Classical Mythology

51A. Art and Archaeology of Classical World: Greece

51B. Art and Archaeology of Classical World: Rome

**East Asian Languages and Cultures**

60. Introduction to Buddhism

60W. Introduction to Buddhism

**Folklore and Mythology**

M15. Introduction to American Folklore Studies

**French (French and Francophone Studies)**

14. Introduction to French Civilization, in English

14W. Introduction to French Civilization

41. French Cinema and Culture

\*112. Medieval Foundations of European Civilization

**German (Germanic Languages)**

55. The City as Text: German Exile Culture in Los Angeles

60W. War

62W. Technoscience and German Culture

100A. German History and Culture before 1500

100B. German History and Culture from 1500 to 1914

100C. German History and Culture from 1914 to the Present

**History**

\*9A. Introduction to Asian Civilizations: History of India

\*9C. Introduction to Asian Civilizations: History of Japan

\*9D. Introduction to Asian Civilizations: History of the Near and Middle East

\*10A, \*10B. Introduction to Civilizations of Africa

\*10BW. Introduction to Civilizations of Africa since 1800

\*11A, \*11B. History of China

**Honors Collegium**

4. Surrealist Challenge

\*9. Greeks and Barbarians: Multiculturalism in the Ancient World

\*13. Realism in Times of Crisis: French and Italian Cinema of the 1930s and 1940s

\*26. Representing Medicine: Art, Literature, and Film

\*30. Vietnam War and American Culture

\*38. Frida Khalo: Multidisciplinary Construction of an Artist's Life

\*43. Male Identity and Sexuality in Ancient Rome

\*50A. Greek Views of Humanity

50B. Gender and Race: Constructions of Greek Political Thought

78. Writing in Age of Revolution

\*96. Cultural Dimensions of Apartheid and Post-Apartheid South Africa

\*132. Bible as Political Theory

**Italian**

42A. Italy through the Ages in English: Holy Roman Empire to Sack of Rome

42B. Italy through the Ages in English: Late Renaissance to Post-modern Period

46. Italian Cinema and Culture

**Japanese (East Asian Languages)**

50. Japanese Civilization

**Jewish Studies (Near Eastern Languages)**

10. Social, Cultural, and Religious Institutions of Judaism

**Korean (East Asian Languages)**

50. Korean Civilization

**Near Eastern Languages**

50A. First Civilizations

50B. Ascendance of Monotheism

50C. Modern Middle Eastern Cultures

**Portuguese (Spanish and Portuguese)**

M42. Civilization of Spain and Portugal

M44. Civilization of Spanish America and Brazil

46. Brazilian Culture and Civilization

**Russian (Slavic Languages)**

30. Russian Literature and World Cinema

99A. Introduction to Russian Civilization

99B. Russian Civilization in the 20th Century

99BW. Russian Civilization in the 20th Century

**Slavic (Slavic Languages)**

99. Introduction to Slavic Civilization

**Spanish (Spanish and Portuguese)**

M42. Civilization of Spain and Portugal

M44. Civilization of Spanish America and Brazil

**World Arts and Cultures**

M22. Introduction to American Folklore Studies

**A5. THE ARTS****Afro-American Studies**

M110A, M110B. African American Musical Heritage

**Art History**

50. Ancient Art

51. Medieval Art

54. Modern Art

55A. Introduction to African Art

55B. Arts of Pre-Columbian America

56A. Art of India and Southeast Asia

56B. Introduction to Chinese Art

57. Renaissance and Baroque Art

\*88A. Lower Division Seminar: Buddha's Life and Teachings in Art, Texts, and Worship

**Arts and Architecture**

10. Arts Encounters: Exploring Arts Literacy in the 21st Century

**Chicana and Chicano Studies**

M108A. Music of Latin America

**Classics**

42. Cinema and the Ancient World

**Design | Media Arts**

10. Nature of Design

**Ethnomusicology**

20A, 20B, 20C. Musical Cultures of the World



- M108A, 108B. Music of Latin America  
 M110A, M110B. African American Musical Heritage  
 113. Music of Brazil  
 C136A, C136B. Music of Africa  
 147. Survey of Classical Music in India  
 174. Aesthetics of Music

#### Film and Television

- 106A. History of the American Motion Picture  
 106B. History of the European Motion Picture  
 106C. History of African, Asian, and Latin American Film  
 108. History of Documentary Film  
 112. Film and Social Change

#### Folklore and Mythology

- M154A, M154B. African American Musical Heritage

#### Honors Collegium

- \*3. History and Visual Culture from Engraving to Film and Television  
 \*13. Realism in Times of Crisis: French and Italian Cinema of the 1930s and 1940s  
 \*26. Representing Medicine: Art, Literature, and Film  
 \*28. Misleading Mirror: Self-Portraits in Word and Image  
 \*29. Critical Vision: History of Art as a Social and Political Commentary  
 34. Film and Society: The Hollywood Myth of Ancient Rome  
 \*38. Frida Khalo: Multidisciplinary Construction of an Artist's Life  
 125. Interpretations of Shakespeare in Theater and Film in the 20th Century

#### Music

15. Art of Listening

#### Music History (Musicology)

- 2A, 2B. Introduction to Literature of Music  
 5. History of Rock and Roll  
 7. Film and Music  
 10. Music Now  
 12W. Writing about Music  
 13. 20th-Century Music of the Western World  
 133. Bach  
 134. Beethoven  
 135A, 135B, 135C. History of Opera

#### Theater

- 102E. Theater of Non-European World  
 104C. History of American Theater: WWI to the Present

#### World Arts and Cultures

- 106B. Dance in Africa and African Diaspora  
 C109B. Dance in Native American Cultures  
 149. Dance in the Multicultural U.S.  
 150. History of Dance in Culture and Performance

## B. PHYSICAL SCIENCES

Three courses from the following, two of which must be complementary and one of which must have a laboratory and/or demonstration component:

#### Astronomy (Physics and Astronomy)

- 2A, 2B. Introduction to the Physical Universe  
 3. Astronomy: Nature of the Universe  
 4. Universe of Stars and Stellar Systems  
 5. Life in the Universe  
 6. Cosmology: Our Changing Concepts of the Universe  
 7. Astronomy and the Media  
 8A-8B. Astronomy with Physics: Exploring the Universe. See Special General Education Programs below  
 81. Astrophysics I: Stars and Nebulae  
 82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology  
 88A. Lower Division Seminar: Cosmic Evolution

#### Atmospheric Sciences

- 2, 2E. Air Pollution  
 3, 3E. Introduction to the Atmospheric Environment  
 4. California Weather and Climate  
 5. Climates of Other Worlds  
 6, 6E. Climate and Climatic Change  
 10. Introduction to the Earth System

#### Chemical Engineering

2. Technology and the Environment

#### Chemistry and Biochemistry

2. Introductory Chemistry

- 14A. Chemical Structures and Equilibria  
 14B. Thermodynamics, Kinetics, Organic Structures, and Spectroscopy  
 14BL. General and Organic Chemistry Laboratory  
 15. Survey of Organic Chemistry and Biochemistry  
 15L. Laboratory in Elementary Organic Chemistry and Biochemistry  
 20A. Chemical Structure  
 20B. Chemical Energetics and Change  
 20L. General Chemistry Laboratory

#### Civil and Environmental Engineering

3. Fundamentals of Environmental Engineering Science

#### Computer Science

2. Great Ideas In Computer Science

#### Earth and Space Sciences

1. Introduction to Earth Science  
 5. Environmental Geology of Los Angeles  
 8. Earthquakes  
 9. Origin and Evolution of Solar System  
 \*15. Introduction to Oceanography  
 \*20. Natural History of Southern California

#### Geography

1. Physical Environment

#### Honors Collegium

1. Systems Thinking: Exploring Order and Chaos in Everyday Life  
 \*5. Science and the Human Condition  
 20. Artificial Intelligence: Machines as People, People as Machines  
 22. Short History of Science: Reading the Great Book of the Universe  
 \*24. 21st Century: Society, Environment, and Ethics  
 31. Current Environmental Problems  
 35. Scientific Method: Critical Inquiry into Question of Extraterrestrial Life  
 42. Physics of Music  
 44. Trail of Light  
 \*57. Life and Sciences of Complexity  
 67. Structure of Physical Reality  
 \*70B. Nonlife to Life, Microbes to Man: Nature Is Not Compartmentalized  
 73. Elementary Particles in the Universe  
 75. On Nature of Things: Comparative Reading of Poem by Lucretius and Modern Science  
 77. Space Science: Active Sun and Its Effects on Earth  
 85. Science and Art: Concepts and Connections

#### Mathematics

2. Finite Mathematics  
 3A, 3B. Calculus for Life Sciences Students  
 31A, 31B. Calculus and Analytic Geometry  
 31E. Calculus for Economics Students

#### Physics (Physics and Astronomy)

- 1A. Physics for Scientists and Engineers: Mechanics  
 1AH. Physics for Scientists and Engineers: Mechanics (Honors)  
 1B. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields  
 1BH. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields (Honors)  
 1C. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity  
 1CH. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity (Honors)  
 6A. Physics for Life Sciences Majors: Statics and Dynamics  
 6B. Physics for Life Sciences Majors: Sound, Light, and Hydrodynamics  
 6C. Physics for Life Sciences Majors: Electricity, Magnetism, and Transport  
 10. Physics

Complementary courses include Astronomy 2A/2B, 3/4, 3/5, 3/6, 3/7, 8A/8B, 81/82, Astronomy 3/Honors Collegium 77; Atmospheric Sciences 2/3, 2E/3E, 3/4, 3/5, 3/6, 3E/6E, 5/6; Chemistry and Biochemistry 14A/14B, 15/20A, 20A/20B; Earth and Space Sciences 1/8, 1/9, 1/15, 1/Geography 1, 20/Geography 1; Mathematics 3A/3B, 3A/31B, 3A/31E, 3B/31A, 31A/31B, 31A/31E; Physics 1A/1B, 1A/1C, 1AH/1BH/1CH, 1B/1C, 6A/6B, 6A/6C, 6B/6C.

Courses with a laboratory and/or demonstration component include Astronomy 2A, 2B, 3, 8B, 81, 82, Atmospheric Sciences 2, 3, 3E, 4, 6E, Chemistry and Biochemistry 14BL, 15L, 20L, Earth and Space Sciences 1, 15, 20, Geography 1, Honors Collegium 20, 67, 70B, 77, Physics 1A, 1AH, 1B, 1BH, 1C, 1CH, 6A, 6B, 6C, 10.



## C. SOCIAL SCIENCES

Four courses (two each from Groups C1 and C2):

### C1. HISTORICAL ANALYSIS

Two courses from a single sequence are recommended:

#### Classics

- \*10. Survey of Classical Greek Culture
- \*20. Survey of Roman Civilization

#### French (French and Francophone Studies)

- \*112. Medieval Foundations of European Civilization

#### History

- 1A, 1B, 1C. Introduction to Western Civilization
- \*2A. Power, Ethics, and Technological Change
- \*2B. Social Knowledge and Social Power
- 2C, 2D. Religion, the Occult, and Science
- 3A, 3B, 3C. Introduction to History of Science
- 3D. Themes in History of Medicine
- 4. Introduction to History of Religions
- 8A. Colonial Latin America
- 8B. Political Economy of Latin American Underdevelopment, 1750 to 1930
- 8C. Latin American Social History
- \*9A. Introduction to Asian Civilizations: History of India
- \*9C. Introduction to Asian Civilizations: History of Japan
- \*9D. Introduction to Asian Civilizations: History of the Near and Middle East
- 9E. Introduction to Asian Civilizations: Southeast Asian Crossroads
- \*10A, \*10B. Introduction to Civilizations of Africa
- \*10BW. Introduction to Civilizations of Africa since 1800
- \*11A, \*11B. History of China
- 13A. History of the U.S. and Its Colonial Origins: Colonial Origins and First Nation Building Acts
- 13B. History of the U.S. and Its Colonial Origins: 19th Century
- 13C. History of the U.S. and Its Colonial Origins: 20th Century
- 20. World History to A.D. 600
- 21. World History, Circa 600 to 1760
- 22. Contemporary World History, 1760 to the Present

#### Honors Collegium

- \*2. Comparative Genocide
- \*3. History and Visual Culture from Engraving to Film and Television
- \*6. Historical Construction of Reality
- 11. Reinventing African History
- 12. Sacred Form: Literature and Poetry in India from Bronze Age to Premodern Times
- \*14. Interaction of Science and Society
- 52. Madness in the Enlightenment: Care and Cure of Mental Illness
- \*55. Culture and History of Utopias
- 62. Community and Self-Interest in History of American Culture
- 68. History of Social Thought
- 84. Los Angeles, 1900 to 2000: History of a 20th-Century City
- 90. French Revolution: Ideologies and Images
- 95. Art, Politics, and Social Change in 19th-Century England and France
- \*96. Cultural Dimensions of Apartheid and Post-Apartheid South Africa
- \*130. How Cold War Was Played

#### Political Science

- 10. Introduction to Political Theory

### C2. SOCIAL ANALYSIS

#### Afro-American Studies

- M5. Social Organization of Black Communities

#### American Indian Studies

- 10. Introduction to American Indian Studies

#### Anthropology

- 8. Archaeology: An Introduction
- 9. Culture and Society
- 33. Culture and Communication
- M134. Cultural Construction of Gender and Sexuality: Homosexualities

#### Asian American Studies

- 21. Asians and Pacific Islanders in American Society

#### Communication Studies

- 10. Introduction to Communication Studies
- 88C. Lower Division Seminar: Future of Mass Communication

#### Economics

- 1, 2. Principles of Economics
- 5. Introductory Economics

#### Geography

- 3. Cultural Geography
- 4. Globalization: Regional Development and World Economy

#### History

- \*2A. Power, Ethics, and Technological Change
- \*2B. Social Knowledge and Social Power

#### Honors Collegium

- \*2. Comparative Genocide
- 7A, 7B. Urban Poverty and Public Policy in the U.S.
- 10. Social Classification and Categorization
- 17. Civil Rights, Women's Rights, Human Rights
- 23. Globalization
- \*24. 21st Century: Society, Environment, and Ethics
- 27. Theories of Exchange: Social Life of Gifts and Commodities
- \*29. Critical Vision: History of Art as a Social and Political Commentary
- \*30. Vietnam War and American Culture
- 36. Ethnicity and Social Class in America
- 37A. Ethnicity, Social Class, and Social Mobility in the U.S. and Other Societies
- 37B. Ethnicity, Social Class, and Social Mobility in Los Angeles
- \*43. Male Identity and Sexuality in Ancient Rome
- 48. Politics of Reproduction
- 49. Evidence in Law, Science, History, and Journalism
- 51. Childhood in Historical and Sociological Perspective
- 54. Human Lives: Psychocultural Perspective
- 58. Apartheid and Social Stratification in South Africa: Theory and Data
- 60. Immigration and New Second Generation
- 61. Social Theory in the 20th Century
- 70C. Culture, Ethnicity, Race, and Development: Multimedia and Multidisciplinary Approach
- 76. Race, Class, and Gender
- 82. Community and Labor Development from Ground Up
- \*87. Humans and Other Animals
- 89. Freud, Fairytales, and Feminism
- \*92. Genes, Genomics, and Internet
- \*94. Historic Roots of Healing Arts
- 97. Issues in American Foreign Policy: Methodology of Assessment
- M119. Nuclear Weapons: Critical Decisions
- 126. Making Citizens/Making Societies: Political Cultivation in Cross-Cultural Perspective
- 127. Citizenship, Leadership, and Service
- M129. Cultural Construction of Gender and Sexuality: Homosexualities
- \*130. How Cold War Was Played
- \*132. Bible as Political Theory

#### Lesbian, Gay, Bisexual, and Transgender Studies

- M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies
- M134. Cultural Construction of Gender and Sexuality: Homosexualities

#### Organismic Biology, Ecology, and Evolution

- \*11. Biomedical Research Issues in Minority Communities

#### Policy Studies

- M116. Nuclear Weapons: Critical Decisions

#### Political Science

- 20. World Politics
- 30. Introduction to Political Economy
- 40. Introduction to American Politics
- 50. Introduction to Comparative Politics

#### Psychology

- 10. Introductory Psychology
- \*88A. Lower Division Seminar: Stress, Adaptation, and Coping

#### Sociology

- 1. Introductory Sociology
- 2. Changing Society and Making History
- 3. Sociology of Everyday Life
- 4. Jobs and Careers: Sociological Approach
- M5. Social Organization of Black Communities



31. Dilemmas of Third World Development

### Women's Studies

10. Introduction to Women's Studies: Feminist Perspectives on Women and Society  
M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

## D. LIFE SCIENCES

Three courses from the following, one of which must have a laboratory and/or demonstration component:

### Anthropology

- 7 or 12 Human Evolution or Principles of Human Evolution: Comparative Analysis  
10. Principles of Human Evolution: Genetic Basis

### Earth and Space Sciences

- \*15. Introduction to Oceanography  
16. Major Events in History of Life  
17. Dinosaurs and Their Relatives  
\*20. Natural History of Southern California

### Geography

2. Biogeography: Spatial Dynamics of Biological Diversity in a Changing World  
5. People and the Earth's Ecosystems

### Honors Collegium

- \*5. Science and the Human Condition  
8. Communication among Organisms  
\*14. Interaction of Science and Society  
25. Human Genome: Prospects for a Super Race?  
\*57. Life and Sciences of Complexity  
63. Emerging Infections and Their Effects on Society: Past, Present, and Future  
70. Genetic Engineering in Medicine and Agriculture  
70A. Genetic Engineering in Medicine, Agriculture, and Law  
\*70B. Nonlife to Life, Microbes to Man: Nature Is Not Compartmentalized  
79. Genome: Blueprint, Controversy, Destiny  
\*87. Humans and Other Animals  
\*92. Genes, Genomics, and Internet  
\*94. Historic Roots of Healing Arts  
136. History of Evolutionary Views

### Life Sciences

1. Evolution, Ecology, and Biodiversity  
2. Cells, Tissues, and Organs  
2W. Cells, Tissues, and Organs

3. Introduction to Molecular Biology  
4. Genetics  
15. Life, Concepts, and Issues

### Microbiology and Molecular Genetics

6. Introduction to Microbiology  
7. Developments in Biotechnology  
12. Biological Threats to Society: Bioterrorism and Emerging Infections

### Molecular, Cell, and Developmental Biology

30. Biology of Cancer  
40. AIDS and Other Sexually Transmitted Diseases  
70. Genetic Engineering and Society  
80. The Green World: Plant Biology for Now and the Future  
88C. Lower Division Seminar: Frontiers of Molecular Biology – Historical Perspective  
88E. Lower Division Seminar: Genetics and Society – Current Status and Future Applications  
88F. Lower Division Seminar: Science and Scientists – Expectations and Realities

### Organismic Biology, Ecology, and Evolution

10. Plants and Civilization  
\*11. Biomedical Research Issues in Minority Communities  
12. Biodiversity and Extinction: Crisis and Conservation  
13. Evolution of Life  
21. Field Biology  
25. Marine Biology  
50. Desert Life

### Physiological Science

3. Introduction to Human Physiology  
5. Issues in Human Physiology: Diet and Exercise  
6. The Human Machine: Physiological Processes  
13. Introduction to Human Anatomy

### Psychology

15. Introductory Psychobiology  
\*88A. Lower Division Seminar: Stress, Adaptation, and Coping  
88B. Lower Division Seminar: Feeding, Food Fads, and Fat

Courses with a laboratory and/or demonstration component include Earth and Space Sciences 15, 16, 17, 20, Geography 2, 5, Honors Collegium 70A, 70B, 79, 92, Life Sciences 1, 2, 2W, 3, 4, 15, Microbiology and Molecular Genetics 7, Molecular, Cell, and Developmental Biology 80, Organismic Biology, Ecology, and Evolution 10, 21, 50, Physiological Science 3, 5, 13.

## SPECIAL GENERAL EDUCATION PROGRAMS

### General Education Clusters

General Education cluster classes, available to entering freshmen only, are one option for satisfying several GE requirements. The clusters span three quarters and are interdisciplinary team-taught courses designed to introduce students to multiple areas of knowledge. They focus on a common topic and are organized in such a way that students can explore how different disciplines converge and diverge in their approach to a particular problem.

Students who complete the entire sequence of three courses (15 units total) receive GE credit for four courses under the current GE program. Specific GE credit varies by cluster content. Inquire at the General Education Office, A265 Murphy Hall, or see <http://www.college.ucla.edu/ge>.

- M1A-M1B-M1C. Global Environment (Same as Environment M1A-M1B-M1C.)  
20A-20B-20C. Interracial Dynamics in American Culture, Society, and Literature  
21A-21B-21C. History of Modern Thought  
22A-22B-22C. Toward World Economy: Perils and Promise of Globalization

- 50A-50B-50C. Perception and Illusion: Cognitive Psychology, Literature, and Art  
60A-60B-60C. The U.S., 1963 to 1974: Politics, Society, and Culture  
70A-70B-70C. Evolution of Cosmos and Life  
80A-80B-80C. Frontiers in Human Aging: Biomedical, Social, and Policy Perspectives

### Physical Sciences Sequence

Students who complete both Astronomy 8A and 8B (10 units total) receive GE credit for the entire physical sciences requirement (three courses), as well as the laboratory and/or demonstration component and the complementary course requirement. Students who complete only 8A receive GE credit for one physical sciences course, but do not receive credit for the laboratory and/or demonstration component nor the complementary course requirement.



## DEPARTMENT REQUIREMENTS

College of Letters and Science departments generally set two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major and (2) the Major. 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 with majors in the life sciences 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 of Letters and Science consists of a group of coordinated upper division courses and is designated as departmental, interdepartmental, or individual. All courses 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. These 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. These 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 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 (a minimum of 45 units) at the University with a grade-point average of 3.4 or better, they may petition for an individual major. The consent of the Honors and Undergraduate Programs Division and the assistance of a faculty adviser are required.

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 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

**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 228 units, and students must obtain the approval of both departments.

With few exceptions, double majors in the same department are unacceptable. Students must designate one of the two majors as the principal one for the purpose of satisfying GE requirements. No more than 20 upper division units may be common to both majors.

Courses outside the division of the principal major which are required in preparation for that major may be used to satisfy GE requirements. Courses required for the secondary major (including preparation for the major) also may satisfy GE requirements.

### 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 are sequences of supplemental courses that enhance work in a particular area.

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 students 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 18 units. After the first term, students may petition to enroll in as many as 20 units if they attained at least a B average the preceding term in a program of at least three graded courses.



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 quarter.

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. Letters and Science counseling staff assist students with College requirements and degree planning. To assist in degree planning, Letters and Science Counseling provides DPRs on request. Students can also view DPRs through URSA or MyUCLA.

### Minimum Progress

According to UCLA Academic Senate regulations, Letters and Science undergraduates who do not pass at least 36 units during any three consecutive terms are placed on probation, and students who do not pass at least 32 units during three consecutive terms are subject to disqualification from registration at the University. Exceptions may be granted by the College due to poor health, family responsibilities, or regular employment of 20 hours per week or more.

### 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 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 which 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 (228 for double majors and special programs). 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 Letters and Science Counseling Services for assistance.

### Credit Limitations

The following credit limitations apply for all undergraduates enrolled in the College. In most cases units are not deducted until the final term before graduation. Students with questions should consult a counselor in the Letters and Science Counseling Services.

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 of Letters and Science. Consult a counselor in Letters and Science Counseling Services 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 in the Undergraduate Study section of this catalog 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 of Letters and Science, 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 may petition for credit by examination for one course at a time. The examination for that course must be taken successfully before they may petition for credit by examination in another course. 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 allowable for the Intensive Language Program.

**Physical Education.** No more than 4 units in physical education activities courses may be applied toward the bachelor's degree.

**Foreign Language.** Credit is not allowed for completing a less advanced course in grammar and/or composition after students have completed 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.

**Independent Study Courses.** No more than 8 units of credit may be taken per term in special independent study courses. The total number of units allowed in such courses for a letter grade is 16; see specific restrictions under each departmental listing.

**Performance Courses.** No more than 12 units of music and/or dance performance courses (Ethnomusicology 91A through 91Z, 191A through 191Z, Music C90A through 90P, and World Arts and Cultures 5 through 16, 56 through 65, C109A, C113A, C115) may be applied toward the bachelor's degree whether taken at UCLA or another institution.

**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 Sci-

ence Department, 26 units of naval science credit may be applied.

**Statistics Courses.** No credit is allowed for more than one lower division course in statistics (Anthropology M80, Economics M40, Geography M40, Political Science 6, Sociology M18, Statistics 10, M11, M12) or for more than one sequence of such courses whether taken at UCLA or another institution.

**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

Letters and Science undergraduate students who achieve scholastic distinction may qualify for the following honors and programs.

### College Honors

The highest academic recognition the College of Letters and Science confers on its undergraduates 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 Letters and Science undergraduates an opportunity to pursue individual excellence.

For details on the College Honors Program and entry requirements, see <http://www.college.ucla.edu/up>.

### Provost's Honors

The Provost's Honors list recognizes high scholastic achievement in any one term. The following criteria are used to note Provost's Honors on the student records: (1) a 3.75 GPA 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. Provost'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.



## 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 of Letters and Science graduates (GPA of 3.844 or better) for summa cum laude, the next five percent (GPA of 3.736 or better) for magna cum laude, and the next 10 percent (GPA of 3.588 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 eligibility. Students should consult their Degree Progress Report 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's 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. Students interested in becoming Departmental Scholars should consult their department well in advance of application dates for graduate admission. For further information, consult the Honors Programs Office in A311 Murphy Hall.

## 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 the master's and doctoral degrees. See the Curricula and Courses section for introductory information and procedures. For complete degree requirements, see *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/publications.html>.

For information on requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

# GRADUATE SCHOOL OF EDUCATION AND INFORMATION STUDIES

**Aimée Dorr, Dean**

UCLA  
2320 Moore Hall  
Box 951521  
Los Angeles, CA 90095-1521

(310) 825-8326  
<http://www.gseis.ucla.edu>



The Graduate School of Education and Information Studies (GSEIS) develops expertise in both old and new methods of information storage and retrieval and brings innovative approaches in educational technology and information access to the schools and classrooms of the state and nation. In addition, GSEIS faculty members engage in research, teaching, and program development in the areas of management and leadership of schools and libraries, information policy, and information systems designs in organizations of all kinds.

Through its scholarship, its graduate training programs, and its partnerships with schools and educational professionals, GSEIS honors its commitment to improve practice in schools, universities, and libraries, enhance theoretical and applied research, expand the role of the university in policy creation, and advance the careers of professional leaders and specialists.

GSEIS is committed to the highest quality professional education and to the application of research to the challenges facing a diverse and increasingly urbanized world.

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*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*

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## DEPARTMENTS AND PROGRAMS

The school has two departments—the Department of Education and the Department of Information Studies. Together, they embody the school's commitment to understand and improve teaching and learning, educational practice, information policy, and information systems in a diverse society.

Research and doctoral training programs bring together faculties committed to expanding the range of knowledge in education, information science, and associated disciplines. The professional training programs develop librarians, teachers, and administrators within the enriched context of a research university.



## DEGREES

The school offers the following degrees:

Education (M.A., M.Ed., Ed.D., Ph.D.)

Educational Administration (Joint Ed.D. with UC Irvine)

Library and Information Science (M.L.I.S., Ph.D.)

Special Education (Joint Ph.D. with California State University, Los Angeles)

## 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>.

Graduate School of Education and Information Studies departments set additional admission requirements that are explained in the Curricula and Courses section of this catalog.

## DEGREE REQUIREMENTS

Specific degree requirements vary according to the department and program. See the departmental listings in the Curricula and Courses section for details or refer to *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/publications.html>.

## RESEARCH CENTERS

The centers outlined below provide GSEIS with valuable resources that support school programs and research. See <http://www.gseis.ucla.edu/research>.

### Center X

Backed by the extraordinary talent of UCLA, K-12 schools, community colleges, and the diverse cultural and language communities of Los Angeles, Center X seeks to demonstrate that schools and teaching for low-income, minority, or limited English proficient children can be rich, rigorous, socially just, and caring.

The center draws from the resources of GSEIS, including the school's contributions to education scholarship, its national research centers, and its schooling research and policy analysis programs.

Center X transforms UCLA's pre-service Teacher Education Program, its professional development programs for practicing professional educators, and its Ed.D. program in educational leadership into a new configuration of collaborative activities among UCLA faculty, K-12 teachers, and community college educators. It provides rigorous professional education as it seeks to improve urban schooling for Los Angeles children. See <http://www.centerx.gseis.ucla.edu>.

### Center for the Study of Evaluation

The Center for the Study of Evaluation (CSE) is devoted to educational research, development, training, and dissemination. For over 25 years, CSE has been at the forefront of efforts to improve the quality of education in America through systematic evaluation practices. As it helps pioneer valid and sensitive evaluation and testing techniques and promotes the use of evaluation for reasoned decision making, CSE ensures the best use of student time and taxpayer money.

Focusing on questions basic to public education and its accountability, CSE provides leadership to the field in these areas by creating new methodologies for evaluating educational quality; creating new designs for assessing student learning; promoting the sound use of assessment data; setting the national research agenda; influencing practice. See <http://www.gseis.ucla.edu/research/cse.html>.

### Center for Research on Evaluation, Standards, and Student Testing

Funded by the U.S. Department of Education and the Office of Educational Research and Improvement, the National Center for Research on Evaluation, Standards, and Student Testing (CRESST) conducts research on topics related to K-12 educational testing. Research is dispersed in technical reports, newsletters, videos, assessments, scoring rubrics, guidebooks, and research articles. See <http://www.cse.ucla.edu>.



## Center for Entrepreneurial Leadership Clearinghouse on Entrepreneurship Education

The Center for Entrepreneurial Leadership Clearinghouse on Entrepreneurship Education (CEL-CEE) is a joint project of UCLA and the Kauffman Center for Entrepreneurial Leadership. CEL-CEE acquires information from diverse sources—journal articles, websites, syllabi, conferences, curriculum guides, government publications, videos, books, and software—that pertain to entrepreneurship education and related topics from K-12 to postgraduate studies and from rural America to urban Asia. The CELCEE staff provides abstracts of the resources, which are indexed and organized in an online database that meets all national Library of Education standards for web pages. See <http://www.celcee.edu>.

## Urban Education Studies Center

The Urban Education Studies Center (UESC) provides a unique setting where nationally recognized scholars work together with teachers and administrators to improve education for the nation's children. Recognizing the dramatic changes in the demographics of the American classroom and the challenges they present to public schools, the center combines the resources of UCLA and its laboratory elementary school to foster collaboration between researchers and practitioners who search for solutions to the problems facing schools as well as strategies for capitalizing on diversity.

Research recognizes the role that family and the community play in children's lives and how pressures and changes in these institutions affect teaching and learning. UESC is committed to developing knowledge of how schools and other institutions can be improved to meet the changing needs of children and society. See <http://www.gseis.ucla.edu/research/uesc>.

## UCLA Online Institute for Cyberspace Law and Policy

With the growth and development of cyberspace law as a separate discipline, a dynamic new body of scholarship has emerged. The Online Institute's Cyberspace Law Bibliography—updated regularly since 1995—provides an overview of recent books and journal articles in this area and includes a growing number of links to the works themselves. See <http://www.gseis.ucla.edu/iclp>.

# HENRY SAMUELI SCHOOL OF ENGINEERING AND APPLIED SCIENCE

**A.R. Frank Wazzan, Dean**

UCLA  
6426 Boelter Hall  
Box 951600  
Los Angeles, CA 90095-1600  
(310) 825-2826  
<http://www.seas.ucla.edu>

Since its inception as the College of Engineering in 1945, the Henry Samueli School of Engineering and Applied Science (HSSEAS) has been on the cutting edge of technological advances. With strong programs in traditional engineering, the school also advances research in the evolving fields of biomedical engineering, wireless communications and networking, and micromachines.

Today's rapidly developing technologies require engineers to adapt quickly to meet society's needs and maintain U.S. leadership in the marketplace. Laboratory breakthroughs at HSSEAS translate into new technologies and products, as faculty members collaborate with their counterparts in industry on everything from applied research to technology goal setting. The school's educational mission nurtures innovation and provides a balanced approach to teaching and research.

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*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*

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Henry Samueli School of Engineering and Applied Science students receive their professional education through classroom investigation and real-world applications. The curriculum provides exposure to the humanities, social sciences, and fine arts and recognizes the responsibility of engineers to create, protect, and manage technology with due regard for ethics and human values. Students committed to a high standard of achievement are invited to contribute to the great success of engineering at UCLA.



## DEPARTMENTS AND PROGRAMS

The Henry Samueli School of Engineering and Applied Science has six departments and two inter-departmental programs offering study in aerospace engineering, 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. An additional program in computer science is accredited by the nationally recognized accrediting body for computer science programs—the Computing Sciences Accreditation Board (CSAB)—as is the program in computer science and engineering.

For specific programs, see the department information in Curricula and Courses 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:

Aerospace Engineering (B.S., M.S., Ph.D.)  
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., Engr.)  
Engineering and Applied Science (Graduate Certificate of Specialization)  
Integrated Manufacturing Engineering (M.Engr.)  
Manufacturing Engineering (M.S.)  
Materials Engineering (B.S.)  
Materials Science and Engineering (M.S., Ph.D.)  
Mechanical Engineering (B.S., M.S., Ph.D.)

## 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 seeking admission to the school in freshman standing must also satisfy the University admission requirements, as follows:

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 5, 4, or 3. 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 2001 fulfills HSSEAS requirements as indicated on the school AP chart in the Undergraduate Study section of this catalog.

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, mathematics, physics, computer programming, English composition, 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.

### 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 Engineering degree; the Computer Science degree does not require chemistry; 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. Engineering courses equivalent to Civil and Environmental Engineering 15 or Computer Science 31 or Mechanical and Aerospace Engineering 20
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 more advanced course in English composition.

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.

A course in digital computer programming, using a higher-level language such as FORTRAN, PASCAL, C, or C++, satisfies the computer programming requirement. Applicants to majors in Computer Science, Computer Science and Engineering, and Electrical Engineering should take C++.

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 14 requirements respectively. Check with the Office of Academic and Student Affairs.

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.

## UNDERGRADUATE DEGREE REQUIREMENTS

Henry Samuelli 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 undergraduates must satisfy in order to graduate: (1) Subject A or English as a Second Language and (2) American History and Institutions. See Degree Requirements in the Undergraduate Study section for details.

## STRUCTURE OF A DEGREE

### University Requirements

1. Subject A or English as a Second Language
2. American History and Institutions

### HSSEAS School Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. English Composition
5. General Education

### Department Requirements

1. Major Field Courses
2. Core Courses
3. Mathematics Courses

Courses that do not satisfy University, school, or department requirements are referred to as electives and are used to meet the minimum unit requirement for graduation.

## SCHOOL REQUIREMENTS

The school has five requirements that must be satisfied for the award of the degree.

### Unit Requirement

The minimum units allowed for HSSEAS students is between 180 and 202, depending on the program. The maximum allowed is 213 units.

After 213 quarter units, enrollment may not normally be continued in the school. Students who are approaching the 213 unit limit should see the degree check counselor in 6426 Boelter Hall. 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.

### Academic Residence Requirement

Of the last 48 units completed for the bachelor'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.

### English Composition Requirement

Students must attain a minimum grade of C to satisfy the English Composition 3 requirement, which must be met by the end of the second year of enrollment at UCLA (a grade of C- does not satisfy this requirement). Undergraduates who have not taken (or otherwise satisfied the requirement for) English Composition 3 at the time they are admitted must complete the course at UCLA during Fall, Winter, Spring, or Summer term. Students may also com-



plete the equivalent to English Composition 3 at any other UC campus during the Summer term only.

## General Education Requirements

HSSEAS general education (GE) course requirements must be selected from the GE list at <http://www.seasoasa.ucla.edu/ge.html> as follows:

1. Six courses from the humanities and social sciences (eight courses for students in the Computer Science major), with at least two courses from each category
2. One life sciences course (two courses for students in the Computer Science major; this requirement is automatically satisfied for Chemical Engineering majors)

For item #1, at least three courses must be in the same academic department or must otherwise reflect coherence in subject matter. Of the three, at least two must be upper division courses selected from the approved HSSEAS GE list.

One language course at level four or above may be applied toward the humanities section of the HSSEAS GE requirement. See an academic counselor in 6426 Boelter Hall about language courses.

Students may take one 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. Only GE courses (not English Composition 3 nor the ethics course) may be taken on a Passed/Not Passed basis. For details on P/NP grading, see Grading in the Academic Policies section or consult the Office of Academic and Student Affairs.

## DEPARTMENT REQUIREMENTS

Bachelor's degree requirements include the following categories, depending on the program selected:

1. Fourteen to 21 engineering major field courses (56 to 84 units)
2. One to 10 engineering core courses (4 to 40 units)
3. One to three upper division mathematics courses (4 to 12 units)

Computer Science, Computer Science and Engineering, and Electrical Engineering majors are also required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements.

Lists of courses approved to satisfy specific curricular requirements are available from the Office of Academic and Student Affairs.

## 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 students 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 require approval of the dean of the school or a designated representative.

Students 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 18 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

**Advanced Placement Tests.** Some portions of 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 in the Undergraduate Study section.

**College Level Examination Program.** Credit earned through the College Level Examination Program (CLEP) may not be applied toward the bachelor's degree.

**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.

## COUNSELING SERVICES

New undergraduates 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 sophomore year or earlier.

In addition, undergraduates 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 transfers 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.

Undergraduates may use the computerized HSSEAS Academic Program Planner, an interactive system that lets students know if their programs meet the requirements for graduation. Students beginning upper division coursework in the major are required to submit an Academic Program Proposal to the Office of Academic and Student Affairs for approval by the associate dean.

Academic counselors in the Office of Academic and Student Affairs assist students with University procedures and answer questions related to general requirements.

## HONORS

Undergraduate HSSEAS students who achieve scholastic distinction may qualify for the following honors.

### 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 an overall grade-point average at graduation which places them in the top five percent of the school (GPA of 3.833 or better) for summa cum laude, the next five percent (GPA of 3.715 or better) for magna cum laude, and the next 10 percent (GPA of 3.512 or better) for cum laude. See the *Schedule of Classes* for the most current calculations of Latin honors.

Based on grades achieved in upper division courses, engineering students must have a 3.833 grade-point average for summa cum laude, a 3.715 for magna cum laude, and a 3.512 for cum laude. For

all designations of honors, students must have a minimum 3.25 grade-point average 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.

### Departmental Scholars

Exceptionally promising juniors or seniors may be nominated as Departmental Scholars to pursue bachelor's and master's degree programs simultaneously. For details, consult the Office of Academic and Student Affairs in 6426 Boelter Hall.

## 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 Executive Committee.

### Women in Engineering

Among HSSEAS students, women make up approximately 21 percent of the undergraduate and 16 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 which 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.

### 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 class programs, (310) 825-3344 for short course programs, (310) 825-0328 for engineering classes, and (310) 825-3858 for technical management programs. See <http://www.uclaextension.org>.

## GRADUATE ADMISSION

In addition to meeting the requirements of the Graduate Division, applicants to the graduate engineering programs are required to take the General Test of the Graduate Record Examination (GRE). In some cases applicants are also required to take the GRE Subject Test in Engineering, Mathematics, or a related area. Applicants for the graduate computer science programs are required to take the GRE General Test and Subject Test in Mathematics or Computer Science. 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.

Graduate students without adequate preparation may be admitted provisionally and may be required to take additional coursework which may not be applied toward the degree. After students arrive at UCLA, the adviser helps them plan a program to remedy any such deficiencies.

For information on the proficiency in English requirements for international graduate students, refer to Graduate Admission in the Graduate Study section of this catalog.

Obtain admission forms, including a department supplement to the application, by writing to the department of interest, Henry Samueli School of Engineering and Applied Science, UCLA, Los Angeles, CA 90095. Students may also apply online at <http://www.seas.ucla.edu>. 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/publications.html>.

## Master of Science Degrees

No lower division courses may be applied toward graduate degrees. In addition, the following upper division courses are not applicable toward graduate degrees: Chemical Engineering M105A, 199, Civil and Environmental Engineering 106A, 108, 199, Computer Science M152A, M152B, M171L, 199, Electrical Engineering 100, 101, 102, 103, 110L, M116D, M116L, 199, Materials Science and Engineering 110, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L, 199, Mechanical and Aerospace Engineering 102, 103, M105A, 105D, 199.

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.

## Cooperative Degree Program

A joint 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 Engineering Degree

The Master of Engineering (M.Engr.) degree is granted to graduates of the interdepartmental Integrated Manufacturing Engineering (IME) Program. For information, contact the Student Services Office, 48-121 Engineering IV, UCLA, Box 951597, Los Angeles, CA 90095-1597. ☎310-825-7780

The M.Engr. degree is also granted to graduates of the Engineering Executive Program, a two-year work-study program consisting of graduate-level professional courses in the management of technological enterprises. For full details, write to the HSSEAS Office of Academic and Student Affairs, 6426 Boelter Hall, UCLA, Box 951601, Los Angeles, CA 90095-1601. ☎310-825-1704

## 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.

## Doctoral 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.** Bioacoustics, speech, and hearing; biocybernetics; biomechanics, biomaterials, and tissue engineering; biomedical instrumentation; biomedical signal and image processing; molecular and cellular bioengineering; neuroengineering

**Chemical Engineering Department.** Chemical engineering

**Civil and Environmental Engineering Department.** Environmental engineering, geotechnical engineering, structures (structural mechanics and earthquake engineering), water resource systems engineering

**Computer Science Department.** Artificial intelligence, computer networks, computer science theory, computer system architecture, scientific computing (biomedical systems, physical systems), software systems

**Electrical Engineering Department.** Applied mathematics (established minor field only), communications and telecommunications, control systems, electromagnetics, engineering optimization/operations research, integrated circuits and systems, photonics and optoelectronics, plasma electronics, signal processing, solid-state electronics

**Materials Science and Engineering Department.** Ceramics and ceramic processing, electronic materials, structural materials

**Mechanical and Aerospace Engineering Department.** Applied mathematics (established minor field only), applied plasma physics and fusion engineering (minor field only), dynamics, fluid mechanics, heat and mass transfer, manufacturing and design, microelectromechanical systems (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 applica-





ble 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

**Bruce G. Willison, Dean**

UCLA  
110 Westwood Plaza, Suite F407  
Box 951481  
Los Angeles, CA 90095-1481

(310) 825-6121  
<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 UCLA's 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

*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*



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 informa-

tion 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, as well as a 21-month 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. 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:

- Master of Business Administration (M.B.A.)
- Master of Science (M.S.)
- Doctor of Philosophy (Ph.D.)

### RESEARCH CENTERS

Interdisciplinary research centers provide valuable resources that support school programs. See <http://www.anderson.ucla.edu/icenters>.

### Business Forecasting Project

Using large-scale econometric models, the Business Forecasting Project makes quarterly and long-term forecasts of the national and California economies, focusing 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://www.anderson.ucla.edu/research/forecast>.



## Center for Health Services Management

The Center for Health Services Management is operated jointly by the Anderson School and the School of Public Health. Organized as a partnership with the health services management community, the center's activities are designed to be supportive of management practitioners in the health care community. The center offers management education programs uniquely suited to managers and executives from health care organizations. In addition, it conducts research carefully identified to further the practice of management of health service organizations. Programs have included a top management course for Cedars-Sinai Medical Center and a management development program for diagnostic radiologists. See <http://www.ph.ucla.edu/hs/hsmgt.html>.

## Center for International Business Education and Research

The Center for International Business Education and Research 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/research/ciber>.

## Center for Management in the Information Economy

The Center for Management in the Information Economy focuses on current management processes and practices being used in businesses and organizations involved in the creation, management, and delivery of digital information as a key component of their products and services. The center acts as a forum and catalyst to relate the capabilities of the academic community to the needs of the business community. See <http://www.anderson.ucla.edu/research/cmie>.

## Harold Price Center for Entrepreneurial Studies

The Harold 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/research/esc>.

## Human Resources Round Table

The Human Resources Round Table is affiliated with the Anderson School and the UCLA Institute of Industrial Relations. 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.sppsr.ucla.edu/harrt>.

## Information Systems Research Program

The Information Systems Research Program 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/acad\\_unit/info\\_sys/research/isresearch.htm](http://www.anderson.ucla.edu/acad_unit/info_sys/research/isresearch.htm)

## Leadership, Education, and Development Program

The Leadership, Education, and Development (LEAD) program sponsors four-week residential summer institutes at outstanding business schools, including the Anderson School, and recruits qualified African American, Hispanic, and Native American students between their junior and senior years of high school. LEAD introduces participants to the world of business, economics, finance, and management through a carefully tailored curriculum involving University faculty, guest lecturers from industry, and corporate field trips.

## Office of Executive Education

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/programs/execed>.

## 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, 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/community/riordan>.



# SCHOOL OF THE ARTS AND ARCHITECTURE

**Daniel Neuman, Dean**

UCLA  
303 East Melnitz Building  
Box 951427  
Los Angeles, CA 90095-1427  
(310) 206-6465  
<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 provide students

with unparalleled opportunities to learn from and interact with faculty members who rank among the most innovative artists and architects of our time.

A balance of practice and theory, built on the academic foundation of the liberal arts, assures the understanding and appreciation of both the interdependence and integration of creativity, performance, and research. In educating the whole person,

the school strives to empower and inspire the next generation of citizens to serve as cultural 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 the UCLA Performing Arts, one of the largest arts presenters in the nation, UCLA Hammer Museum, which houses the Grunwald Center for the Graphic Arts, the UCLA Fowler Museum of Cultural History, and the renowned Murphy Sculpture Garden. These institutions offer extraordinary access to leading anthropological, historical, and contemporary visual arts exhibitions and collections, and presentations by the world's most outstanding performing artists.

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 interde-

pendence 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, and the Department of Music offers concentrations in composition, music education, performance, and jazz studies. 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.

School brochures are available from the Office of Recruitment and Outreach, 303 East Melnitz Building, UCLA, Box 951427, Los Angeles, CA 90095-1427. ☎310-825-9708

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:

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.A., M.F.A.)  
Design | Media Arts (B.A., M.A., M.F.A.)  
Ethnomusicology (B.A., M.A., C.Phil., Ph.D.)  
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 Design | Media Arts or the M.A. in Dance at this time.

## 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. Detailed information on departmental requirements is mailed to students on receipt of their application. The annual deadline date for applications is November 30 for admission in the following Fall Quarter.

## 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



*A balance of practice and theory, built on the academic foundation of the liberal arts, assures the understanding and appreciation of both the interdependence and integration of creativity, performance, and research*



## UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduates must satisfy in order to graduate: (1) Subject A 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 the courses for a letter grade.

## SCHOOL REQUIREMENTS

The School of the Arts and Architecture has requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, general education, and upper division nonmajor.

### 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 199 courses is limited to 16 units, 8 of which may be applied to the major. All 199 courses must be taken 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 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.

### General Education Requirements

The general education (GE) requirements of the school include (1) writing, (2) foreign language, (3) computing/mathematics/statistics, and (4) science/social science/humanities courses.

### Writing Requirement

To satisfy school writing requirements students must complete both the English Composition and Rhetoric and the Critical Reading and Writing requirements.

**English Composition and Rhetoric.** English Composition 3 with a minimum grade of C must be completed by the end of the third term at UCLA and may not be taken on a Passed/Not Passed basis. An Advanced Placement (AP) Test score of 4 also meets this requirement.

**Critical Reading and Writing.** One course from Ancient Near East 10W, Applied Linguistics and Teaching English as a Second Language 101W, Classics 41W, Comparative Literature 2AW, 2BW, 2CW, 2DW, 4AW, 4BW, 4CW, 4DW, East Asian Languages and Cultures 60W, English 4HW, 4W, English Composition 30W, 100W, French 14W, German 60W, 62W, History 10BW, Honors Collegium 21W, 32W, 33W, 40W, 46W, 59W, 83W, Life Sciences 2W, Music History 12W, Philosophy 22W, Russian 25W, 99BW, or Scandinavian 50W with a minimum grade of C must be completed by the end of the second year at UCLA and may not be taken on a Passed/Not Passed basis. A course taken to meet the critical reading and writing requirement may not also be applied toward a GE requirement.

### Foreign Language Requirement

Students may meet the Foreign Language requirement by (1) scoring 3, 4, or 5 on the Advanced Placement (AP) foreign language test in French, German, or Spanish, or scoring 4 or 5 on the AP foreign language test 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 UCLA’s level three or above with a grade of Passed or C or better.

## STRUCTURE OF A DEGREE

### University Requirements

1. Subject A or English as a Second Language
2. American History and Institutions

### School of Arts and Architecture Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. General Education Requirements
  - a. Writing
    - English Composition and Rhetoric
    - Critical Reading and Writing
  - b. Foreign Language
  - c. Computing/Mathematics/Statistics
  - d. Science/Social Sciences/Humanities
5. Upper Division Nonmajor Courses

### Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy University, school, or department requirements are referred to as electives and are used to meet the minimum unit requirement for graduation.



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.

### **Computing/Mathematics/Statistics Requirement**

Students must complete one course (4 units) in mathematics or statistics or an introductory course in computers selected from Anthropology M80, Computer Science 1, 2, Economics M40, Geography M40, Mathematics 1, 2, 3A, 3B, 3C, 31A, 31B, Political Science 6, Program in Computing 1, 10A, 10B, 10C, Sociology M18, Statistics 10, M11, M12, M13. An SAT I mathematics score of 600 or better or an SAT II mathematics subject test score of 550 or better also meets this requirement.

### **Science/Social Sciences/Humanities Requirement**

To satisfy Arts and Architecture Science, Social Science, and Humanities GE course requirements, students must complete two courses from different departments in the sciences, three courses with at least one in each group from the social sciences, and three courses with at least one in three of the four groups from the humanities.

**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, 1100 Dickson Art Center, UCLA, Box 951620, Los Angeles, CA 90095-1620.

**Intersegmental GE 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. The IGETC significantly eases the transfer process, as all of UCLA's GE requirements are fulfilled when students complete it. If they select the IGETC, they must complete it entirely before enrolling at UCLA. Otherwise, students must fulfill the School of Arts and Architecture GE requirements.

### **Upper Division Nonmajor Requirement**

In addition to the GE requirements, students are required to take a minimum of 12 units of upper division nonmajor courses.

## **DEPARTMENT REQUIREMENTS**

Generally, departments 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). Lower division 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 lower division 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 not less than 14 courses (56 units), including at least nine upper division courses (36 units).

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. All courses 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 with the Director of Student Services, School of the Arts and Architecture, 1100 Dickson Art Center. ☎310-825-9707

**Double Majors.** Students may petition to be reviewed for a double major on an individual basis. Contact the Student Services Office for an outline of criteria required.



# SCHOOL OF THE ARTS AND ARCHITECTURE GENERAL EDUCATION

## SCIENCE, SOCIAL SCIENCES, AND HUMANITIES COURSE LIST

Courses marked with one asterisk (e.g., History \*4. Introduction to History of Religions) are listed in more than one category but can fulfill GE requirements in only one of the cross-listed categories. A course taken for the Arts and Architecture critical reading and writing requirement may not also be applied toward a GE requirement.

### A. SCIENCE

Two courses from different departments:

#### Anthropology

- 7. Human Evolution
- 10. Principles of Human Evolution: Genetic Basis
- 12. Principles of Human Evolution: Comparative Analysis

#### Astronomy (Physics and Astronomy)

- 2A, 2B. Introduction to the Physical Universe
- 3. Astronomy: Nature of the Universe
- 3H. Introductory Astronomy and Astrophysics
- 4. Universe of Stars and Stellar Systems
- 5. Life in the Universe
- 6. Cosmology: Our Changing Concepts of the Universe
- 8A, 8B. Astronomy with Physics: Exploring the Universe
- 81. Astrophysics I: Stars and Nebulae
- 82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology

#### Atmospheric Sciences

- 2, 2E. Air Pollution
- 3, 3E. Introduction to the Atmospheric Environment
- 4. California Weather and Climate
- 5. Climates of Other Worlds
- 6, 6E. Climate and Climatic Change
- 8. Clouds, Rain, and Storms
- 10. Introduction to the Earth System

#### Chemical Engineering

- 2. Technology and the Environment

#### Chemistry and Biochemistry

- 2. Introductory Chemistry
- 14A. Chemical Structures and Equilibria
- 14B. Thermodynamics, Kinetics, Organic Structures, and Spectroscopy
- 15. Survey of Organic Chemistry and Biochemistry
- 20A. Chemical Structure
- 20B. Chemical Energetics and Change

#### Civil and Environmental Engineering

- 3. Fundamentals of Environmental Engineering Science

#### Earth and Space Sciences

- 1. Introduction to Earth Science
- 5. Environmental Geology of Los Angeles
- 8. Earthquakes
- 9. Origin and Evolution of Solar System
- 15. Introduction to Oceanography
- 16. Major Events in History of Life
- 17. Dinosaurs and Their Relatives
- 20. Natural History of Southern California

#### Geography

- 1. Physical Environment
- 2. Biogeography: Spatial Dynamics of Biological Diversity in a Changing World
- 5. People and the Earth's Ecosystems

#### Life Sciences

- 1. Evolution, Ecology, and Biodiversity
- 2. Cells, Tissues, and Organs
- 2W. Cells, Tissues, and Organs
- 3. Introduction to Molecular Biology
- 4. Genetics
- 15. Life, Concepts, and Issues

#### Microbiology and Molecular Genetics

- 6. Introduction to Microbiology
- 7. Developments in Biotechnology
- 10. Applied Medical Microbiology
- 12. Biological Threats to Society: Bioterrorism and Emerging Infections

#### Molecular, Cell, and Developmental Biology

- 30. Biology of Cancer
- 40. AIDS and Other Sexually Transmitted Diseases
- 70. Genetic Engineering and Society

- 80. The Green World: Plant Biology for Now and the Future

#### Organismic Biology, Ecology, and Evolution

- 10. Plants and Civilization
- 12. Biodiversity and Extinction: Crisis and Conservation
- 13. Evolution of Life
- 21. Field Biology
- 25. Marine Biology
- 50. Desert Life

#### Physics (Physics and Astronomy)

- 1A. Physics for Scientists and Engineers: Mechanics
- 1B. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields
- 1C. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity
- 6A. Physics for Life Sciences Majors: Statics and Dynamics
- 6B. Physics for Life Sciences Majors: Sound, Light, and Hydrodynamics
- 6C. Physics for Life Sciences Majors: Electricity, Magnetism, and Transport
- 10. Physics

#### Physiological Science

- 3. Introduction to Human Physiology
- 5. Issues in Human Physiology: Diet and Exercise
- 6. The Human Machine: Physiological Processes
- 13. Introduction to Human Anatomy

#### Psychology

- 15. Introductory Psychobiology

### B. SOCIAL SCIENCES

Three courses, with at least one from each group:

#### B1. GROUP A

##### Economics

- 1, 2. Principles of Economics
- 5. Introductory Economics

##### German (Germanic Languages)

- 60W. War

##### History

- 1A, 1B, 1C. Introduction to Western Civilization
- 2A. Power, Ethics, and Technological Change
- 2B. Social Knowledge and Social Power
- 2C, 2D. Religion, the Occult, and Science
- 3A, 3B, 3C. Introduction to History of Science
- 3D. Themes in History of Medicine
- \*4. Introduction to History of Religions
- 8A. Colonial Latin America
- 8B. Political Economy of Latin American Underdevelopment, 1750 to 1930
- 8C. Latin American Social History
- 9A. Introduction to Asian Civilizations: History of India
- 9C. Introduction to Asian Civilizations: History of Japan
- 9D. Introduction to Asian Civilizations: History of the Near and Middle East
- 10A, 10B. Introduction to Civilizations of Africa
- 10BW. Introduction to Civilizations of Africa since 1800
- 11A, 11B. History of China
- 13A. History of the U.S. and Its Colonial Origins: Colonial Origins and First Nation Building Acts
- 13B. History of the U.S. and Its Colonial Origins: 19th Century
- 13C. History of the U.S. and Its Colonial Origins: 20th Century
- 20. World History to A.D. 600
- 21. World History, Circa 600 to 1760
- 22. Contemporary World History, 1760 to the Present

##### Political Science

- 10. Introduction to Political Theory
- 20. World Politics
- 30. Introduction to Political Economy
- 40. Introduction to American Politics
- 50. Introduction to Comparative Politics



**B2. GROUP B****Afro-American Studies**

- M5. Social Organization of Black Communities  
\*M107. Cultural History of Rap

**American Indian Studies**

- \*10. Introduction to American Indian Studies

**Ancient Near East (Near Eastern Languages)**

- \*10W. Jerusalem: The Holy City

**Anthropology**

8. Archaeology: An Introduction  
9. Culture and Society  
33. Culture and Communication

**Asian American Studies**

- \*21. Asians and Pacific Islanders in American Society  
\*99. History of Asians in America

**Chicana and Chicano Studies**

- 10B. Introduction to Chicana/Chicano Studies: Social Structure and Contemporary Conditions

**Classics**

- \*M70. Survey of Medieval Greek Culture

**Communication Studies**

10. Introduction to Communication Studies

**Ethnomusicology**

- \*M119. Cultural History of Rap

**Folklore and Mythology**

- \*M110. Cultural History of Rap

**Geography**

3. Cultural Geography  
4. Globalization: Regional Development and World Economy

**History**

- \*M70. Survey of Medieval Greek Culture

**Lesbian, Gay, Bisexual, and Transgender Studies**

- \*M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

**Portuguese (Spanish and Portuguese)**

- \*46. Brazilian Culture and Civilization

**Psychology**

10. Introductory Psychology

**Sociology**

1. Introductory Sociology  
2. Changing Society and Making History  
3. Sociology of Everyday Life  
4. Jobs and Careers: Sociological Approach  
M5. Social Organization of Black Communities  
24. Conversation and Society  
31. Dilemmas of Third World Development

**Women's Studies**

10. Introduction to Women's Studies: Feminist Perspectives on Women and Society  
\*M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

**World Arts and Cultures**

- \*100A. Art as Social Action  
\*100B. Art as Moral Action

**C. HUMANITIES**

Three courses, with at least one course in three of the four groups. Courses in the major or multiple-listed with the major do not apply.

**C1. ARTS****Afro-American Studies**

- M103A. African American Theater History: Slavery to Mid-1800s  
M103B. African American Theater History: Minstrel Stage to Rise of the American Musical  
M103E. African American Theater History: The Depression to the Present  
\*M107. Cultural History of Rap  
M109. Women in Jazz  
M110A, M110B. African American Musical Heritage  
M145. Ellingtonia

**Art**

- 31A, 31B. Modernism  
32. Survey of Critical Thought

**Art History**

50. Ancient Art  
51. Medieval Art  
54. Modern Art  
55A. Introduction to African Art  
55B. Arts of Pre-Columbian America  
56A. Art of India and Southeast Asia  
56B. Introduction to Chinese Art  
57. Renaissance and Baroque Art

**Arts and Architecture**

10. Arts Encounters: Exploring Arts Literacy in the 21st Century

**Chicana and Chicano Studies**

- M103C. Origins and Evolution of Chicano Theater  
M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement  
M103H. Contemporary Chicano Theater: Chicano Theater since 1980  
M108A. Music of Latin America  
M114. Chicanos in Film/Video  
M115. Musical Aesthetics in Los Angeles  
M116. Chicano/Latino Music in the U.S.

**Classics**

42. Cinema and the Ancient World  
51A. Art and Archaeology of Classical World: Greece  
51B. Art and Archaeology of Classical World: Rome

**Design | Media Arts**

10. Nature of Design

**Ethnomusicology**

15. American Life in Music  
20A, 20B, 20C. Musical Cultures of the World  
106A. Traditional North American Indian Music  
106B. Contemporary North American Indian Music  
M108A, 108B. Music of Latin America  
M109. Women in Jazz  
M110A, M110B. African American Musical Heritage  
M111. Ellingtonia  
113. Music of Brazil  
M115. Musical Aesthetics in Los Angeles  
M116. Chicano/Latino Music in the U.S.  
117. American Popular Music  
118. Development of Rock  
\*M119. Cultural History of Rap  
120A, 120B. Development of Jazz  
121. Cross-Cultural Perspectives in Jazz  
123. Music of Bebop  
128. Folk Music of Eastern Europe  
M131. Development of Latin Jazz  
C136A, C136B. Music of Africa  
146. Folk Music of South Asia  
147. Survey of Classical Music in India  
C150. Music and Politics in East Asia  
C156A, 156B. Music in China  
157. History of Chinese Opera  
158A, 158B, 158C. Studies in Chinese Instrumental Music  
C159. Music on China's Periphery  
160A. Survey of Music in Japan  
174. Aesthetics of Music

**Film and Television**

- 106A. History of the American Motion Picture  
106B. History of the European Motion Picture  
106C. History of African, Asian, and Latin American Film  
107. Experimental Film  
108. History of Documentary Film  
110A. American Television History  
110C. World Media Systems  
112. Film and Social Change  
113. Film Authors  
114. Film Genres  
116. Film Criticism  
M117. Chicanos in Film/Video  
127. Problems and Ethical Issues in Film and Telecasting

**Folklore and Mythology**

- \*M110. Cultural History of Rap  
\*M118. Folk Art and Aesthetics  
M154A, M154B. African American Musical Heritage  
CM184. Dance and Folklore



**Lesbian, Gay, Bisexual, and Transgender Studies**

M137. Gay and Lesbian Perspectives in Pop Music

**Music**

- 15. Art of Listening
- 19. Hollywood Musical and the American Dream
- M131. Development of Latin Jazz
- 136A, 136B, 136C. Historical Survey of Music Theater
- 158. New Orleans Jazz

**Music History (Musicology)**

- 1. Introduction to Music History
- 2A, 2B. Introduction to Literature of Music
- 5. History of Rock and Roll
- 7. Film and Music
- 10. Music Now
- 13. 20th-Century Music of the Western World
- 130. Music of the U.S.
- 131. American Popular Song
- 132. Mozart
- 133. Bach
- 134. Beethoven
- 135A, 135B, 135C. History of Opera
- M137. Gay and Lesbian Perspectives in Pop Music
- 138. History of Electronic Dance Music
- 139. History and Literature of Church Music
- 145. American Musical
- 150. History of Jazz
- 156. Studies in Musical Genres
- 189A, 189B. The Symphony

**Russian (Slavic Languages)**

\*30. Russian Literature and World Cinema

**Spanish (Spanish and Portuguese)**

\*62A, \*62B, \*62C. Hispanic Literatures and Film

**Theater**

- 101A, 101B, 101C. History of World Theater and Drama
- 102A. Theater of Japan
- 102B. Theater of Southeast Asia
- 102C. Cross-Cultural Currents in Theater
- 102E. Theater of Non-European World
- M103A. African American Theater History: Slavery to Mid-1800s
- M103B. African American Theater History: Minstrel Stage to Rise of the American Musical
- M103C. Origins and Evolution of Chicano Theater
- M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement
- M103E. African American Theater History: The Depression to the Present
- 103F. Native American Theater
- M103H. Contemporary Chicano Theater: Chicano Theater since 1980
- 104A, 104B, 104C. History of American Theater
- 105. Main Currents in Theater
- 106. History of American Theater and Drama
- 107. Drama of Diversity
- 111A. Selected Topics on History of European Theater from Primitive Times to 1640
- 111B. Selected Topics on History of European Theater from 1640 to 1900
- 111C. Selected Topics on History of European Theater from 1900 to the Present

**Women's Studies**

M109. Women in Jazz

**World Arts and Cultures**

- \*100A. Art as Social Action
- \*100B. Art as Moral Action
- 106B. Dance in Africa and African Diaspora
- 108B. Dance in Latin American Cultures
- C109B. Dance in Native American Cultures
- 110B. Dance in East Asia
- 111B. Dance in South Asia
- 112B. Dance in Southeast Asia
- 127. The City as a Work of Art
- \*M131. Folk Art and Aesthetics
- 135. African Popular Arts
- 149. Dance in the Multicultural U.S.
- 150. History of Dance in Culture and Performance
- CM154. Dance and Folklore
- 172. Costume and Scenic Design Concepts for Dance Theater
- 182. Dance and the Visual Media

**C2. CULTURE AND CIVILIZATION****Afro-American Studies**

\*M107. Cultural History of Rap

**American Indian Studies**

\*10. Introduction to American Indian Studies

**Asian American Studies**

- \*21. Asians and Pacific Islanders in American Society
- \*99. History of Asians in America

**Chicana and Chicano Studies**

10A. Introduction to Chicana/Chicano Studies: History and Culture

**Chinese (East Asian Languages)**

50. Chinese Civilization

**Classics**

- 10. Survey of Classical Greek Culture
- 20. Survey of Roman Civilization
- \*30. Introduction to Classical Mythology
- \*M70. Survey of Medieval Greek Culture

**Ethnomusicology**

\*M119. Cultural History of Rap

**Folklore and Mythology**

- M15. Introduction to American Folklore Studies
- \*M110. Cultural History of Rap
- \*M118. Folk Art and Aesthetics

**French (French and Francophone Studies)**

- 14. Introduction to French Civilization, in English
- 14W. Introduction to French Civilization
- 41. French Cinema and Culture

**German (Germanic Languages)**

- 100A. German History and Culture before 1500
- 100B. German History and Culture from 1500 to 1914
- 100C. German History and Culture from 1914 to the Present

**History**

\*M70. Survey of Medieval Greek Culture

**Italian**

- 42A. Italy through the Ages in English: Holy Roman Empire to Sack of Rome
- 42B. Italy through the Ages in English: Late Renaissance to Post-modern Period
- 46. Italian Cinema and Culture

**Japanese (East Asian Languages)**

50. Japanese Civilization

**Jewish Studies (Near Eastern Languages)**

10. Social, Cultural, and Religious Institutions of Judaism

**Korean (East Asian Languages)**

50. Korean Civilization

**Lesbian, Gay, Bisexual, and Transgender Studies**

\*M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

**Near Eastern Languages**

- 50A. First Civilizations
- 50B. Ascendance of Monotheism
- 50C. Modern Middle Eastern Cultures





**Portuguese (Spanish and Portuguese)**

- M42. Civilization of Spain and Portugal  
 M44. Civilization of Spanish America and Brazil  
 \*46. Brazilian Culture and Civilization

**Romanian (Slavic Languages)**

99. Introduction to Romanian Civilization

**Russian (Slavic Languages)**

- 99A. Introduction to Russian Civilization  
 99B. Russian Civilization in the 20th Century  
 99BW. Russian Civilization in the 20th Century

**Slavic (Slavic Languages)**

99. Introduction to Slavic Civilization

**Spanish (Spanish and Portuguese)**

- M42. Civilization of Spain and Portugal  
 M44. Civilization of Spanish America and Brazil

**Women's Studies**

- \*M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

**World Arts and Cultures**

- M22. Introduction to American Folklore Studies  
 \*M131. Folk Art and Aesthetics

**C3. LITERATURE****Classics**

- \*30. Introduction to Classical Mythology  
 40. Survey of Greek Literature in Translation  
 41. Survey of Latin Literature in Translation  
 41W. Discovering Roman Literature

**Comparative Literature**

- 1A. World Literature: Antiquity to Early Middle Ages  
 1B. World Literature: Late Middle Ages to the 17th Century  
 1C. World Literature: Age of Enlightenment to the 20th Century  
 1D. Great Books from the World at Large  
 1E. Introduction to Classical Traditions of East Asia  
 2AW. Survey of Literature: Antiquity to Early Middle Ages  
 2BW. Survey of Literature: Late Middle Ages to the 17th Century  
 2CW. Survey of Literature: Age of Enlightenment to the 20th Century  
 2DW. Survey of Literature: Great Books from the World at Large  
 4AW. Literature and Writing: Antiquity to Early Middle Ages  
 4BW. Literature and Writing: Late Middle Ages to the 17th Century  
 4CW. Literature and Writing: Age of Enlightenment to the 20th Century  
 4DW. Literature and Writing: Great Books from the World at Large  
 M90. Modern Literatures in Southeast Asia

**English**

- 10A. English Literature to 1660  
 10B. English Literature, 1660 to 1832  
 10C. English Literature, 1832 to the Present  
 70. Major British Authors before 1800  
 75. Major British Authors, 1800 to the Present  
 80. Major American Authors  
 85. American Novel  
 90. Shakespeare  
 95A. Introduction to Poetry  
 95B. Introduction to Drama  
 95C. Introduction to Fiction  
 96. The Short Story in England and America

**French (French and Francophone Studies)**

12. Introduction to Study of French Literature (in French)

**German (Germanic Languages)**

- 50A. Great Works of German Literature in Translation: Medieval Period through Classicism  
 50B. Great Works of German Literature in Translation: Romanticism to the Present

**Italian**

- 50A. Masterpieces of Italian Literature in English: Middle Ages and Renaissance  
 50B. Masterpieces of Italian Literature in English: Baroque Period to the Present

**Japanese (East Asian Languages)**

60. Images of Japan: Humanistic Tradition

**Portuguese (Spanish and Portuguese)**

- 40A, 40B. Portuguese, Brazilian, and African Literature in Translation

**Russian (Slavic Languages)**

25. Russian Novel in Translation  
 25W. Russian Novel in Translation  
 \*30. Russian Literature and World Cinema

**Scandinavian**

50. Introduction to Scandinavian Literature  
 50W. Introduction to Scandinavian Literature

**South and Southeast Asian Languages and Cultures (East Asian Languages)**

- M90. Modern Literatures in Southeast Asia

**Spanish (Spanish and Portuguese)**

- 60A, 60B, 60C. Hispanic Literatures in Translation  
 61A, 61B, 61C. Hispanic Literatures in Spanish  
 \*62A, \*62B, \*62C. Hispanic Literatures and Film

**Selected upper division courses**

in English and in other language and literature departments by petition

**C4. PHILOSOPHY/RELIGION****Ancient Near East (Near Eastern Languages)**

- \*10W. Jerusalem: The Holy City  
 130. Ancient Egyptian Religion

**Anthropology**

156. Comparative Religion

**Chinese (East Asian Languages)**

- C160. Chinese Buddhism  
 175. Introduction to Chinese Thought

**Classics**

- M145A. Ancient Greek and Roman Philosophy  
 M145B. Later Ancient Greek Philosophy  
 166A. Greek Religion  
 166B. Roman Religion

**East Asian Languages and Cultures**

60. Introduction to Buddhism  
 60W. Introduction to Buddhism

**History**

- \*4. Introduction to History of Religions

**Indic (East Asian Languages)**

175. Introduction to Indic Philosophy

**Iranian (Near Eastern Languages)**

170. Religion in Ancient Iran

**Islamic (Near Eastern Languages)**

110. Introduction to Islam

**Japanese (East Asian Languages)**

- C160. Japanese Buddhism  
 161. Religious Life in Modern Japan  
 175. Introduction to Japanese Thought

**Jewish Studies (Near Eastern Languages)**

130. Modern Jewish Religious Movements and Their Ideologies

**Korean (East Asian Languages)**

- C160. Korean Buddhism  
 175. Introduction to Traditional Korean Thought  
 187. Popular and Folk Religion in Korea

**Philosophy**

1. Beginnings of Western Philosophy  
 2. Introduction to Philosophy of Religion  
 4. Philosophical Analysis of Contemporary Moral Issues  
 5A. Philosophy in Literature  
 6. Introduction to Political Philosophy  
 7. Introduction to Philosophy of Mind  
 8. Introduction to Philosophy of Science  
 9. Principles of Critical Reasoning  
 21. Skepticism and Rationality  
 22. Introduction to Ethical Theory  
 22W. Introduction to Ethical Theory  
 31. Logic, First Course  
 32. Logic, Second Course  
 M103A. Ancient Greek and Roman Philosophy  
 M103B. Later Ancient Greek Philosophy



## 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 students 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 17 units. The school has no provision for part-time enrollment. After the first term, students may petition to carry more than 17 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 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.

### 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 undergraduates in the school.

**Advanced Placement Tests.** Credit earned through the College Board Advanced Placement (AP) Tests may 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.

**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.

**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 the Arts and Architecture offers advising, program planning in the major and general education requirements, and individual meetings with departmental counselors. Prior to registration and enrollment in classes, new students are



assigned a counselor in their major department. For counseling information, contact the Student Services Office, School of the Arts and Architecture, 1100 Dickson Art Center. ☎310-206-3564

## HONORS

Undergraduate School of Arts and Architecture 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 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's coursework remaining at UCLA. To obtain both the bachelors 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 1100 Dickson Art Center for details.

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*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*

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## 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 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 can be found in the departmental listings in the Curricula and Courses section of this catalog.

For information on the proficiency in English requirements for international graduate students, refer to 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. See the Curricula and Courses section of this catalog for information and procedures. For complete degree requirements, see *Program Requirements for UCLA Graduate Degrees* available at <http://www.gdnet.ucla.edu/departments.html>.

# SCHOOL OF DENTISTRY

## No-Hee Park, Dean

UCLA  
53-038 Dentistry  
Box 951762  
Los Angeles, CA 90095-1762  
(310) 206-6063  
<http://www.dent.ucla.edu>

The UCLA School of Dentistry has a national and international reputation for its teaching and research activities, which prepare dental students for professional careers dedicated to patient treatment and service. The curriculum prepares students for changes in treatment modalities and health care 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, 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 needs; mandatory fourth-year selectives encourage more advanced training in an area of particular interest. 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 Roybal Children's Dental Center, and the Mobile Dental Clinic, the latter in conjunction with the University of Southern California. A graduate program and a number of resident specialty programs foster new lines of research which lead to better treatment options. An active continuing education program directed by UCLA faculty members provides a variety of short courses for members of the dental profession and their auxiliaries.

## DEGREES

The school offers the following degrees:

Dental Surgery (D.D.S.)  
Oral Biology (M.S., Ph.D.)



In addition, the school has a number of resident programs. Articulated D.D.S. and M.S. or certificate programs are also available. This catalog provides detailed information only on the M.S. and Ph.D. programs in Oral Biology, for which admission to the School of Dentistry is not required.

### Predental Curriculum

For details on the three-year predental curriculum, see <http://www.college.ucla.edu/up/pao>.

### D.D.S. Degree Program

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.dent.ucla.edu> or write to the Office of Student and Alumni Affairs, School of Dentistry, A3-042 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 four- or six-year oral and maxillofacial surgery residency training program; a three-year prosthodontics, periodontics, and combined orthodontic/pediatric dentistry program; two-year programs in the specialties of endodontics and orofacial pain and dysfunction; and a 27-month program in orthodontics and pediatric dentistry.

Information on the resident programs can be obtained by writing directly to Resident Programs, School of Dentistry, A3-042 Dentistry, UCLA, Box 951762, Los Angeles, CA 90095-1762.

## SCHOOL OF LAW

### Jonathan D. Varat, Dean

UCLA  
1242 Law  
Box 951476  
Los Angeles, CA 90095-1476  
(310) 825-4841  
<http://www.law.ucla.edu>

By any standard, the UCLA School of Law is recognized as one of the nation's great law schools. This reputation 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. The educational pro-



gram at the UCLA School of Law is rigorous and competitive, but it takes place in a humane environment with a genuine spirit of community. The school's student body is intellectually distinguished, interesting, and culturally diverse.

The school's strong clinical program offers courses in lawyering skills such as interviewing, counseling, negotiation, and trial advocacy. UCLA students, alumni, and faculty have collaborated to pioneer clinical legal education. Students see more focus on the attorney/client relationship; they see more of what ultimately faces them as lawyers and policymakers. Students and faculty often pioneer new programs together, such as the Environmental Clinic, the Program in Public Interest Law and Policy, and a concentration in business law or critical race studies.

An extensive and diversified student extern program, one of the most highly regarded moot court programs in the nation, and a basic philosophy that teaches law students to think clearly and analytically, but with compassion, all contribute to the distinction of the school.

The School of Law, one of two academic units at UCLA that operate on a semester (rather than quarter) system, offers a three-year curriculum leading to the J.D. degree. The school is accredited by the California Committee of Bar Examiners, is a member of the Association of American Law

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*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*

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Schools, and is on the approved list of the American Bar Association. Graduates of the school are qualified to apply for admission to practice in any state in the U.S.

The school 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. Students do not undertake a specific major but have the opportunity to enroll in a wide variety of courses dealing with various legal fields.

## DEGREES

The school offers the following degrees:

Juris Doctor (J.D.)

Master of Laws (LL.M.)

### Concurrent Degree Programs

School of Law concurrent degree programs allow students to fulfill the requirements of the J.D. and another graduate degree simultaneously: the M.B.A./J.D. with the John E. Anderson Graduate School of Management; the M.A./J.D. with the Department of Urban Planning, the M.P.P./J.D. with the Department of Policy Studies, and the M.S.W./J.D. with the Department of Social Welfare in the School of Public Policy and Social Research; the M.A./J.D. with the American Indian Studies Program and the M.A./J.D. with the Afro-American Studies Program in the College of Letters and Science; and either the M.Ed., M.A., Ed.D., or Ph.D./J.D. with the Department of Education in the Graduate School of Education and Information Studies. For details on all degree programs, see Law in the Curriculum and Courses section of this catalog.

In addition to the concurrent programs above, students may design a tailored program from other disciplines in UCLA's curriculum or from another high-quality institution; this must be arranged in consultation with the School of Law and the other selected program.

### Program in Public Interest Law and Policy

The School of Law has long attracted students interested in public interest and policy issues. The school has one of the strongest public interest law faculties in the country and sits next to the School of Public Policy and Social Research in a city that is a living laboratory for every conceivable social problem.

Building on these strengths, the school instituted a Program in Public Interest Law and Policy in Fall Semester 1997. Students take a special lawyering skills class, participate in a public interest workshop in their first year, and take required year-long seminars in their second and third years. Through the three-year program, which leads to the J.D. degree, students work closely with the small group of faculty who designed the program.

The program marks a distinct break with the way law schools have traditionally trained lawyers for public interest careers. Recognizing the need for coordinated and sequenced training and hoping to engage the interest of the most dedicated public interest-minded students, the program offers a challenging approach to legal education that helps aspiring lawyers refine their own career goals while training them for legal and policy work in the public interest.

### Clinical Program

The UCLA School of Law offers one of the finest clinical education programs in the nation. Housed in a technologically sophisticated clinical wing, the program provides extensive and rigorous practical training for student-lawyers interested in litigation and transactional work prior to entry into the legal profession. Through simulated and actual client contact, students learn skills such as interviewing and counseling clients, drafting legal documents, examining and cross-examining witnesses, negotiating commercial agreements and litigation settlements, deposing witnesses, mediating disputes, and arguing before a judge or jury. In addition, students interested in a transactional practice can learn how to finance a start-up company, sell a private company, or cope with a myriad of environmental issues that arise when selling a business.

To give some examples of clinical experience, students in the highly successful Frank G. Wells Environmental Law Clinic work on large and small cases, both federal and state, involving citizen enforcement actions under various environmental statutes, especially actions under the Clean Water Act against polluters of the Santa Monica Bay. Students in Public Policy Advocacy recently exposed the appalling conditions of California public elementary, middle, and high schools and researched the legal accountability of enforcing basic standards in matters such as textbooks and a shortage of trained teachers. Other innovative programs include a complex litigation clinic that concentrates on the discovery process and an Indian Law Clinic where students provide legal assistance to Native American tribes with the focus being on legislative drafting.

In addition to the speciality clinics, students can choose from an extensive array of clinical subjects ranging from trial advocacy and alternative dispute resolution to taking dispositions or renegotiating business agreements. Students in most clinical courses work with real clients under close faculty supervision, either in the school's in-house clinical office or in public interest law settings.

The clinical wing includes a two-story Law Office designed with modern lawyering technology. The student work rooms are equipped with networked computers that have access to legal research databases, the Internet, and leading-edge computer litigation support systems.



The School of Law was a pioneer of clinical legal education, and the program continues on the cutting edge of methods for training lawyers. Clinical faculty members have written numerous influential texts and articles that are used by law schools nationwide.

### 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.

### Business Law Program

The Business Law Program gives second- and third-year law students a coherent program of focused coursework in an important practice area. Students who successfully complete the program receive an appropriate notation on their transcripts.

The program has several goals. A large part of practice consists of transactions—a term encompassing agreements as diverse as the negotiation of a lease, the financing of low-cost housing, and the mergers of billion-dollar companies. Lawyers structuring those transactions and those engaged in litigation about them need to understand both legal principles and economic dynamics. Yet students interested in such practices are sometimes uncertain how they may best prepare themselves for such careers. The program provides guidance for these students, offering suggested courses and sequences of courses that enable those interested in a career in business law—or another field where such knowledge would be useful—to plan orderly, logical schedules that build from the basic to the advanced.

Business law students take three foundational courses in their second year of law school: financial analysis, business associations, and taxation. Thereafter, students may select one of five cores, or areas of specialization: corporate and securities, commercial and financing, international business, taxation, and a general business field. In each of the fields students choose among a set of relevant courses that build on and reinforce each other. Students then complete the concentration with an advanced transactional course.

## SCHOOL OF MEDICINE

Gerald S. Levey, Dean and Provost

UCLA  
12-105 Center for the Health Sciences  
Box 957035  
Los Angeles, CA 90095-7035  
(310) 825-6081  
<http://www.medsch.ucla.edu>

At the UCLA School of Medicine, faculty and students play a dynamic role in the campus and Los Angeles communities. Not only are they in the clinics, wards, and operating rooms of the UCLA Medical Center and Los Angeles County Harbor-UCLA Medical Center, they are also at work in the facili-



ties of the Molecular Biology Institute, the Department of Physiology, the Health Sciences Computer Center, the Neuropsychiatric Institute, 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 UCLA Medical Center 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.

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

The School of Medicine offers an M.D. degree program, allied health programs in affiliation with other hospitals and universities, postgraduate medical training programs, and the following master's and doctoral degrees offered through the Graduate Division.

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*Students at the UCLA Medical School 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*

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Anatomy and Cell Biology (M.S., C.Phil., Ph.D.)  
 Biological Chemistry (M.S., Ph.D.)  
 Biomathematics (M.S., Ph.D.)  
 Biomedical Physics (M.S., Ph.D.)  
 Human Genetics (M.S., Ph.D.)  
 Microbiology and Immunology (M.S., Ph.D.)  
 Molecular and Medical Pharmacology (M.S., Ph.D.)  
 Neuroscience (Ph.D.)  
 Pathology—Experimental Pathology (M.S., Ph.D.)  
 Physiology (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 therapeutics. Clinical skills are taught in the context of anatomical, molecular, pathophysiological, and psychosocial factors in health, disease, and treatment.

The curriculum combines traditional teaching with problem-based learning and laboratories to maximize the educational experience. Because medical school is but one phase in a physician's education, the curriculum prepares students for a future in which scientific knowledge, social values, and human needs are ever changing. Formats for instruction include lectures, tutorials, seminars, laboratories, demonstrations, and visits to physicians' offices; students are exposed to patients from their first week through graduation.

The M.D. degree requires a four-year medical curriculum that prepares students broadly for careers in research, practice, or 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, and medical ethics.

For details on the M.D. curriculum or to apply to the M.D. program, contact the School of Medicine Admissions Office, 12-105 CHS, UCLA, Box 957035, Los Angeles, CA 90095-7035. See <http://www.college.ucla.edu/up/pao> 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 Biomedical Sciences Program

The UCR/UCLA Biomedical Sciences Program is a cooperative venture involving UC Riverside, the

UCLA School of Medicine, and selected Riverside community sites. Students may earn both the B.S. and M.D. degrees in seven years through a combined program maximizing the curricula of both. See <http://www.biomed.ucr.edu>.

#### Drew/UCLA Medical Education Program

The Drew/UCLA Medical Education Program is designed to attract students who are interested in addressing the concerns of underserved populations. Students in the program spend their first two years at the UCLA campus and complete their last two years of clinical work at the King/Drew Medical Center on the Charles R. Drew University of Medicine and Science campus. See <http://www.cdrewu.edu>.

### Articulated and Concurrent Degrees

The 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 for details.

☎310-794-1817

A concurrent program with the John E. Anderson Graduate School of Management allows medical students to earn both the M.D. and M.B.A.

degrees over five years by following a designated course of study and some shared coursework. Separate application must be made to the Anderson School during the third year of medical school.

☎310-825-3970

An arrangement with the School of Public Health enables students to pursue the M.P.H. degree while attending medical school. Interested students should call the School of Public Health.

☎310-825-5516

### 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 West Los Angeles VA Medical Centers, Sepulveda-San Fernando Valley Program, and many others. 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 School of Medicine or the affiliated hospitals.

### Allied Health Programs

For information on allied health programs in the Center for the Health Sciences call ☎310-794-8352



## Neuropsychiatric Institute

The UCLA Neuropsychiatric Institute (NPI) is one of the world's leading interdisciplinary research and education institutes devoted to the understanding of complex human behavior. Ten research centers, ranging from genetics to human culture, together with research initiatives distributed widely across the academic departments of the 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, 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 disorder. For further information, see <http://www.MentalHealth.ucla.edu>.

## SCHOOL OF NURSING

**Marie J. Cowan, Dean**

UCLA  
2-200 Factor Building  
Box 951702  
Los Angeles, CA 90095-1702  
(310) 825-7181  
<http://www.nursing.ucla.edu/son>

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. Education at the master's level provides advanced practice options in primary care, acute care, and nursing administration.

The majority of graduate students acquire expertise as nurse practitioners, with several options for clinical preparation in primary or acute care. The doctoral 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.

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 health care and the diversity of the patient population. Graduates of the program are sought by health care 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.

The School of Nursing gives direction to interested potential applicants through monthly open counseling sessions. Students interested in the academic programs offered are urged to attend a counseling session or request a copy of the school *Announcement* by writing to the Student Affairs Office, School of Nursing, 2-200 Factor Building, UCLA, Box 951702, Los Angeles, CA 90095-1702. ☎310-825-7181

## HISTORY AND ACCREDITATION

In 1949 The Regents of the University authorized the School of Nursing as one of the professional



schools of the UCLA Center for the Health Sciences. This action paved the way for the development of an undergraduate basic 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 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 1971. The Regents approved the Doctor of Nursing Science (D.N.Sc.) degree program in 1986, and in Fall Quarter 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. was approved in 1995.

The 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. The first group of students began their studies in the summer of 1997.

The School of Nursing became an agency member of the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing in 1952. The National League for Nursing

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*The School of Nursing is consistently ranked high for its teaching and research programs. The innovative curriculum is responsive to national needs in health care and the diversity of the patient population*

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Accrediting Commission (NLNAC, 350 Hudson Street, New York, NY 10014, 212-989-9393, ext. 153) has granted full accreditation to the programs since 1954. The master's nurse practitioner and nurse-midwifery programs have Board of Registered Nursing approval. In 2000, the Commission on Collegiate Nursing Education gave preliminary approval of the baccalaureate and master's degree programs.

## 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.)

## PHILOSOPHY OF THE SCHOOL

The UCLA School of Nursing is guided by a philosophy which embodies the mission and goals of the University of California. The philosophy addresses nursing, the clients of nursing, and nursing students.

Nursing encompasses clinical practice, education,

an advanced practice level, nursing involves comprehensive primary health care which encompasses the responsibility and accountability 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 health care provider, and the larger society, nursing has a social mission which encompasses the right and responsibility to provide health care to all its clients regardless of their age, gender, sexual orientation, race or ethnicity, religion, culture, socioeconomic, or health status.

Persons 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 them-

selves that not only are relevant but essential to successful health care outcomes. As a result, persons have a right and a responsibility to participate collaboratively with the nurse and other health professionals in their care.

Successful nursing students are active learners who bring unique 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 which 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.



research, consultation, leadership, management, and service to the profession and the 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 include health promotion and maintenance, intervention and treatment, rehabilitation and restoration, and palliation. At



# SCHOOL OF PUBLIC HEALTH

**Linda Rosenstock, Dean**

UCLA  
16-071 Center for the Health Sciences  
Box 951772  
Los Angeles, CA 90095-1772  
(310) 825-5524  
<http://www.ph.ucla.edu>

Now is a great time to be studying public health. Federal investment in public health has increased, and a strong global economy has brought additional resources and attention to the field. Furthermore, public and media interest in public health topics have created many opportunities for the field and UCLA 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 boundaries of academic disciplines, 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 health care, quality of health care, and health status.

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, the school's classrooms and laboratories are under the same roof as the world-renowned UCLA hospital and its medical, dental, and nursing schools. It also shares access to the University's science facilities and schools for engineering, law, management, and public policy.

The school is enriched by its setting in Los Angeles, where diverse cultures, industries, environmental situations, and urban issues provide unparalleled opportunities for research, teaching, and service. Its location provides students and faculty with a unique opportunity to be involved with cutting-edge health care issues as many of the health system changes currently sweeping the country have origins in Southern California.

School of Public Health students can look forward to working with acclaimed public health experts and innovators. Of the school's 180 faculty members, six are members of the prestigious Institute of

Medicine, three are past presidents of the American Public Health Association, and two are former presidents of the International Epidemiological Association.

The school's 600 students are among the most talented and promising in the nation. Culturally diverse, they represent more than 35 countries and nearly every region of the U.S. UCLA School of Public Health graduates are at the forefront of all major public health efforts.



## DEPARTMENTS AND PROGRAMS

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 deals with five areas of study and program implementation, including behaviors which 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 health care services. The school also administers interdepartmental degree programs in environmental science and engineering and in molecular toxicology.

## DEGREES

The school offers the following degrees:

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.)

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*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*

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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.

Certain degrees within the School of Public Health are not offered by the individual departments but are administered on a schoolwide level: the Master of Public Health, the Doctor of Public Health, and three concurrent degree programs—M.B.A./M.P.H. with the John E. Anderson Graduate School of Management and M.A./M.P.H. with Asian American Studies and with Islamic Studies. Three articulated degree programs—M.D./M.P.H. with the School of Medicine and M.A./M.P.H. with African Studies and with Latin American Studies—are also schoolwide programs.

## 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>.

Departments in the school may set additional admission requirements that are explained in the Curricula and Courses section of this catalog.

## DEGREE REQUIREMENTS

School of Public Health degree requirements vary according to the department and program. See Curricula and Courses for details or refer to *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/publications.html>.

## RESEARCH CENTERS

### Center for Health Policy Research

The Center for Health Policy Research applies the expertise of UCLA faculty and researchers to meet national, state, and local community needs 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 Policy and Social Research, the center provides a collaborative health policy

research environment where faculty from the Schools of Public Health, Public Policy and Social Research, and Medicine participate in center research projects and in public service and educational activities. One major project is the California Health Interview Survey (CHIS), one of the largest health surveys in the nation.

The center publishes findings in a series of Policy Briefs and Policy Research Reports that make policy information accessible to policymakers, public health and health care leaders, the media, and the public. The center also sponsors lectures and seminars on health policy as well as major public service programs supported by extramural grants.

The center is directed by Professor E. Richard Brown, with Professor Gerald Kominski as associate director, Roberta Wynn as associate director for research, Steven P. Wallace as associate director for public programs, Hongjian Yu as associate director for statistical support, Charles Disogra as associate director for CHIS, and Bernie Dempsey as associate director for finance and administration. See <http://www.healthpolicy.ucla.edu>. ☎310-794-0909

### Center for Health Promotion and Disease Prevention

The Center for Health Promotion and Disease Prevention is operated jointly by the School of Public Health—which engages in teaching and research activities such as studies on the quality of life for men with prostate cancer, manpower requirements for the care of those with HIV, community interventions for asthma control in Latino children, and systems for smoking cessation used by physicians caring for Latino patients—and the School of Medicine—which is involved in clinical activities and teaching.

Five full-time faculty members have primary appointments in School of Medicine clinical departments such as obstetrics, surgery, family medicine, medicine, or pediatrics. They have joint appointments in School of Public Health departments such as community health sciences, health services, or epidemiology.

The center has ties with local and national managed care organizations, as well as with the Veterans Administration and other hospitals and professional organizations. It is the UCLA site for the Pacific AIDS Education and Training Center. The center, directed by Professor Charles E. Lewis, is also responsible for overseeing the Preventive Medicine Residency Program. Dr. Karen Duvall, an assistant clinical professor of family medicine, is the associate director of the residency program.

### Center for Health Services Management

The Center for Health Services Management was established by the School of Public Health and the John E. Anderson Graduate School of Management as UCLA's response to California's challeng-



ing environment for health care management. It brings together the best in university-based research and education with cutting-edge management practices in the health care community, for the benefit of both.

As a laboratory that identifies new challenges and tests new solutions, the center improves management training not only in the degree and certificate programs at the University, but also in management development programs within health care organizations.

The center operates under the direction of a joint University/community guidance committee, and all activities, whether research, teaching, or consultation, involve intense collaboration between health care practitioners and University faculty and students.

Located in the most active and rapidly changing health care environment in the U.S., the center draws on renowned UCLA scholars and teachers—experts in both the organization of health services and in the latest approaches to modern management—and on a dynamic group of alumni, friends, and colleagues in the Southern California health care community who teach, advise, support, and counsel the development of the center.

Codirected by Professors Paul R. Torrens and Victor C. Tabbush, the center conducts activities in three major areas: applied health services management research; education and teaching in a variety of settings and on a variety of levels; and consultation to organizations and individuals about health services management issues. See <http://www.ph.ucla.edu/hs/hsmgt.html>. ☎310-206-3435

### Center for Healthier Children, Families, and Communities

The Center for Healthier Children, Families, and Communities addresses the challenging health and social problems that face children and families and seeks 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.

This unique interdisciplinary partnership unites UCLA departments, schools, and affiliated institutions, including the schools of Public Health, Medicine, Nursing, Education, Law, and Public Policy and Social Research and the Department of Psychology, as well as providers, community agencies, and affiliated institutions. Their combined 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 policymakers. The center is led by three codirectors, Professors Neal Halfon, Jonathan E. Fielding, and Neal Kaufman. See <http://healthy-child.ucla.edu>. ☎310-206-1898

### Center for Human Nutrition

A joint endeavor of the schools of Public Health and Medicine, the Center for Human Nutrition brings together faculty, postdoctoral research fellows, graduate students, and medical students to focus on the roles of nutrition and food in human health and disease. It is closely affiliated with UCLA's Clinical Nutrition Research Unit, which focuses on nutrition and cancer prevention.

Programs include basic biological research; nutrition education for 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 center maintains core laboratory and research facilities in body composition, dietary assessment and intervention, micronutrient analysis, lipid and hormone analyses, and stable isotope techniques.

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. The center provides research and field experience for students from UCLA and elsewhere and has several international visiting scholars in residence at most times.

Participating faculty have their academic appointments in Medicine and/or Public Health. ☎310-206-8444 or 825-3738

### Center for Occupational and Environmental Health

The state of California mandated that the Center for Occupational and Environmental Health (COEH) be formed after 1977, 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, conducts research, and provides services through consultation, education, and outreach. It is the first state-supported institution to provide 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, Nursing, and Public Policy and Social Research, as well as the Henry Samueli School of Engineering and Applied Science.

Specific COEH programs within the School of Public Health include:

**Environmental Chemistry.** The environmental chemistry program is concerned with the sampling, analysis, and fate/transport of chemicals in the environment. It interprets data on environmental chemicals and hazardous wastes. Environmental chemists are employed in research, government, and industry associated with environmental management, industrial hygiene chemistry, envi-



ronmental toxicology, air pollution, water quality treatment, and other related areas.

**Occupational and Environmental Epidemiology.** Occupational and environmental epidemiologists conduct research to establish causal links between environmental exposure and adverse health outcomes. The study of exposure-response relationship is central to the role of the epidemiologists.

**Occupational and Environmental Medicine.** An occupational medicine residency provides specialty training for physicians in occupational medicine. The program



leads to a master's degree in public health and board eligibility in occupational medicine. In the first year of the program, students take courses in the School of Public Health that lead to the M.P.H. degree. In the second year, they participate in clinical and field rotations under the supervision of the Department of Family Medicine in the School

of Medicine. A joint residency program in occupational medicine is offered with the UC Irvine COEH.

**Occupational Ergonomics.** Occupational ergonomics is the science of designing a work environment compatible with the capabilities and needs of the workforce. The primary goal of the program is to improve the design of the work environment for the prevention of occupational illnesses and injuries. Current research areas include static and dynamic strength modeling, task analysis, and identification and qualification of risk factors for cumulative trauma disorders.

**Occupational Hygiene.** Occupational hygienists are environmental specialists concerned with evaluation and control of the workplace environment for exposure to potentially dangerous agents, physical stresses, biologic agents, and ergonomic effects. Occupational hygienists provide insight into these problems based on their knowledge of the health effects of exposure to the substances involved and the physics and chemistry of the environment. These specialists work as part of interdisciplinary teams with epidemiologists, physicians, nurses, and toxicologists.

**Service Outreach to the Community.** The center has the task of providing expertise in occupational and environmental health to the community. Available services and opportunity for student activities include (1) consultative assistance to physicians, nurses, and occupational hygienists, (2) faculty evaluation of the work environment with potential occupational health hazards and

surveillance of industrial workers exposed to hazardous substances, and (3) continuing education opportunities for professionals and educational programs for workers exposed to potential occupational health hazards. See <http://www.coeh.ucla.edu>.

**Toxicology.** Toxicology is the study of the adverse effects of chemicals and physical agents on living organisms. The goal of the discipline is to understand what agents provide a threat to organisms and how they function in order to minimize their impact. Toxicologists work collaboratively with physicians, nurses, industrial hygienists, and epidemiologists to determine the causes of occupational and environmental disease.

## Center for Public Health and Disaster Relief

The Center for Public Health and Disaster Relief addresses the critical issues faced when a disaster impacts a community. The center provides a curricular focus and research agenda to examine how natural and human-generated disasters affect the public's health. Staff and faculty have multidisciplinary backgrounds that include emergency medicine, environmental health sciences, epidemiology, gerontology, health services, social work, sociology, urban planning, and public health.

Based in the Community Health Sciences department, the center is the first such program in the U.S. to offer multiple graduate-level courses in public health and natural disasters. Center faculty teach such courses as introduction to public health and disasters, program planning and evaluation of disaster preparedness programs, cooperative interagency management from a public health perspective, post-disaster community health, disaster epidemiology, and public health disasters caused by bioterrorism.

Such courses—also available by concurrent enrollment through UCLA Extension—bring together students who have a strong theoretical and research background with individuals who are experienced in disaster management. The synergy between theory and practice provides lively classroom discussions, and enriches the future pool of public health disaster experts. To expose future professionals to the rigorous challenges of this field, graduate student interns may be placed within emergency and disasters units of the Los Angeles County Department of Health Services, the California Emergency Medical Services Authority, the American Red Cross, local government emergency management agencies, and the World Health Organization.

Center staff and colleagues have studied earthquakes in California since the early 1970s. Recent research contributes to the knowledge of human behavior and disaster preparedness before and after earthquakes, emotional and physical injuries, as well as utilization of both medical and disaster services. Similar factors are under study as a follow up to the 1997-98 el niño season. The center



research agenda also includes a cooperative study of earthquake impacts on the U.S. and Japan, and the projected impact of seismic early warning systems on human behavior and injury. The center also develops training designed to prepare public health professionals for potential emergencies including bioterrorism.

A visiting scholars program allows qualified public health and emergency management professionals to spend from one to three quarters studying in the center and working with faculty in areas of disaster public health and research methods.

The center is directed by Professor Steven Rottman, with Professor Linda Bourque as associate director. Professor Kimberley Shoaf is the center's director of research. See <http://www.ph.ucla.edu/cphdr>. ☎310-794-0864.

### Office of Public Health Practice

The School of Public Health plays a unique role in community-based health promotion and disease prevention. To coordinate this important function, the school established the Office of Public Health Practice in 1992. The goals of the office are to (1) establish firm practice links with local and state departments, (2) strengthen the curriculum with innovative community-based public health practice experience, (3) assist policy development affecting public health, (4) develop model interventions to address the leading public health problems of our diverse and multiethnic communities, and (5) develop continuing education programs, including an M.P.H. degree for working professionals. See <http://www.ph.ucla.edu/php>. ☎310-794-7028

### Pollution Prevention Education and Research Center

The Pollution Prevention Education and Research Center (PPER) was established by the schools of Public Health, Engineering and Applied Science, and Public Policy and Social Research to conserve resources, reduce or eliminate the use of toxic substances, and improve human and environmental health through an interdisciplinary program of education, research, and outreach. Faculty and associates offer classes, develop curricula, conduct research, and sponsor outreach activities to promote the principles of pollution prevention across disciplines and institutions.

The center ranks as a leading academic pollution prevention program with impressive accomplishments. Faculty members and associates collaboratively teach innovative multidisciplinary courses that examine pollution prevention opportunities in a variety of industry sectors; develop curricula, case studies, and problem sets for students and professionals in diverse fields; sponsor public seminars and conferences to share pollution prevention information and stimulate discussion; publish books and articles on technology, health, and

policy issues associated with pollution prevention; and participate in workshops and roundtables on the problems associated with toxics use. See <http://www.oxy.edu/departments/pperc>. For more information, contact Professor John R. Froines. ☎310-206-6141

### 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, University of Southern California, and California Institute of Technology 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, five research cores, and four service 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.

The center supports an Environmental Health Research Pilot Projects Program to advance research in environmental health by expanding opportunities to pursue larger-scale projects. It also maintains a Community Outreach and Education Program to develop models for community outreach and school curricula to educate the public on how to control, reduce, or eliminate the threat of living with environmental hazards. Dissemination of research findings to the health care, corporate, and policy-making communities and the public at large enables the SCEHSC to facilitate an informed public debate and, ultimately, improved public policies, making it a regional and national resource on environmental health research. For information, contact Professor John R. Froines at (310) 206-6141 or Professor William C. Hinds at (310) 825-7152. See [http://www.usc.edu/schools/medicine/academic\\_departments/preventive\\_med/occ\\_environmental/scehsc](http://www.usc.edu/schools/medicine/academic_departments/preventive_med/occ_environmental/scehsc).

### 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.

Graduate students can affiliate with SCIPRC through academic coursework in injury and research experience with ongoing investigations and can apply for support for independent graduate student research. See <http://www.ph.ucla.edu/sciprc/sciprc1.htm>. ☎310-794-2706

### **Southern California NIOSH Education and Research Center**

The Southern California NIOSH Education and Research Center is one of 15 multidisciplinary centers in the U.S. supported by the National Institute

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. The center director is Professor William C. Hinds. For more information, e-mail [niosherc@ucla.edu](mailto:niosherc@ucla.edu). ☎310-206-2304

### **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 UCLA School of Public Health, the center includes faculty 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.

Particulates in the South Coast Air Basin include organic compounds from fuel combustion, heavy metals created by erosion, and materials called bioaerosols such as pollen and fungi. By applying new tools, researchers hope to learn about the relative health hazards posed by the different pollutants. SCPCS projects are done in association with the University of Southern California's Children's Health Study, which is following 3,600 school children in 12 local communities to study the chronic health effects caused by air pollution. See <http://www.scpcs.ucla.edu> ☎310-206-1229



for Occupational Safety and Health for education and research in the field of occupational health. The Southern California center is administratively housed in the Department of Environmental Health Sciences. The center supports academic programs in occupational medicine at UCLA and UCI, occupational health nursing, and industrial hygiene at UCLA. For these programs the center



# SCHOOL OF PUBLIC POLICY AND SOCIAL RESEARCH

**Barbara J. Nelson, Dean**

UCLA  
3250 Public Policy Building  
Box 951656  
Los Angeles, CA 90095-1656  
(310) 206-7568  
<http://www.sppsr.ucla.edu>

Established in 1994, the School of Public Policy and Social Research is a leader in redefining policy education, research, and outreach to solve major problems in an era defined by rapid change, increasing complexity, and remarkable diversity. The school's distinctive approach emphasizes solving problems across boundaries, particularly at the growing intersection of the public, private, and nongovernmental sectors.

## DEPARTMENTS AND PROGRAMS

The school combines three academic departments—Policy Studies, 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 on important issues.

## DEGREES

School of Public Policy and Social Research graduate programs lead to the following degrees:

Public Policy (M.P.P.)  
Social Welfare (M.S.W., Ph.D.)  
Urban Planning (M.A., Ph.D.)

In addition, seven concurrent degree programs allow students to fulfill the requirements of two graduate degrees simultaneously: M.A.-Urban Planning/J.D., M.P.P./J.D., and M.S.W./J.D. with the School of Law, M.A.-Urban Planning/M.A.-Latin American Studies, M.S.W./M.A.-Asian American Studies, M.A.-Urban Planning/M.B.A. with the John E. Anderson Graduate School of Management, and M.A.-Urban Planning/M.Arch. I with the Department of Architecture and Urban Design. Details about these programs are in the Curricula and Courses section of this catalog. Obtain brochures about the school's programs from the Office of Academic and Student Services, 3371 Public Policy Building.

The school also offers an undergraduate minor in Public Policy and a wide array of undergraduate

courses in policy studies, social welfare, and urban planning. Enrollment in these courses is open to all undergraduate students.

119

SCHOOL OF PUBLIC  
POLICY AND SOCIAL  
RESEARCH

## 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 the departmental listings in the Curricula and Courses section of this catalog.

For information on the proficiency in English requirements for international graduate students, refer to 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. See the Curricula and Courses section of this catalog for introductory information and procedures. For complete degree requirements, see *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/publications.html>.

## RESEARCH CENTERS

The school houses 12 research centers where faculty 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.

### California Census Research Data Center

The California Census Research Data Center is a partnership between the U.S. Bureau of the Census and the University of California. With laboratories at the School of Public Policy and Social





Research and at UC Berkeley, the center fosters applied research, much of it California-specific, on a wide range of important economic and public policy issues. It provides researchers, on a project-by-project basis, with confidential data from the Census Bureau's business and household data programs. It is the first such center to be established west of Pittsburgh. See <http://www.ccrdc.ucla.edu>.

### Center for Child and Family Policy Research

The Center for Child and Family Policy Research was established in 1984 to conduct and promote



research, training, and community service programs to inform policy and develop needed programs for children and families. The center has a distinguished history of policy analysis, applied research, and program development in such areas as child abuse and neglect, income maintenance, and services for high-risk teenagers and disabled populations. Major policy research projects include a study of methods of preparing youths in

foster care for emancipation and studies of social support and health care use among Korean Americans and Mexican American elderly. See [http://www.sppsr.ucla.edu/res\\_ctr/family.htm](http://www.sppsr.ucla.edu/res_ctr/family.htm).

### Center for Communication Policy

The Center for Communication Policy was established in 1993 as a forum for the discussion and development of policy alternatives addressing the leading issues in media and communication. The center conducts and facilitates research, courses, seminars, working groups, and conferences designed to have a major impact on policy at the local, national, and international levels. The center has launched a groundbreaking new study of the social, political, and economic effects of computer technology and the Internet. Conferences include the Superhighway Summit with the Academy of Television Arts and Sciences, Religion and Prime Time Television with the American Cinema Foundation, and an annual national media conference with Children Now and Stanford University. See <http://ccp.ucla.edu>.

### Center for Globalization and Policy Research

The Center for Globalization and Policy Research acts as a focal point in the School of Public Policy and Social Research and in the UCLA community at large for critical investigations of global policy issues. The center serves as a clearinghouse for both individual and joint research projects and hosts public lectures and occasional conferences on globalization and its effects. The center's work focuses on five main areas of social inquiry and policy making, including the organization and structure of economic systems; processes of migration and social mobility; systems of cultural expression and conflict; the natural and built environments; and structures of governance. See <http://www.sppsr.ucla.edu/cgpr>.

### Center for Health Policy Research

Jointly sponsored by the School of Public Policy and Social Research and the School of Public Health, the Center for Health Policy Research conducts research on the national, state, and local levels, provides testimony, and conducts seminars and forums for government leaders and policymakers both public and private. Research activities emphasize a community- and population-based perspective to improve health outcomes. Current research areas and programs touch on such issues as access to health services, managed care, health care reform, women's health, disease prevention policy, cost issues, and the health policy-making process itself. See <http://www.health-policy.ucla.edu>.

### Center for International Science, Technology, and Cultural Policy

The Center for International Science, Technology, and Cultural Policy facilitates interdisciplinary research on the influences of government policy on the development of the arts and sciences and their commercial and noncommercial expressions, including technology, the media, fashion/design, and other uses of the nation's knowledge capital. The center's mission is to improve the basis for policy decisions by conducting and supporting solid empirical research designed to examine alternative policy models, including the comparison of systems across countries as well as across substantive areas within the same country. Rigorous policy research on these topics requires discipline-based, but also interdisciplinary, research teams that are informed by social science theory. The center promotes dissemination of policy research to governments seeking to make more empirically informed policy decisions. See [http://www.sppsr.ucla.edu/res\\_ctr/cistcp.cfm](http://www.sppsr.ucla.edu/res_ctr/cistcp.cfm).

### Center for Labor Research and Education

Regarded as the flagship of all U.S. labor centers, the Center for Labor Research and Education



plays a unique role as a bridge between the University and the labor community. As part of the Institute of Industrial Relations, the center is a cosponsor, with the Urban Planning Department, of the Community Scholars Program—a dynamic project that brings labor and community leaders to UCLA to study economic development. The center also serves as the West Coast coordinator for the AFL-CIO's George Meany Center, providing summer residential programs for union leaders, and regularly hosts visiting trade unionists and scholars from around the world. A vital part of the center is the Labor Occupational Safety and Health Program, which provides extensive resources and training in the field of workplace safety and health. See <http://labor.sppsr.ucla.edu>.

### Center for Policy Research on Aging

The Center for Policy Research on Aging 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.sppsr.ucla.edu/res\\_ctrs/cpra.html](http://www.sppsr.ucla.edu/res_ctrs/cpra.html).

### Institute of Industrial Relations

Established by the California Legislature in 1945, the Institute of Industrial Relations conducts research and community service programs that focus on all aspects of the modern employment relationship involving workers, management, and unions. These issues run the gamut from technological change and workforce preparedness to collective bargaining and macroeconomic policy. Community service programs are directed at the Southern California region as well as the state and nation. Because of the ongoing globalization of the economy, the institute—both in research and community service—increasingly is focusing on international issues. See [http://www.sppsr.ucla.edu/res\\_ctrs/industri.cfm](http://www.sppsr.ucla.edu/res_ctrs/industri.cfm).

### Institute of Transportation Studies

The Institute of Transportation Studies was created in 1993 to conduct research and provide professional education on the social, economic, environmental, and cultural aspects of transportation policy. Research projects have included measuring the efficiency and effectiveness of transit performance, particularly regional rail and bus transit systems in the Los Angeles area; the development of statistically reliable methods for estimating average vehicle occupancy from sampling in the field; and the first major study comparing the

transportation-related impacts of the 1994 Northridge earthquake to the damage inflicted by the 1989 Loma Prieta and 1995 Kobe earthquakes. See <http://www.sppsr.ucla.edu/its>.

### Lewis Center for Regional Policy Studies

The Lewis Center for Regional Policy Studies was established in 1990 with a \$5-million endowment from Ralph and Goldy Lewis to promote the multidisciplinary study, understanding, and solution of regional policy issues, with special reference to Southern California. Research projects include studies on the impact of the North American Free Trade Agreement on Latinos in the U.S., welfare and work, pollution prevention policies, transportation and parking policies, work-residence relationships in restructuring metropolitan areas, and economic development strategies for local areas. With the support of several foundations, the center also has begun a major research program on ethnic and immigration issues, one product of which is the 1996 volume *Ethnic Los Angeles*. See <http://www.sppsr.ucla.edu/lewis>.

### North American Integration and Development Center

The North American Integration and Development Center was created to provide technical assistance to local communities affected by the North American Free Trade Agreement (NAFTA). The center conducts research and offers continuing education programs in cooperation with non-governmental organizations in selected communities to support local economic development efforts and facilitate their relationship with the North American Development Bank (NADBank). The center is developing a comprehensive online database with essential information for economic development planning and makes it available to the public online through custom-designed Internet sites. See <http://naid.sppsr.ucla.edu>.

### UCLA Policy Forum

As the chief outreach arm of the School of Public Policy and Social Research, the UCLA Policy Forum is a leader in promoting dialogue on major issues through its Center for Public Dialogue and in providing training and other programs through the Advanced Policy Institute and the Center for Executive Policy Education. Policy Forum programs include the Senior Fellows Program, in which distinguished policy practitioners are appointed to spend a year engaged in a dialogue with UCLA scholars and in mentoring graduate students. See [http://www.sppsr.ucla.edu/outrch/out\\_pf.html](http://www.sppsr.ucla.edu/outrch/out_pf.html).



# SCHOOL OF THEATER, FILM, AND TELEVISION

**Robert Rosen, Dean**

UCLA  
202 East Melnitz Building  
Box 951622  
Los Angeles, CA 90095-1622  
(310) 825-5761  
<http://www.tft.ucla.edu/>

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 on a 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 the UCLA Performing Arts, 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 350 undergraduate and 125 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. 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, directing, playwriting, design, technology and production management, and the producers program.

The Department of Film, Television, and Digital Media includes both production and critical studies programs, with approximately 265 graduate and 60 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 critical 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.

School of Theater, Film, and Television brochures are available from the Student Services Office, 103 East Melnitz Building, UCLA, Box 951622, Los Angeles, CA 90095-1622.

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:

Film and Television (B.A., M.A., M.F.A., C.Phil., Ph.D.)

Theater (B.A., M.A., M.F.A., 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 mailed to students on receipt of their application. 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 undergraduates must satisfy in order to graduate: (1) Subject A 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 the courses for a letter grade.

## SCHOOL REQUIREMENTS

The School of Theater, Film, and Television has general requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, and general education.

## Unit Requirement

Students must complete for credit, with a passing grade, no less than 180 units and no more than 208 units, of which at least 64 units must be upper division courses (numbered 100 through 199). No more than 16 units of CED courses and 8 units of freshman seminars or 300-level courses may be applied toward the degree. Credit for 199 courses is limited to 16 units, 8 of which may be applied to the major. All 199 courses must be taken 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 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.

### STRUCTURE OF A DEGREE

#### University Requirements

1. Subject A or English as a Second Language
2. American History and Institutions

#### School of Theater, Film, and Television Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. General Education Requirements
  - a. Writing
    - English Composition and Rhetoric
    - Critical Reading and Writing
  - b. Foreign Language
  - c. Literature
  - d. General Education Courses

#### Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy University, school, or department requirements are referred to as electives and are 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.



## General Education Requirements

The general education (GE) requirements of the school include (1) writing, (2) foreign language, (3) literature, and (4) general education course requirements.

### Writing Requirement

To satisfy school writing requirements students must complete both the English Composition and Rhetoric and the Critical Reading and Writing requirements.

**English Composition and Rhetoric.** English Composition 3, 3H, or English as a Second Language 36 with a minimum grade of C must be completed by the end of the third term at UCLA and may not be taken on a Passed/Not Passed basis. An Advanced Placement (AP) Test score of 4 also meets this requirement.

**Critical Reading and Writing.** One course from the Letters and Science Writing II course list (see <http://www.registrar.ucla.edu/schedule>) with a minimum grade of C should be completed by the end of the sophomore year and may not be taken on a Passed/Not Passed basis. Comparative Literature 2AW, 2BW, or 2CW may not be applied toward the literature requirement if taken to meet this requirement.

### Foreign Language Requirement

The Foreign Language requirement can be satisfied by one of the following methods: (1) scoring 3, 4, or 5 on the Advanced Placement (AP) foreign language test in French, German, or Spanish, (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 UCLA's level three or above with an average grade of C or better.

International students whose entire secondary education has been completed in a language other than English may petition to be exempt from the foreign language requirement.

### Literature Requirement

Three courses (12 units) in literature are required, at least one of which must be upper division. Any literature course taken in the original language can fulfill this requirement. Letters and Science Writing II courses may not be applied toward the critical reading and writing requirement if taken to meet this requirement.

### GE Courses Requirement

The GE courses requirement of the school introduce undergraduates to the diversity of the various academic disciplines in art and philosophy, the social sciences, and sciences.

**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 Theater, Film, and Television GE requirements. Written verification from the college dean at the other UC campus 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 GE 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. The IGETC significantly eases the transfer process, as all UCLA GE requirements are fulfilled when students complete it. If they select the IGETC, they must complete it entirely before enrolling at UCLA. Otherwise, students must fulfill the School of Theater, Film, and Television GE course requirements.



# SCHOOL OF THEATER, FILM, AND TELEVISION GENERAL EDUCATION COURSE LIST

For specific courses that fulfill the general education requirements, refer to the lists below or consult the Student Services Office before enrolling. Courses that include the study of theater, film, or television may not be applied toward any general education requirements.

## A. ART AND PHILOSOPHY

Five courses (20 units), with no more than two courses from any single group:

### A1. GROUP A

#### Art History

- 50. Ancient Art
- 51. Medieval Art
- 54. Modern Art
- 55A. Introduction to African Art
- 55B. Arts of Pre-Columbian America
- 56A. Art of India and Southeast Asia
- 56B. Introduction to Chinese Art
- 57. Renaissance and Baroque Art

#### Classics

- 51A. Art and Archaeology of Classical World: Greece
- 51B. Art and Archaeology of Classical World: Rome

### A2. GROUP B

#### Folklore and Mythology

- CM136. Carnival and Festivity

#### Women's Studies

- CM143. Women Healers, Ritual, and Transformation

#### World Arts and Cultures

- 100A. Art as Social Action
- 100B. Art as Moral Action
- 102. Seminar: Intercultural and Interdisciplinary Performance
- 106B. Dance in Africa and African Diaspora
- C109B. Dance in Native American Cultures
- CM140. Women Healers, Ritual, and Transformation
- CM141. Carnival and Festivity
- 149. Dance in the Multicultural U.S.
- 150. History of Dance in Culture and Performance
- C155. Self and Culture
- 181. Ethnographic Film
- 182. Dance and the Visual Media

### A3. GROUP C

#### Afro-American Studies

- M110A, M110B. African American Musical Heritage

#### Chicana and Chicano Studies

- M108A. Music of Latin America

#### Ethnomusicology

- 20A, 20B, 20C. Musical Cultures of the World
- M108A, 108B. Music of Latin America
- M110A, M110B. African American Musical Heritage
- 113. Music of Brazil
- C136A, C136B. Music of Africa
- 147. Survey of Classical Music in India
- 174. Aesthetics of Music

#### Folklore and Mythology

- M154A, M154B. African American Musical Heritage

#### Music

- 15. Art of Listening

#### Music History (Musicology)

- 2A, 2B. Introduction to Literature of Music
- 13. 20th-Century Music of the Western World
- 133. Bach
- 134. Beethoven
- 135A, 135B, 135C. History of Opera

### A4. GROUP D

#### Philosophy

- 1. Beginnings of Western Philosophy
- 2. Introduction to Philosophy of Religion

- 4. Philosophical Analysis of Contemporary Moral Issues
- 5A. Philosophy in Literature
- 6. Introduction to Political Philosophy
- 7. Introduction to Philosophy of Mind
- 8. Introduction to Philosophy of Science
- 9. Principles of Critical Reasoning
- 21. Skepticism and Rationality
- 22. Introduction to Ethical Theory

## B. SOCIAL SCIENCES

Three courses (12 units), with no more than two courses from any single group. Whenever possible, two courses from a single sequence are recommended:

### B1. GROUP A

#### Chinese (East Asian Languages)

- 50. Chinese Civilization

#### Classics

- 10. Survey of Classical Greek Culture
- 20. Survey of Roman Civilization

#### East Asian Languages and Cultures

- 60. Introduction to Buddhism

#### Folklore and Mythology

- M15. Introduction to American Folklore Studies

#### German (Germanic Languages)

- 100A. German History and Culture before 1500
- 100B. German History and Culture from 1500 to 1914
- 100C. German History and Culture from 1914 to the Present

#### Italian

- 42A. Italy through the Ages in English: Holy Roman Empire to Sack of Rome
- 42B. Italy through the Ages in English: Late Renaissance to Post-modern Period

#### Japanese (East Asian Languages)

- 50. Japanese Civilization

#### Jewish Studies (Near Eastern Languages)

- 10. Social, Cultural, and Religious Institutions of Judaism

#### Korean (East Asian Languages)

- 50. Korean Civilization

#### Portuguese (Spanish and Portuguese)

- M42. Civilization of Spain and Portugal
- M44. Civilization of Spanish America and Brazil

#### Russian (Slavic Languages)

- 99A. Introduction to Russian Civilization
- 99B. Russian Civilization in the 20th Century

#### Spanish (Spanish and Portuguese)

- M42. Civilization of Spain and Portugal
- M44. Civilization of Spanish America and Brazil

#### Women's Studies

- 10. Introduction to Women's Studies: Feminist Perspectives on Women and Society

#### World Arts and Cultures

- M22. Introduction to American Folklore Studies

### B2. GROUP B

#### Communication Studies

- 10. Introduction to Communication Studies

#### History

- 1A, 1B, 1C. Introduction to Western Civilization
- 3A, 3B, 3C. Introduction to History of Science
- 3D. Themes in History of Medicine
- 4. Introduction to History of Religions
- 8A. Colonial Latin America



- 126 8B. Political Economy of Latin American Underdevelopment, 1750 to 1930  
 8C. Latin American Social History  
 9A. Introduction to Asian Civilizations: History of India  
 9C. Introduction to Asian Civilizations: History of Japan  
 9D. Introduction to Asian Civilizations: History of the Near and Middle East  
 10A, 10B. Introduction to Civilizations of Africa  
 11A, 11B. History of China  
 13A. History of the U.S. and Its Colonial Origins: Colonial Origins and First Nation Building Acts  
 13B. History of the U.S. and Its Colonial Origins: 19th Century  
 13C. History of the U.S. and Its Colonial Origins: 20th Century  
 148A. U.S., 20th Century: 1900 to 1928  
 148B. U.S., 20th Century: 1929 to 1960  
 148C. U.S. since 1960

#### Political Science

10. Introduction to Political Theory  
 20. World Politics  
 40. Introduction to American Politics  
 50. Introduction to Comparative Politics

### B3. GROUP C

#### Anthropology

8. Archaeology: An Introduction  
 9. Culture and Society  
 33. Culture and Communication

#### Psychology

10. Introductory Psychology

#### Sociology

1. Introductory Sociology  
 2. Changing Society and Making History  
 3. Sociology of Everyday Life  
 4. Jobs and Careers: Sociological Approach  
 31. Dilemmas of Third World Development

## C. SCIENCE

One course (4 units) in physical sciences and one course (4 units) in biological sciences:

### C1. PHYSICAL SCIENCES

#### Astronomy (Physics and Astronomy)

- 2A, 2B. Introduction to the Physical Universe  
 3. Astronomy: Nature of the Universe  
 4. Universe of Stars and Stellar Systems  
 5. Life in the Universe  
 6. Cosmology: Our Changing Concepts of the Universe

#### Atmospheric Sciences

2. Air Pollution  
 3. Introduction to the Atmospheric Environment  
 4. California Weather and Climate  
 5. Climates of Other Worlds  
 6. Climate and Climatic Change

### Chemistry and Biochemistry

2. Introductory Chemistry  
 15. Survey of Organic Chemistry and Biochemistry

### Earth and Space Sciences

1. Introduction to Earth Science  
 5. Environmental Geology of Los Angeles  
 8. Earthquakes  
 9. Origin and Evolution of Solar System  
 15. Introduction to Oceanography

### Geography

1. Physical Environment

### Mathematics

2. Finite Mathematics  
 3A, 3B. Calculus for Life Sciences Students  
 31A, 31B. Calculus and Analytic Geometry

### Physics (Physics and Astronomy)

- 1A. Physics for Scientists and Engineers: Mechanics  
 1B. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields  
 1C. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity  
 6A. Physics for Life Sciences Majors: Statics and Dynamics  
 6B. Physics for Life Sciences Majors: Sound, Light, and Hydrodynamics  
 6C. Physics for Life Sciences Majors: Electricity, Magnetism, and Transport  
 10. Physics

## C2. BIOLOGICAL SCIENCES

### Anthropology

7. Human Evolution  
 10. Principles of Human Evolution: Genetic Basis  
 12. Principles of Human Evolution: Comparative Analysis

### Earth and Space Sciences

16. Major Events in History of Life

### Geography

2. Biogeography: Spatial Dynamics of Biological Diversity in a Changing World  
 5. People and the Earth's Ecosystems

### Microbiology and Molecular Genetics

6. Introduction to Microbiology  
 7. Developments in Biotechnology

### Molecular, Cell, and Developmental Biology

30. Biology of Cancer  
 40. AIDS and Other Sexually Transmitted Diseases  
 70. Genetic Engineering and Society

### Organismic Biology, Ecology, and Evolution

10. Plants and Civilization  
 13. Evolution of Life  
 21. Field Biology  
 25. Marine Biology

### Psychology

15. Introductory Psychobiology



## 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). Lower division 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 lower division 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 not less than 14 courses (56 units), including at least nine upper division courses (36 units). 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. All courses 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 departmental 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.

**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 Student Services Office, School of Theater, Film, and Television, 103 East Melnitz Building. ☎310-206-8441

**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 students 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 17 units. The school has no provision for part-time enrollment. After the first term, students may petition to carry more than 17 units (up to 20 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 by the end of the third week of instruction.

If students have not filed their Study List by the end of the second week of classes, they must obtain the consent of the dean of the school to continue for that term.

### 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.

### 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 undergraduates in the school.

**Advanced Placement Tests.** Credit earned through the College Board Advanced Placement (AP) Tests may be applied toward GE requirements. Portions of AP Test credit may be evaluated by corresponding UCLA course numbers (such as History 1C). If students take the equivalent UCLA course, unit credit for such duplication is deducted before graduation.





**UCLA Extension.** UCLA 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.

**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 specific requirements. Courses numbered in the 400 and 500 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 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 Theater, Film, and Television, 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 and the requirements for each level are cum laude, an overall average of 3.758; magna cum laude, 3.814; summa cum laude, 3.860. See 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. For details, contact the Student Services Office in 103 East Melnitz Building.

## 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.

The producers program is an M.F.A. management program in the Departments of Theater and Film, Television, and Digital Media, with options in either theater or film and television.

A program in teaching is offered by the Graduate School of Education and Information Studies in each of these 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 the departmental listings in the Curricula and Courses section of this catalog.

For information on the proficiency in English requirements for international graduate students, refer to 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. See the Curricula and Courses section of this catalog for information and procedures. For complete degree requirements, see *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/publications.html>.



# Curricula and Courses

## COURSE LISTINGS

In the following section, curricula and courses are listed alphabetically with the college or school administering the program identified in the program heading. 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. For up-to-date information, consult the *Schedule of Classes* or visit <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/pgmrqintro.htm>.

## Undergraduate Courses

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.

**Lower division/first-year seminars (numbered 88)** are departmentally sponsored courses designed to provide freshmen and sophomores the opportunity to participate in small classroom settings to enhance writing, verbal, and analytical skills. Many carry general education credit.

**Variable topics courses (numbered 97 and 197)** are offered at both the lower (97) and upper (197) division levels; topics within a defined subject area vary with the instructor and individual offerings. These topics have a fixed and permanent place in the regular curriculum.

**Professional schools seminars (numbered 98)** are designed by the faculty of the professional schools specifically for freshmen and sophomores. Outside the professional schools, 98 courses are often offered as the lower division equivalent of 198 courses, defined below. Because they are temporary in nature, vary in content, and are offered irregularly, they are not

listed in the catalog. Consult the *Schedule of Classes* for respective offerings.

**Group special studies courses (numbered 198)** are structured special studies for groups. They may be departmentally sponsored experimental and/or temporary in nature (e.g., courses taught by a visiting professor) or those which are being tested for permanent inclusion in the curriculum. Because they are temporary in nature, vary in content, and are offered irregularly, they are not listed in the catalog. Consult the *Schedule of Classes* for respective offerings.

**Individual special studies courses (numbered 199, 199F, 199H, and 199I)** involve supervised independent study and research requiring adequate background in the subject proposed for study. These 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 must complete the appropriate petition (available from the department) and have it approved by both the instructor in charge and department chair.

Undergraduates may enroll in a maximum of eight units of 199, 199F, 199H, and/or 199I courses per term. After completing 16 units of 199 and/or 199H credit on a letter grade basis, students must take any additional 199 and/or 199H courses on a Passed/Not Passed basis. Independent field study courses (199F and 199I) must be taken on a Passed/Not Passed basis; a total of eight units is allowed. Students with an outstanding Incomplete grade in a 199, 199F, 199H, or 199I course may not register for another until the I grade is removed. See departmental listings and individual course descriptions for specific requisites and credit limitations.

## Graduate Courses

**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 which 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 undergraduates. 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.

## 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 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 Academics section of this catalog.

## 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 of the same format and level offered jointly by more than one department. 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.

# AFRICAN STUDIES

Interdepartmental Program  
College of Letters and Science

UCLA  
10244 Bunche Hall  
Box 951310  
Los Angeles, CA 90095-1310  
(310) 825-3686, 825-2944  
<http://www.isop.ucla.edu/jscasc/>

Russell G. Schuh, Ph.D., *Chair*

## Faculty Advisory Committee

Judith A. Carney, Ph.D.  
Donald J. Cosentino, Ph.D.  
Jacqueline C. DjeDje, Ph.D.  
Christopher Ehret, Ph.D.  
Edmond Keller, Ph.D.  
Charlotte G. Neumann, M.D.  
Thomas W. Plummer, Ph.D.  
Daniel Posner, Ph.D.  
Beverly J. Robinson, Ph.D.  
Russell G. Schuh, Ph.D., *Chair*  
Hartmut Walter, Ph.D., *Assistant Chair*

## Affiliated Faculty

### Professors

Richard L. Abel, LL.B., Ph.D. (*Law*)  
Edward A. Alpers, Ph.D. (*History*)  
Judith A. Carney, Ph.D. (*Geography*)  
Donald J. Cosentino, Ph.D. (*English*)  
Paul M. Davis, Ph.D. (*Earth and Space Sciences*)  
Jacqueline C. DjeDje, Ph.D. (*Ethnomusicology*)  
Robert B. Edgerton, Ph.D. in *Residence*  
(*Anthropology, Psychiatry and Biobehavioral Sciences*)  
Christopher Ehret, Ph.D. (*History*)  
Teshome H. Gabriel, Ph.D. (*Film, Television, and Digital Media*)  
Osman M. Galal, M.D., Ph.D. (*Community Health Sciences*)  
Gail G. Harrison, Ph.D. (*Community Health Sciences*)  
Susanna B. Hecht, Ph.D. (*Urban Planning*)  
Robert A. Hill, M.Sc. (*History*)  
Thomas J. Hinnebusch, Ph.D. (*Linguistics*)  
Edmond Keller, Ph.D. (*Political Science*)  
Robert S. Kirsner, Ph.D. (*Germanic Languages*)  
Deepak K. Lal, D.Phil. (*Economics*)  
François Lionnet, (*French and Francophone Studies*)  
Mary Niles Maack, D.L.S. (*Information Studies*)  
Charlotte G. Neumann, M.D. (*Community Health Sciences*)  
Antony R. Orme, Ph.D. (*Geography*)  
Beverly J. Robinson, Ph.D. (*Theater*)  
Russell G. Schuh, Ph.D. (*Linguistics*)  
Joan B. Silk, Ph.D. (*Anthropology*)  
Edward W. Soja, Ph.D. (*Urban Planning*)  
Hartmut Walter, Ph.D. (*Geography*)  
Christopher Waterman, Ph.D. (*World Arts and Cultures*)  
Thomas S. Weisner, Ph.D. (*Anthropology*)

### Professors Emeriti

Nicholas Blurton Jones, Ph.D. (*Anthropology, Education, Psychiatry and Biobehavioral Sciences*)  
Walter R. Goldschmidt, Ph.D. (*Anthropology*)  
Gerry A. Hale, Ph.D. (*Geography*)  
Peter B. Hammond, Ph.D. (*Anthropology*)  
Michael F. Lofchie, Ph.D. (*Political Science*)  
Jacques Marquet, Ph.D. (*Anthropology*)  
Alfred K. Neumann, M.D. (*Community Health Sciences*)  
Merrick Posnansky, Ph.D. (*History, Anthropology*)  
Georges Sabagh, Ph.D. (*Sociology*)  
Nathan Shapira, Dottore in Architettura (*Design*)  
Richard L. Sklar, Ph.D. (*Political Science*)

### Associate Professors

Ali Behdad, Ph.D. (*English*)  
Gail E. Kennedy, Ph.D. (*Anthropology*)

Duncan Thomas, Ph.D. (*Economics*)  
William H. Worger, Ph.D. (*History*)

### Assistant Professors

Ghislaine Lydon, Ph.D., in *Residence* (*History*)  
Edith S. Mukudi, Ph.D., (*Education*)  
Mark Sawyer, Ph.D. (*Political Science*)  
Dominic Thomas, Ph.D. (*French*)

### Lecturer

Zulungi Sosibo (*Linguistics*)

### Adjunct Professor

Sondra Hale, Ph.D. (*Anthropology*)

### Adjunct Assistant Professor

Joanne Leslie, Ph.D. (*Community Health Sciences*)

### Visiting Associate Professor

Kereopatse W. Kgositsile, Ph.D. (*English*)

## 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. The Master of Arts is not a professional degree, but students are encouraged to enroll in courses in several professional schools on campus. An articulated degree program is also offered.

Academic flexibility draws many students to the program. Because there are more than 30 active faculty members on campus with African interest and experience in many disciplines, students have multiple options to design individualized programs.

According to a recent survey, 45 percent of the program's graduates are continuing study at the postgraduate level, 25 percent are employed in higher education, and 30 percent work with international or foreign organizations in 20 countries.

The program also offers the undergraduate African Studies minor that is designed primarily for students who (1) want to learn more about Africa, (2) plan to live and work in Africa or who are interested in government and public service careers involving African affairs, and/or (3) plan to pursue graduate work related to Africa and international studies.

## 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, ethnomusicology, film and television, folklore and mythology, 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 minor counselor, another African language. Students must file a petition and meet with the student affairs counselor, African Studies Center, 10373 Bunche Hall, (310) 825-2944.

*Required Lower Division Courses (8 to 9 units):* History 10A, 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 any other department or program.

All minor courses must be taken for a letter grade, with 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 Student Affairs Counselor, African Studies Center, 10373 Bunche Hall (310-825-2944) or Professor Russell G. Schuh, Linguistics, 3125 Campbell Hall (310-206-2663, 825-0634).

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degree

The African Studies Program offers the Master of Arts (M.A.) degree in African Studies.

## Admission

### M.A. in African Studies

In addition to the University minimum requirements, applicants to the M.A. program are required to (1) submit three letters of recommendation, which normally should be from academic referees, (2) present a dossier containing a résumé describing academic, African-related, and professional experience and a research paper or other writing sample that

well demonstrates their writing and analytical skills, and (3) take the Graduate Record Examination (GRE) General Test.

Also, applicants should have adequate preparation in undergraduate fields related to the program. Required preparation for the M.A. degree most typically consists of a B.A. in the social sciences, humanities, or fine arts.

### African Studies M.A./Public Health M.P.H.

The African Studies Program and the School of Public Health have an articulated degree program whereby students can work sequentially for the M.A. in African Studies and the M.P.H. By planning the major field emphasis in public health while working toward the M.A. in African Studies, it may be possible to shorten the amount of time it would normally take to complete both degrees.

Students interested in this articulated program should write to the Assistant Graduate Adviser, African Studies Program, UCLA African Studies Center, and/or the Student Services Office, UCLA School of Public Health.

## Master's Degree

Students choose a disciplinary (or interdisciplinary) concentration that requires at least five courses. Most concentrations are in the social sciences, fine arts, humanities, public health, or urban and regional planning. Sociology and anthropology may be taken as a combined major, as may interdisciplinary courses in development studies.

The M.A. degree is offered through the comprehensive examination and thesis plans; the latter requires permission from the graduate adviser. A minimum of nine courses is required for the M.A., at least five of which must be at the graduate level. A minimum of four other courses outside the major area is required, of which three must be at the graduate level.

There is a language requirement for this degree.

## African Studies

### Graduate Courses

**201. Africa and the Disciplines. (4)** 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.

**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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

## Course List

### African Studies

All courses are not offered every academic year. Students should verify courses with the respective departments.

Courses with asterisks are special courses which may be applied toward the M.A. degree requirements with prior approval of the graduate adviser. These courses either do not exclusively focus on Africa or focus on Africa only in certain years.

#### African Languages (Linguistics)

- 1A-1B-1C. Elementary Swahili
- 2A-2B-2C. Intermediate Swahili
- 7A-7B-7C. Elementary Zulu
- 8A-8B-8C. Intermediate Zulu
- 11A-11B-11C. Elementary Yoruba
- 12A-12B-12C. Intermediate Yoruba
- 15. Intensive Elementary Swahili
- 31A-31B-31C. Elementary Bambara
- 32A-32B-32C. Intermediate Bambara
- 41A-41B-41C. Elementary Hausa
- 42A-42B-42C. Intermediate Hausa
- 61A-61B-61C. Elementary Wolof
- 62A-62B-62C. Intermediate Wolof
- 97. Elementary and Intermediate Studies in African Languages
- 103A-103B-103C. Advanced Swahili
- 109A-109B-109C. Advanced Zulu
- 123A-123B-123C. Advanced Yoruba
- 143A-143B-143C. Advanced Hausa
- M190. Survey of African Languages
- 199. Special Studies in African Languages
- 202A-202B-202C. Comparative Bantu

#### Afrikaans (Germanic Languages)

- 105A. Elementary Afrikaans
- 105B. Intermediate Afrikaans
- 114. From Oppressed to Oppressor and Beyond: Literature in Afrikaans from Preapartheid to Postapartheid Era, in English Translation
- 135. Introduction to Afrikaans Literature
- 199. Special Studies in Afrikaans

#### Afro-American Studies

- \*M102. Culture, Media, and Los Angeles

#### Anthropology

- \*112. Old Stone Age Archaeology
- \*M115A-M115B. Historical Archaeology
- \*121A. Primate Fossil Record
- \*121B. Australopithecines
- \*121C. Evolution of Genus *Homo*
- \*133R. Aesthetic Systems
- \*150. Study of Social Systems
- \*M154P. Gender Systems: North American

- \*M154Q. Gender Systems: Global
- \*156. Comparative Religion
- \*158. Hunting and Gathering Societies
- \*161. Development Anthropology
- \*M168. Culture, Illness, and Healing
- 171. Sub-Saharan Africa
- \*212P. Selected Topics in Hunter/Gatherer Archaeology
- \*230Q. Theories of Culture
- \*250. Selected Topics in Social Anthropology
- \*252P. Comparative Systems of Social Inequality
- \*254. Kinship
- \*255. Comparative Political Institutions
- 271. Contemporary Problems in Africa

#### Applied Linguistics and Teaching English as a Second Language

- C112. Reading for Second/Foreign Language Education

#### Art History

- \*55A. Introduction to African Art
- \*101A. Egyptian Art and Archaeology
- \*101B. Egyptian Art and Archaeology of the Middle and New Kingdoms
- 118C. Arts of Sub-Saharan Africa
- C119A. Advanced Studies in African Art: Western Africa
- C119B. Advanced Studies in African Art: Central Africa
- \*201. Topics in Historiography of Art History
- \*C203A-\*C203B. Museum Studies
- C216A. Advanced Studies in African Art: Western Africa
- C216B. Advanced Studies in African Art: Central Africa
- 219C. African Art
- \*220. Oceanic, Pre-Columbian, African, and Native North American Art

#### Berber (Near Eastern Languages)

- \*101A-101B-101C. Elementary Berber
- \*102A-102B-102C. Advanced Berber
- \*130. The Berbers
- \*199. Special Studies in Berber Languages

#### Community Health Sciences

- \*200. Global Health Problems
- \*231. Maternal and Child Nutrition
- \*233. Hunger and Food Insecurity as Public Health Issues
- \*246. Women's Roles and Family Health
- \*M251. Human Resources and Economic Development
- \*280. International Health Education: Training and Development
- \*M294. Social and Behavioral Factors of HIV/AIDS: Global Perspective
- \*430B. Advanced Issues in International Health
- \*434A. Maternal and Child Health in Developing Areas
- \*434B. Recent Developments in Maternal and Child Health in Disadvantaged Countries
- \*441. Advanced Program Planning and Evaluation in International Health
- \*443. Assessment of Family Nutrition
- \*445. Food and Nutrition Planning: Policies and Programs in World Context
- \*446. Nutrition Education and Training: Third World Considerations
- \*448. Nutrition Policies and Programs: Domestic and International Perspectives

#### Economics

- \*110. Economic Problems of Underdeveloped Countries
- \*111. Theories of Economic Growth and Development

- \*112. Policies for Economic Development
- \*190. International Economics
- \*191. International Trade Theory
- \*192. International Finance
- \*281A. International Trade Theory
- \*281B. International Finance
- \*281C. International Economics
- \*282A-282Z. Topics in International Economics
- \*286A. Economic Development
- \*286B. Cost-Benefit Analysis of Development Projects
- \*287A-287Z. Topics in Development Economics

**Education**

- \*C203. Educational Anthropology
- \*204B. Introduction to Comparative Education
- \*204C. Education and National Development
- \*204D. Minority Education in Cross-Cultural Perspective
- \*204E. International Efforts in Education
- \*238. Cross-National Analysis of Higher Education
- \*252B. Seminar: Education and Social Change
- \*253A. Seminar: Current Problems in Comparative Education
- 253B. Seminar: African Education
- \*253F. Seminar: Education in Revolutionary Societies

**English**

- M111G. Oral Traditions in Africa
- \*114. World Literatures in English
- M235. African Myth and Ritual

**Epidemiology**

- \*290. Seminar: Epidemiology — Infectious and Tropical Disease
- \*415. Epidemiology for Developing Countries
- \*M418. Rapid Epidemiologic Surveys in Developing Countries

**Ethnomusicology**

- 20B. Musical Cultures of the World: Near East and Africa
- 91E. Music and Dance of Ghana
- M110A-M110B. African American Musical Heritage
- C136A-C136B. Music of Africa
- \*201. History of Ethnomusicology
- 237. Seminar: African Music
- \*290. Seminar: Ethnomusicology

**Film and Television**

- 106C. History of African, Asian, and Latin American Film
- \*108. History of Documentary Film
- \*112. Film and Social Change
- \*218. Culture, Media, and Society
- \*219. Seminar: Film and Society
- \*221. Seminar: Film Authors
- 276. Seminar: Non-Western Films

**Folklore and Mythology**

- M154A-M154B. African American Musical Heritage
- M155. Oral Traditions in Africa
- M235. African Myth and Ritual
- 259. Seminar: Folklore (Africa)

**French**

- 121A. Contemporary Francophone Literature: French-African Literature
- 221A. French-African Literature: Introduction to Study of French-African Literatures
- 221B. French-African Literature: French-African Literature of Madagascar and Bantu Africa
- 221C. French-African Literature: French-African Literature of Berbero-Sudanese and Arabo-Islamic Africa
- 257A-257B. Studies in French-African Literature

**Geography**

- \*121. Conservation of Resources: Underdeveloped World

- 122. Wildlife Conservation in Eastern and Southern Africa
- \*M128. Global Environment and Development: Problems and Issues
- \*133. Cultural Geography of the Modern World
- 135. African Ecology and Development
- \*140. Political Geography
- \*M229. Resource-Based Development Issues
- \*232. Advanced Cultural Geography
- \*233. Seminar: Cultural Geography
- \*234. Environment and Subsistence in Indigenous Cultures
- \*240. Advanced Political Geography: Geopolitics
- \*241. Seminar: Political Geography
- \*242. Advanced Population Geography

**Health Services**

- \*240. Health Care Issues in International Perspective

**History**

- 10A-10B. Introduction to Civilizations of Africa
- 88N. Lower Division Seminar: Africa
- \*M103A-M103B. Historical Archaeology
- 109A-109B. History of North Africa from the Moslem Conquest
- \*M158B-M158C. Introduction to Afro-American History
- M175A. Topics in African History: Prehistoric Africa — Technological and Cultural Traditions
- 175B. Topics in African History: Africa and the Slave Trade
- 175C. Topics in African History: Africa in the Age of Imperialism
- 175E. Topics in African History: Africa from 1945 to the Present
- 176A-176B. History of West Africa
- 176C. Social and Economic History of West Africa since 1600
- 177. History of Northeast Africa
- 178A. History of East Africa
- 178B. History of Central Africa
- 179A-179B. History of Southern Africa
- 200N. Advanced Historiography: Africa
- 201N. Topics in History: Africa
- 275A-275B-275C. First-Year Colloquia: African History
- 278A-278B-278C. Research Seminars and Dissertation: African History

**Political Science**

- 133. International Relations of Sub-Saharan Africa
- \*139A-139Z. Special Studies in International Relations
- 151A-151B-151C. African Politics
- \*167A. Ideology and Development in World Politics
- \*167B. Comparative Development and Administration
- \*168. Comparative Political Analysis
- \*169. Special Studies in Comparative Politics
- C197D. Seminar for Majors: South African Politics
- C241. African Politics
- \*251. Political Economy of Economic Reform
- \*255. Seminar: Political Change

**Sociology**

- \*31. Dilemmas of Third World Development

**Theater**

- 102E. Theater of Non-European World
- 202P. Seminar: Traditions of African Theater

**Urban Planning**

- \*234A. Development Theory
- \*234B. Rural Development Issues
- \*M234C. Resource-Based Development Issues
- \*235A-235B. Urbanization in Developing World I, II
- \*239. Special Topics in Urban and Regional Development Policy

**World Arts and Cultures**

- 106B. Dance in Africa and African Diaspora

## AFRO-AMERICAN STUDIES

*Interdepartmental Program  
College of Letters and Science*

UCLA  
2330 Murphy Hall  
Box 951545  
Los Angeles, CA 90095-1545  
(310) 825-7403  
<http://www.sscnet.ucla.edu/caas>

Romeria Tidwell Ph.D., *Chair*

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Michael Stoll, Ph.D. (*Policy Studies*)

**Lecturers**

Negussay Ayele, Ph.D.  
Kenny Burrell, B.A.

Ysamur Flores-Peña, Ph.D.  
 Sidney Lemelle, Ph.D.  
 Jervey Tervalon, M.F.A.  
 Paul Von Blum, J.D.

**Adjunct Associate Professor**

K. W. Kgositsile, Ph.D. (*English*)

**Scope and Objectives**

Originally born during the late 1960s and early 1970s, the Afro-American Studies major was designed to fill a void that existed at UCLA in terms of scholarly and curricular material relevant to the African American experience. Students and faculty currently associated with the program see the major as meeting a number of academic, personal, and social needs.

The program offers both a Bachelor of Arts and a Master of Arts degree. While it is important that students become expert within a traditional discipline, it is even more important that they examine both the truth and the fiction regarding the African American experience in the U.S. For African American students, this leads to a heightening of self-awareness and self-pride. For non-African American students, such a major provides a broadening of perspectives to take into account more than a singular cultural view.

The fundamental goal of the curriculum is to provide students with a comprehensive and multidisciplinary introduction to the crucial life experiences of African Americans. This goal is achieved in two primary ways. First, it provides an interdisciplinary exposure to particular features of the African American experience. Majors gain an in-depth understanding of the 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 gain expertise in the concepts, theories, and methods of a traditional academic discipline. Majors are required to select an area of concentration in one of the following fields: anthropology, economics, English, history, philosophy, political science, psychology, or sociology (concentrations in departments not listed must be approved by the program adviser).

**Undergraduate Study**

**Afro-American Studies B.A.**

The B.A. program in Afro-American Studies is periodically revised; check with the program office for changes and/or updates.

**Preparation for the Major**

*Required:* History 10A 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 8, 9,

10 (or 7), 12; *economics* — Economics 1, 2, M40, 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 99 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, M18. Students are strongly urged to complete the required lower division courses within the first two years of the major.

**Transfer Students**

To be admitted as Afro-American Studies majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one civilizations of Africa course and additional coursework in one of the eight areas of concentration.

**The Major**

*Required:* (1) Anthropology M164, English M104A or M104B or M104C, History M158B, M158C; (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. Note: 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.

**Approved courses** (recommended courses are indicated by an asterisk):

Afro-American Studies \*100B, \*C101, \*M104A, \*M104B, \*M104C, \*M144, \*M145, \*M158A, \*M158B, \*M158C, \*M158E, \*M164, \*M172, \*M197A, \*197B, \*199

Anthropology 110, \*111, 115P, 120, 124, \*130, 135A, 135B, M136Q, 138, \*M140, 142A, 142B, \*M145, \*150, \*M151, \*152, \*153, M154P, M154Q, 158, 161, \*M164, \*167, M168, \*171, 180, 182, 186, \*199

Economics \*11, \*101, \*102, 107, \*110, 111, 112, \*120, 130, 133, M135, M136, 144, 147A, 147B, 150, \*151, 160, 161, \*180, 183, \*M188A through \*188Z, 190, 191, 192, \*199

English 80, 85, 95A, 95B, 95C, 100, \*M104A, \*M104B, \*M104C, M105A, 106, M107A, M107B, M107C, 108A, 108B, \*109, \*M111A, 114, 115A, 118, 140A, 140B, 141A, 141B, 142A, 142B, 143, 171A, 171B, 173B, 174B, \*178, 188, 189, \*190, \*M197A, \*199

English Composition 131A through 131D, 136A, 136B, 136C

History 99, 100, M104A, M104B, 107A, 107B, 109A, 109B, 135A, 135B, \*145A, \*145B, \*146, \*147A, 147B, 148A, 148B, 148C, 149A, 149B, \*154A, \*154B, \*156A through 156D, \*M158A through \*M158E, M159A, M159B, 160A, 160B, 161, 166, \*M175A, \*175B, \*175C, 176A, 176B, 177, 178A, 178B, 179A, 179B, 193A, \*199

Philosophy 100A, 100B, M101A, M101B, M102, \*104, 124, 125, \*126, 129, \*150, 151A, 151B, 153A, C156, 166, \*172, 178, 182, \*M192, \*199

Political Science \*102, \*104A, \*104B, \*M105, \*M106, 111A, 111B, 111C, 113, \*114A, \*114B, \*116, 119A through 119Z, 120, 123A, 123B, 124, 125, 126, 131, \*137A, \*137B, M139A, \*M141A, 141B, \*141C, 142A, \*142B, 142C, 143A, 143B, \*M144B, 145A through 145D, 146E, \*151A, \*151B, \*151C, \*167A, 167B, \*168, \*199

Psychology \*100B, \*110, \*111, 112B, \*115, 116, 119D, \*120A, 121, 123, \*127, 129A, 129B, \*130, \*132, \*135, \*136A, 136B, 137C, 137D, M138, \*142H, 150, \*151, M163, M165, \*170A, \*170B, \*M172, \*175, 177, 179A, \*192, \*193, \*194A, \*197, \*199 (note: courses 110, 115, 120, 125, 127, 135, 142H, and 151 should be taken by students planning to pursue graduate study in psychology)

Sociology \*101, \*102, \*103, \*104, \*113, 116, 132, \*133, \*134, 135, 136, M138, 144, 145, 147A, \*147B, 148, \*156, \*157, \*158, \*160, 169, 170, 171, M174, M175, M176, 182, \*183, \*184, \*185, 186, 195A through 195Z, \*197A through \*197Z, \*199

**Honors Option**

Students participating in the honors option are required to complete an independent research paper or project undertaken with the guidance of a faculty member. Afro-American Studies majors with grade-point averages of 3.5 or better complete the honors option by writing an undergraduate thesis. For more information, contact the curriculum coordinator of the Afro-American Studies Program.

**Double Major Option**

Some students elect to complete the requirements of two majors (Afro-American Studies and another). Students interested in this option must maintain good academic standing and complete both majors within the 228-unit maximum imposed by the College. Courses used to satisfy the requirements for the principal major may also be used to satisfy the requirements for the secondary one, 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/or the Afro-American Studies Program adviser or curriculum coordinator.

## Afro-American Studies Minor

The Afro-American Studies minor is designed for students who wish to augment their major program of study with a group of related courses from various disciplines germane to Afro-American studies. The minor exposes students to African American-related research and literature in a number of different 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 at the Center for African American Studies, 2330 Murphy Hall, (310) 825-3776. All degree requirements, including the specific requirements for this minor, must be fulfilled within 228 units.

*Required Lower Division Courses (8 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, C101, M103A, M103B, M103E, M104A, M104B, M104C, M107, M109, M110A, M110B, M144, M158A through M158E, M164, M172, M197A, 197B, 199, Anthropology M164, 166, English M104A, M104B, M104C, M111A, 178, 190, M197A, Ethnomusicology M109, M110A, M110B, M111, M119, History 156A through 156D, M158A through M158E, M175A through 175E, 176A, 176B, 176C, Philosophy 104, 126, 150, 172, Political Science M105, M106, 116, 137A, 137B, M141A, 141C, 142B, M144B, Psychology 100B, 110, 111, 115, 120A, 127, 130, 132, 135, 136A, 142H, 151, 170A, 170B, M172, 175, 192, 193, 194A, 197, Sociology 101, 102, 103, 104, 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 any other 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 interdepartmental adviser before enrolling in any courses for the minor.

All minor courses must be taken for a letter grade, with a minimum grade of C (2.0) in each and an overall C average. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases,

even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degree

The Afro-American Studies Program offers the Master of Arts (M.A.) degree in Afro-American Studies.

## Admission

### M.A. in Afro-American Studies

Applicants for admission to the M.A. program must hold a bachelor's degree in the social sciences or humanities and demonstrate an interest in African American studies either through their previous course of study or in their future plans. Students are selected on the basis of the following criteria: (1) official transcripts, (2) three academic letters of recommendation, (3) a minimum 3.0 or B average in the junior/senior years of college, (4) a statement of purpose describing their background in African American studies, proposed program of study, and future career goals, (5) scores on the verbal and quantitative sections of the Graduate Record Examination (GRE), (6) an original term paper or research paper which best expresses their interests and abilities, and (7) other evidence of promise that is deemed relevant, such as work experience, accomplishments, or community and public service.

Admission to the program is limited to Fall Quarter. Prospective students may request applications from the program office.

### Afro-American Studies M.A./Law J.D.

The Afro-American Studies Program and the School of Law offer a concurrent degree program whereby students may pursue the M.A. in Afro-American Studies and J.D. degrees at the same time. For admission, applicants are required to satisfy the regular admission requirements of both schools. Twelve units of law coursework may be double-counted toward the M.A. degree. Applicants interested in the program should contact the School of Law and Afro-American Studies Program for further information.

## Master's Degree

The M.A. program in Afro-American Studies is interdepartmental, with formal support linkages to nine disciplinary departments: Anthropology, English, History, Linguistics, Music, Philosophy, Political Science, Psychology, and Sociology. Related courses are also offered in the following schools and departments: African Area Studies, Art, Dance, Economics, Education, Folklore and Mythology, Geography, Information Studies, Latin American Studies, Management, Psychiatry and Biobehavioral Sciences, Public Health, Social Welfare, Theater, and World Arts and Cultures.

The M.A. degree is offered through the comprehensive examination and thesis plans. A to-

tal of 12 courses are required; eight must be at the graduate level. The program has a structured core of required courses, including one graduate-level course in research methods (for social sciences students) or critical theory (for humanities students). The second year is devoted to acquiring disciplinary competence in the cognate field.

There is a language requirement for this degree.

## Afro-American Studies

### Lower Division Courses

**M5. Social Organization of Black Communities. (4)** (Same as Sociology M5.) Lecture, three hours; discussion, one hour. 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, four hours. Overview of major intellectual trends that have shaped ways in which Afro-American thinkers have interpreted experiences of blacks in the U.S., drawing from such fields as history, philosophy, and literature. Letter grading.

### Upper Division Courses

**100B. Psychology from an 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, the 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.

**C101. Special Topics in Afro-American Studies. (4)** Seminar, four hours. Variable topics. May be repeated for credit. Concurrently scheduled with course C201. Letter grading.

**M102. Culture, Media, and Los Angeles. (6)** (Same as Asian American Studies M197H 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 the mid-1800s. Letter grading.

**M103B. African American Theater History: Minstrel Stage to Rise of the 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 the minstrel stage to the rise of the American musical. Letter grading.

**M103E. African American Theater History: The Depression to the 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 the Depression to the present. Letter grading.

**M104A. Early Afro-American Literature. (5)** (Same as English M104A.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Introductory survey of black American literature from the 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. Chesnutt, Booker T. Washington, and Pauline Hopkins. P/NP or letter grading.

**M104B. Afro-American Literature from the Harlem Renaissance to the 1960s. (5)** (Same as English M104B.) Lecture, four hours. 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 the 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 the 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 the 1960s to the 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. (4)** (Same as Ethnomusicology M119 and Folklore M110.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and allied forms, 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 the 1880s to the 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. (4)** (Same as Ethnomusicology M110A-M110B and Folklore M154A-M154B.) Lecture, four hours; discussion, one hour. Study of African music and its impact on the Americas; survey of development of various African American musical genres from slave era to the present, including traditions in the West Indies and Central and South America. P/NP or letter grading.

**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.

**M120. Race, Inequality, and Public Policy. (4)** (Same as Policy 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.

**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 the U.S., touching on conditions facing racial and ethnic groups, with black Americans being the primary case for analysis. Three primary objectives: (1) to provide descriptive information about social, political, and economic conditions of the 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 the largest and perhaps most important bodies of music ever produced in the U.S. Covers the 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.

**M158A. Comparative Slavery Systems. (4)** (Same as History M158A.) Lecture. 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 M158B-M158C.) Lecture. 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 milieus. P/NP or letter grading.

**M158E. African American Nationalism in First Half of the 20th Century. (4)** (Same as History M158E.) Lecture. Designed for juniors/seniors. Critical examination of the African American search in first half of the 20th century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. P/NP or letter grading.

**M164. Afro-American Experience in the U.S. (4)** (Same as Anthropology M164.) Lecture, three hours. Promotes understanding of contemporary sociocultural forms among Afro-Americans in the U.S. by presenting a comparative and diachronic perspective on the Afro-American experience in the New World. Emphasis on utilization of anthropological concepts and methods in understanding the origins and maintenance of particular patterns of adaptation among black Americans. 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, an important minority dialect in the 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 a case-study approach. Letter grading.

**M172. The Afro-American Woman in the 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 a large society and as members of their biological and ethnic group. P/NP or letter grading.

**M175. Interracial Work, Friendship, and Love Relationships of African American Men and Women. (4)** (Same as Women's Studies M173.) Seminar, three hours. Examination of factors that influence development, maintenance, and dissolution of interracial relationships of African Americans in three areas: work life, friendships, and intimate love relationships. P/NP or letter grading.

**M195. 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 coverages. P/NP or letter grading.

**M197A. Topics in Afro-American Literature. (5)** (Same as English M197A.) Seminar, three hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in Afro-American literature. Topics include the Harlem Renaissance; Afro-American Literature in the Nadir, 1890 to 1914; Contemporary Afro-American Fiction. May be repeated for credit. P/NP or letter grading.

**197B. Special Studies in Comparative Literature: Caribbean Literature. (4)** Seminar, three hours. General introduction to literature of the English-speaking Caribbean by reviewing its historical and geographical background. To analyze the historical process toward self-determination in the literature, the following topics are included: (1) alienation and the search for community, (2) "external" relationships (the ancestor, the kinsman, the other), and (3) form and language. P/NP or letter grading.

**199. Special Studies in Afro-American Studies. (2 to 4)** Tutorial, to be arranged with faculty member who directs the study. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Intensive directed research project. Eight units may be applied toward major requirements. 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 and 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 the U.S. Presented in a context that is at once comparative and international, seminar emphasizes internationalism and transnationalism as well as the uniqueness of the Afro-American condition. Attempts to relate the black condition in the U.S. to the 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, an important minority dialect in the 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 a 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 the 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 the black community. S/U or letter grading.

**C201. Special Topics in Afro-American Studies. (4)** Seminar, four hours. Variable topics. May be repeated for credit. Concurrently scheduled with course C101. Letter grading.

**M211. Seminar: African American Music. (4)** (Same as Ethnomusicology M211.) Seminar, three hours. Requisites: Ethnomusicology M110A-M110B. Designed for graduate students. Intensive investigation of problems, theories, and methods of research related to study of African American music. Emphasis on relationship of problems to representative styles 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.

**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 an African American child and family. 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.

**270A. Survey of Afro-American Research. (4)** Seminar, three hours. Overview of research methodologies in humanities and social sciences, with firsthand reports from faculty in various fields. Introduction to research in and related to Afro-American studies and application of such research. 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 a formal course. 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.

Peter Nabokov, Ph.D. (*World Arts and Cultures*)  
Gregory M. Sarris, Ph.D. (*English*)

#### Professors Emeriti

Robert A. Georges, Ph.D. (*English*)  
Charlotte A. Heth, Ph.D. (*Ethnomusicology*)  
Gary B. Nash, Ph.D. (*History*)  
Allegra Fuller Snyder, M.A. (*World Arts and Cultures*)

#### Associate Professors

Melissa Meyer, Ph.D. (*History*)

#### Assistant Professor

Tara Browner, Ph.D. (*Ethnomusicology*)

## Scope and Objectives

Because UCLA possesses a substantial number of faculty 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 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. The M.A. program ranks among the top Indian studies programs in the country.

## Undergraduate Study

### 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 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 228 units.

*Required Lower Division Course (4 units):* American Indian Studies 10 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 144 or Linguistics 114); (2) three history and social sciences courses from Anthropology 113Q, 113R, 114P, 114Q, 114R, 158, 172R, History 157A, 157B, 165C, Sociology M161, Women's Studies 130; (3) three humanistic perspectives

on language and expressive culture courses from Art History C117A, C117B, C117C, 118D, English 106, 180X, Ethnomusicology 106A, 106B, Folklore and Mythology 130, Theater 103F, World Arts and Cultures C109B.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements, 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 interdepartmental adviser before enrolling in any courses for the minor.

All minor courses must be taken for a letter grade, with a minimum grade of C (2.0) in each and an overall C average. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degree

The American Indian Studies Program offers the Master of Arts (M.A.) degree in American Indian Studies.

## Admission

### M.A. in American Indian Studies

A bachelor's degree from an accredited undergraduate institution is required for admission to the M.A. program. Applicants must demonstrate interest in American Indian studies either by formal coursework, independent study, or practical experience. As part of the application, applicants must submit a detailed account of their background, potential career plan, and interest in American Indian studies. Preference is given to individuals with undergraduate majors relevant to the proposed areas of concentration within the M.A. degree: anthropology, English, history, linguistics, literature, sociology, fine arts, or American Indian studies.

Applicants must meet the University's minimum admission requirement of a 3.0 grade-point average in all work completed during the last two undergraduate years and in all prior graduate work. The Graduate Record Examination (GRE) is not required, but applicants are encouraged to submit test results as part of the documents supporting their application. At least three faculty letters of recommendation must be submitted. Admission to the program is limited to Fall Quarter. Application forms and further information may be obtained from the American Indian Studies Program.

## AMERICAN INDIAN STUDIES

*Interdepartmental Program  
College of Letters and Science*

UCLA  
3220 Campbell Hall  
Box 951548  
Los Angeles, CA 90095-1548

(310) 825-7315  
<http://www.sscnet.ucla.edu/indian/IDPHome.html>

Paul V. Kroskrity, Ph.D., *Chair*

#### Professors

Richard L. Abel, LL.B., Ph.D. (*Law*)  
Duane Champagne, Ph.D. (*Sociology*)  
Hanay Geiogamah, B.F.A. (*Theater*)  
Carole E. Goldberg, J.D. (*Law*)  
Cecelia F. Klein, Ph.D. (*Art History*)  
Paul V. Kroskrity, Ph.D. (*Anthropology*)  
Kenneth R. Lincoln, Ph.D. (*English*)  
Pamela L. Munro, Ph.D. (*Linguistics*)

## American Indian Studies M.A./Law J.D.

The American Indian Studies Program and the School of Law offer a concurrent degree program whereby students may pursue the M.A. in American Indian Studies and J.D. degrees at the same time. For admission, applicants are required to satisfy the regular admission requirements of both schools. Twelve units of law coursework may be double-counted toward the M.A. degree. Applicants interested in the program should contact the American Indian Studies Program.

## Master's Degree

The American Indian Studies M.A. is an interdepartmental program with 13 participating academic schools and departments: Anthropology, Art, Education, English, Ethnomusicology, Folklore and Mythology, History, Law, Library and Information Science, Linguistics, Music, Sociology, and Theater. Courses related to the M.A. are also offered in the following departments: Political Science, Social Welfare, and Psychology. Students select one area of concentration: (1) history and law, (2) expressive arts, (3) social relations, or (4) language, literature, and folklore.

The M.A. degree is offered through the comprehensive examination and thesis plans. A minimum of 10 courses is required, at least seven of which must be graduate courses. Required coursework includes a core course sequence, a language/linguistics course, and a graduate research methodology course.

There is a language requirement for this degree.

## American Indian Studies

### Lower Division Course

**10. Introduction to American Indian Studies. (4)** Lecture, four hours; discussion, one hour. Survey of selected Native North American cultures from pre-Western contact to the 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

**M161. Comparative American Indian Societies. (4)** (Same as Sociology M161.) Lecture, three hours. Requisite: course 10 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 health care of Native North Americans (within present boundaries of the 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.

**197. Special Topics in American Indian Studies. (4)** Lecture, four hours. Variable topics selected from the following: Myth and Folklore of Indian Societies; Contemporary American Indian Literature; Social Science Perspectives of American Indian Life; Law and the 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.

**199. Special Studies in American Indian Studies. (2 to 4)** Tutorial, to be arranged. Special individual studies on topics in American Indian studies. 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 the 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 the American Indian. (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 the 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.

**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.

**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.

**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 the 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.

**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 health care of Native North Americans (within present boundaries of the 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.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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

*School of Medicine*

UCLA  
56-131 Center for the Health Sciences  
Box 951778  
Los Angeles, CA 90095-1778

(310) 825-4350  
fax: (310) 794-9660  
<http://www.anes.ucla.edu>

### Chairs

Patricia A. Kapur, M.D., *Chair*  
Robert D. Kaufman, M.D., *Vice Chair*  
Randolph H. Steadman, M.D., *Vice Chair*  
Enrico Stefani, Ph.D., M.D., *Vice Chair*  
Selma H. Calmes, M.D., *Chair, Olive View-UCLA*  
Richard Y. Z. Chen, M.D., *Interim Vice Chair, VA Greater Los Angeles Health Care System*  
John S. McDonald, M.D., *Chair, Harbor-UCLA*

### 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 has established the Human Patient Simulator which 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 the *Announcement of the UCLA School of Medicine*.

## ANTHROPOLOGY

College of Letters and Science

UCLA  
341 Haines Hall  
Box 951553  
Los Angeles, CA 90095-1553  
(310) 825-2055  
<http://www.sscnet.ucla.edu/anthro>

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Douglas Hollan, Ph.D., *Vice Chair*

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Robert Boyd, Ph.D.  
Karen B. Brodtkin, Ph.D.  
Carole H. Browner, Ph.D., *in Residence*  
Christopher B. Donnan, Ph.D.  
Alessandro Duranti, Ph.D.  
Robert B. Edgerton, Ph.D., *in Residence*  
Linda C. Garro, Ph.D.  
Marjorie Harness Goodwin, Ph.D.  
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Nancy E. Levine, Ph.D.  
Claudia Mitchell-Kernan, Ph.D.  
Elinor Ochs, Ph.D.  
Dwight W. Read, Ph.D.  
Joan B. Silk, Ph.D.  
Charles S. Stanish, Ph.D.  
Russell Thornton, Ph.D.  
James Diego Vigil, Ph.D.  
Thomas S. Weisner, Ph.D., *in Residence*

### Professors Emeriti

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Nicholas Blurton Jones, Ph.D.  
William O. Bright, Ph.D.  
Walter R. Goldschmidt, Ph.D.  
Peter B. Hammond, Ph.D.  
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Michael Moerman, Ph.D.  
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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

Alan Page Fiske, Ph.D.  
Gail E. Kennedy, Ph.D.  
Richard M. Leventhal, Ph.D.  
Joseph H. Manson, Ph.D.  
Marcyliena H. Morgan, Ph.D.  
Kyeoung Park, Ph.D.  
Thomas W. Plummer, Ph.D.  
Mariko Tamanoi, Ph.D.  
Yunxiang Yan, Ph.D.

### Assistant Professors

Daniel Fessler, Ph.D.  
Richard G. Lesure, Ph.D.  
Maureen E. Mahon, Ph.D.  
Susan E. Perry, Ph.D.

### Adjunct Professor

Sondra Hale, 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 and the hows and whys of 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 the political organization of complex hunters/gatherers, the origins of early village life, and the emergence and florescence of ancient states. Faculty members maintain programs of field research, involving many students, in the American Pacific Coast, Mesoamerica, and South America.

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 life span, 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 commu-

nication 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 which 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.

Cutting across the four fields are three other categories of course offerings: applied anthropology, regional cultures, and history, theory, and method.

The department offers Bachelor of Arts and Bachelor of Science degrees in Anthropology for undergraduates; the graduate program leads to the Master of Arts and Ph.D. degrees. Studies in anthropology are particularly valuable for students planning careers 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 (or 10 and 12), 8, 9, 33, and one elective from 10, 12, M80, 88. All courses must be taken for a letter grade, and students must maintain an overall 2.0 grade-point average.

#### Transfer Students

To be admitted as Anthropology B.A. majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one human evolution course, one archaeology course, one sociocultural anthropology course, one culture and communication course, and one lower division elective anthropology course.

#### 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. All courses must be taken for a letter grade, and students must maintain an overall 2.0 GPA.

Students must complete 15 4-unit courses 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. Four additional upper division anthropology courses
6. A cluster of three related fields courses that demonstrate cohesion, to be selected in consultation with the undergraduate adviser and approved by the department

### 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*: Anthropology 115P, 117 (fieldwork); two courses from 110, 111, 183; one methods course from M115A, M115B, C115R, 117P, 129Q, 138; one quantitative methods course from M80, 180, 186; one area course from 112, 113P, 113Q, 113R, 114P, 114Q, 114R; three theory courses from 120, 124, 132, 133Q, 133R, 150, 152, 153, 156, 158, 186P, CM189A, CM189B, Geography 140, 148, Sociology 101
2. *Biological Anthropology*: Anthropology 120; one quantitative methods course from M80, 180, 186; one methods course from 115P, 117, 117P, 143; one human biology and behavioral ecology course from 124, 186P, CM189A, CM189B; 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 Molecular, Cell, and Developmental Biology CM156, Organismic Biology, Ecology, and Evolution C135; one primate behavior course from Anthropology 128A, 128B, Organismic Biology, Ecology, and Evolution 129
3. *Linguistic Anthropology*: Anthropology 33, M140, Linguistics 20, Sociology CM124A; two methods courses from Anthropology

141, 142A, 143, Linguistics 103; one ethnography course from Anthropology 144, M145, 146, Linguistics 114; one course from Anthropology 133Q, 133R, 135A, 135B, 135C, Communication Studies 100, Linguistics 110, 127, Psychology M137J; 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 M80, 139, 180, 182, 186, Sociology 101; one region and society course from 158, 171, 172R, 173Q, 174P, 175R, 175S, 175T, 175U, 175V, 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, 186, International Development Studies M100B
  - b. *Ecological and Evolutionist Subconcentration*: Primary course: Anthropology 153; additional courses: 128A, 128B, 132, 158, 165, 186, 186P, Geography 140
  - c. *Social Processes and Practice Subconcentration*: Primary courses: Anthropology M151, 152, M154P; additional courses: 88, 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 (or 10 and 12), 8, 9, 33; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, and 14CL, or 20A, 20B, 20L, 30, and 30L; Life Sciences 1, 2, 3, 4; Mathematics 3A, 3B, and 3C, or 31A and 31B; Physics 6A, 6B, and 6C. All courses must be taken for a letter grade, and students must maintain an overall 2.0 grade-point average.

### Transfer Students

To be admitted as Anthropology B.S. majors, transfer students with 90 or more units must complete the following introductory courses 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.

### 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. All courses must be taken

for a letter grade, and students must maintain an overall 2.0 GPA.

Students must complete 10 4-unit courses 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 statistics course
4. One upper division history/theory course
5. Two additional upper division anthropology courses

## 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 197HA through 197HD. Course 197HA is taken in Winter Quarter and 197HB in Spring Quarter. Research should be done in summer, and courses 197HC and 197HD 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.

## Computing Specialization

Majors in either anthropology bachelor's degree program may select a specialization in Computing by (1) completing Program in Computing 10A, 10B, and 10C or 15, (2) completing one course from Anthropology 180 or 186, (3) completing either a 199 course that focuses on the integration of computer methods with anthropological studies or one course from Program in Computing 60 or Mathematics 61, or an equivalent course (subject to approval of the departmental computer committee), and (4) satisfying all the other requirements for a bachelor's degree in the specified major. Students graduate with a bachelor's degree in their major and a specialization in Computing. Interested students should contact the undergraduate adviser.

## 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 (8 units):* Two courses from Anthropology 7, 8, 9, 10, 12, 33.

*Required Upper Division Courses (20 units):* The core course (Anthropology 111, 120, 130, M140, or 150) from one of the four anthropology fields listed above and 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.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Anthropology offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Anthropology.

## Admission

Admission to the graduate program in Anthropology is limited to Fall Quarter. All applicants are required to have a B.A. degree or its equivalent from a recognized college or university. A minimum grade-point average of 3.0 or its equivalent is also required for the last two years of undergraduate work and for any post-baccalaureate work completed. The department does not require an applicant to have a degree in anthropology, but it is highly desirable. If a student with a B.A. or M.A. from another field is admitted, a program of background studies in anthropology is formulated. Knowledge of a foreign language is not required for admission, but completion of the M.A. language requirement is recommended before beginning graduate work. The *UCLA Application for Graduate Admission* must be submitted by December 15 for consideration for the Fall Quarter of the following year. The following supporting material must be submitted directly to the department by January 5: (1) official transcripts, in duplicate, from each college or university at which work has been com-

pleted, (2) statement of purpose, (3) three letters of recommendation (preferably from anthropologists), (4) research or term paper, and (5) Graduate Record Examination (GRE) scores sent by the testing agency.

The department requires that two faculty members sponsor an applicant before admission is recommended. Prospective sponsors are canvassed by the departmental admissions committee, but it is also appropriate for applicants to contact potential sponsors.

For further information on the departmental program, a graduate information syllabus may be obtained without charge by writing to the department.

## Master's Degree

For fields, see Doctoral Degree.

The M.A. degree is offered through the thesis plan. Ten courses are required, five at the graduate level, including a graduate core seminar in the student's field of specialization.

There is a language requirement for this degree.

## Doctoral Degree

Fields of study include archaeology, biological anthropology, linguistic anthropology, and sociocultural anthropology.

Students who received the M.A. degree from the department are expected to enroll in three seminars, each with a different faculty member, between receipt of the M.A. degree and the qualifying examinations. The department does not require any specific courses or number of courses for the Ph.D.

Written and oral qualifying examinations are required. For the written examination, students are examined in three subfields; two fields are drawn from a list and the third is specific to the student's dissertation interests. In addition, students are expected to demonstrate competence in general anthropological theory.

Following successful completion of the written examination, students take the University Oral Qualifying Examination, which is primarily a defense of the dissertation proposal.

There is a language requirement for this degree.

## Anthropology

### Lower Division Courses

**7. Human Evolution. (4)** Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Evolutionary processes and evolutionary past of the human species. Letter grading.

**8. Archaeology: An Introduction. (4)** Lecture, three hours; discussion, one hour. 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. Letter grading.

**9. Culture and Society. (4)** Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Introduction to study of culture and society in comparative perspective. Examples from societies around the world to illustrate basic principles of formation, structure, and distribution of human institutions. Of special concern is the contribution and knowledge that cultural diversity makes toward understanding the problems of the modern world. P/NP or letter grading.

**10. Principles of Human Evolution: Genetic Basis. (4)** Lecture, three hours; discussion, one hour. Human population biology in the conceptual framework of evolutionary processes. Emphasis on genetic basis of evolution, population biology, and diversity among living populations. P/NP or letter grading.

**12. Principles of Human Evolution: Comparative Analysis. (4)** Lecture, three hours; discussion, one hour. Human population biology in conceptual framework of evolutionary processes. Emphasis on comparative primate behavior, structural anatomy, and the fossil record. Letter grading.

**33. Culture and Communication. (4)** Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Introduction to ways in which culture and communication shape each other, with emphasis on importance of language as a symbolic and practical guide to people's behavior and understanding of each other's actions. Topics include language socialization, cross talk, and verbal and nonverbal communication. 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. Letter grading.

**M80. Introduction to Statistical Methods for Social Sciences. (5)** (Formerly numbered 80.) (Same as Geography M40, Sociology M18, and Statistics M12.) Lecture, four hours; discussion, one hour; laboratory, one hour. Elements of statistical analysis for social sciences. 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.

**88. Lower Division Seminar. (4)** Seminar, three hours. Variable topics; consult *Schedule of Classes* or department for topics to be offered in a specific term. P/NP or letter grading.

## Upper Division Courses

### Archaeology

**110. World Archaeology. (4)** Lecture, three hours. Requisite: course 8. Designed for juniors/seniors. Broad survey of human culture history from its Stone Age beginnings to establishment of the primary civilizations of the Old and New Worlds. Intended for students with general interest in archaeology and in an anthropological approach to study of the past. Letter grading.

**111. Study of Archaeology. (4)** Lecture, three hours. Requisite: course 8. Survey of contemporary prehistoric archaeology. Emphasis on what archaeologists do, and how and why they do it. Contributions of archaeology to the modern world. Intended for students with a desire to explore the nature of anthropological archaeology. (Core course for archaeology field.) 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 the New World. Emphasis on the 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 an 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.

**114A. Ancient Civilizations of Western Middle America (Nahuatl Sphere).** **(4)** Lecture, three hours. Pre-Hispanic and Conquest period native cultures of Western Middle America, as revealed by archaeology and early colonial writings in Spanish and Indian languages. Toltec/Aztec and Mixteca civilizations and their predecessors, with emphasis on sociopolitical systems, economic patterns, religion, and aesthetic and intellectual achievements. P/NP or letter grading.

**114Q. Ancient Civilizations of Eastern Middle America (Maya Sphere).** **(4)** Lecture, three hours. Pre-Hispanic and Conquest period native cultures of Eastern Middle America, as revealed by archaeology and early colonial writings in Spanish and Indian languages. Lowland and Highland Maya civilizations and their predecessors, with emphasis on sociopolitical systems, economic patterns, religion, and aesthetic and intellectual achievements. 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. The Inca 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 the Near East, Mesoamerica, and the 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.

**M115A-M115B. Historical Archaeology.** **(4)** (Same as History M103A-M103B.) Lecture, three hours. 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 the Old World and the Americas. **M115B.** American Perspective. Emphasis on historical archaeology in North America, particularly to some of the practical applications.

**115P. Archaeological Field Training.** **(6 or 12)** Lecture, two to three hours; fieldwork, to be arranged (eight hours minimum for 6 units, 50 hours minimum for 12 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.

**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.

**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. Topics 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)** (Formerly numbered 117P.) 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.

**M119. Topics in African History: Prehistoric Africa — Technological and Cultural Traditions.** **(4)** (Same as History M175A.) Lecture, three hours. 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.

**Biological Anthropology**

**120. Survey of Biological Anthropology.** **(4)** Lecture, three hours. Requisites: courses 7, or 10 and 12. 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.

**120G. Biological Anthropology in Review.** **(6)** Lecture, three hours; seminar, three hours. Corequisite: lecture portion of course 7. Limited to graduate anthropology students. Designed for anthropology students who have a deficiency in biological anthropology. Seminar discussion based on basic evolutionary principles, behavior of nonhuman primates, hominid evolutionary history, and contemporary human variation. Letter grading.

**121A. Primate Fossil Record.** **(4)** Lecture, three hours. Recommended requisites: courses 7, or 10 and 12. Course 121A should be taken before 121B and 121C. Introduction to method and theory in paleoanthropology. Primate evolution, Cretaceous through the Miocene. P/NP or letter grading.

**121B. Australopithecines.** **(4)** Lecture, three hours. Recommended requisites: courses 7 (or 10 and 12), 121A. Morphology, ecology, and behavior of the genus *Australopithecus*. History of their discoveries and their place in human evolution. P/NP or letter grading.

**121C. Evolution of Genus *Homo*.** **(4)** Lecture, three hours. Recommended requisites: courses 7 (or 10 and 12), 121A, 121B. Origin and evolution of the genus *Homo*, including archaic sapiens and Neanderthals. Morphology, ecology, and behavior of these groups. Course ends with appearance of modern man. 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.

**124. Evolution and Biology of Human Behavior.** **(4)** Lecture, three hours. Recommended requisite: course 7 or Life Sciences 1. Survey of research based on evolutionary psychology and human behavioral ecology. Review of relevant theory. Emphasis on empirical tests of evolutionary theories about human cooperation, social exchange, aggression, kinship, mate choice, marriage, and parental behavior. P/NP or letter grading.

**124P. Evolution of Human Sexual Behavior.**

**(4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended requisite: course 7 or 10 or 12. Examination of human sexual relations and social behavior from an 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 the opposite sex. Letter grading.

**M127. Animal Communication.** **(5)** (Same as Applied Linguistics and TESL 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 the 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.

**128P. Primate Behavioral Neurobiology: Evolutionary and Comparative Perspectives.** **(4)** Lecture, three hours. Requisite: course 7 or 12. Strongly recommended: course 128A, Chemistry 14A or 20A, Life Sciences 1. Survey of use of nonhuman primates to model neurobiological bases of complex behavioral and emotional states in nonhuman primates. Attention to empathy, xenophobia, aggression, and social cognition. P/NP or letter grading.

**129Q. Paleopathology.** **(4)** Lecture, one hour; laboratory, three hours. Designed for juniors/seniors. Investigation into diseases, trauma, health status, subsistence activities, and ethnic mutilation (i.e., cranial deformation, trepanation) through analysis of human skeletal materials. Course has worldwide scope, with some emphasis on the New World. Letter grading.

**Cultural Anthropology**

**130. Study of Culture.** **(4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 9. Designed for juniors/seniors. The 20th-century elaboration and development of the concept of culture. Examination of five major paradigms: culture as a human capacity, as patterns and products of behavior, as systems of meaning and cognition, as generative structure and semiotic system, as a component in social action and reality construction. (Core course for cultural field.) P/NP or letter grading.

**132. Technology and Environment.** **(4)** Lecture, three hours. Significance of material culture in archaeology and ethnology; problems of invention and the acceptance of innovations; ecological and sociological concomitants of technological systems; selected problems in material culture. 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 a symbolic mode (as distinguished from discursive, instrumental, and causal modes). Methods for study of symbolic meaning, including the experiential approach. P/NP or letter grading.

**133R. Aesthetic Systems.** **(4)** Lecture, three hours. Designed for juniors/seniors. Provides framework for a cross-cultural understanding of aesthetic phenomena that meets the requirements of anthropological research. Human capacities for aesthetic experience; sociocultural formation of aesthetic production; ethno-aesthetics; experiential dimension of aesthetic production. Letter grading.

**M134. Cultural Construction of Gender and Sexuality: Homosexualities. (4)** (Formerly numbered 134.) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M134.) Lecture, 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. (4-4)** P/NP or letter grading:

**135A.** Historical Development. (4) Lecture, three hours. Requisite: course 9. Survey of the field of psychological anthropology, with emphasis on early foundations and historical development of the 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. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Survey of the 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 are brought in to 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. 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 a cross-cultural psychoanalytic approach. Letter grading.

**M136Q. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4)** (Same as Psychiatry M112.) 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 of the 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.

**138. Methods and Techniques of Ethnohistory. (4)** Lecture, three hours. Introduction to problems and procedures of extracting cultural data from documentary sources and their interpretation and analysis. Relevant documentary sources of various New World regions are selected as case histories to illustrate more concretely problems and challenges in this major area of anthropological concern. P/NP or letter grading.

**139. Field Methods in Cultural Anthropology. (4)** Lecture, three hours. 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. (4)** (Same as Linguistics M146.) Lecture, three hours; discussion, one hour. Requisite: course 33 or Linguistics 20. Study of language as an aspect of culture; relation of habitual thought and behavior to language; and language and the 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. (4)** Lecture, three hours. 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 the sociocultural knowledge which 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 CM124A is requisite to 142B. Students make primary records (sound tape, videotape, or film) of naturally occurring social interactions which are analyzed in class for interactive tasks, resources, and accomplishments displayed. Laboratory and fieldwork outside of class and minimal fees to offset costs of equipment maintenance and insurance required. 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 an important aspect of student participation. P/NP or letter grading.

**144. American Indian Ethnolinguistics and Sociolinguistics. (4)** Lecture, three hours. Requisite: course 33 or American Indian Studies 10. 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. 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, an important minority dialect in the 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 a case-study approach. Letter grading.

**146. Language and Culture of Polynesia: Past, Present, and Future. (4)** Lecture, three hours. Requisite: course M140. 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.

**M148. Talk and the Body. (4)** (Same as Applied Linguistics and TESL M161 and Communication Studies M123.) Seminar, four hours. Relationship between language and human body raises a host of interesting topics. New approaches to phenomena such as embodiment become possible when the body is analyzed, not as an isolated entity, but as a 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. 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 the very conceptions of what normal development processes and desirable educational outcomes are. Letter grading.

## Social Anthropology

**150. Study of Social Systems. (4)** Lecture, three hours. Requisite: course 9. Introduction to more specialized social anthropology courses. Evaluation of variation in sociocultural systems and how societies are organized and social relations maintained. Basic frameworks of anthropological analysis; historical context and development of social anthropology discipline. Letter grading.

**M151. Marriage, Family, and Kinship. (4)** (Formerly numbered 151.) (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 the 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 a 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 American. (5)** (Same as Women's Studies M154P.) Lecture, three hours; discussion, one hour; fieldwork, three hours. Requisite: Women's Studies 10. Designed for junior/senior social sciences majors. Comparative study of women's lives and gender systems in North American cultures from an anthropological perspective. Critical review of relevant theoretical and practical issues using ethnography, case study, student fieldwork, internship, and presentation. P/NP or letter grading.

**M154Q. Gender Systems: Global. (4)** (Same as Women's Studies M154Q.) Lecture, three hours. Requisite: Women's Studies 10. Designed for junior/senior social sciences majors. Comparative study of gender systems globally from an anthropological perspective. Outline of material conditions of women's lives in the world — gender division of labor, relationship of gender to the state, and colonialism and resistance movements. P/NP or letter grading.

**M155. Women's Voices: Their Critique of Anthropology of Japan. (4)** (Formerly numbered 155.) (Same as Women's Studies M155.) Lecture, three hours. Preparation: introductory sociocultural 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 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 the centrality of gender interests. P/NP or letter grading.

**156. Comparative 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 which 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 an ecological and cultural viewpoint. Discussion of the possibility of developing a general framework for synthesizing these two viewpoints. Use of this synthesis as a basis for illustrating the relevance of hunting and gathering societies as an 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.

**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.

## 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 the U.S. (4)** (Same as Afro-American Studies M164.) Lecture, three hours. Promotes understanding of contemporary socio-cultural forms among Afro-Americans in the U.S. by presenting a comparative and diachronic perspective on the Afro-American experience in the New World. Emphasis on utilization of anthropological concepts and methods in understanding the origins and maintenance of particular patterns of adaptation among black Americans. P/NP or letter grading.

**165. Demographic Problems in Nonindustrial Societies. (4)** Lecture, three hours. Requisite: course 9. Dynamic interaction between environment, cultural belief, social structure, and population in hunting and gathering, pastoral, horticultural, and agricultural societies. Principal theories of population change and current issues in population policy considered in light of the anthropological evidence. P/NP or letter grading.

**166. Cross-Cultural Research on Urban Gangs. (4)** Lecture, three hours. Preparation: one anthropology, psychology, or sociology course. Examination of background and contemporary traditions of gangs in three ethnic minority groups — African American, Asian American, and Mexican American. Similarities and differences to be noted in dimensions of gang formation and persistence, subcultural styles, territorial and criminal conflicts, drug use and abuse, personal motivations, dress habits, etc. Cross-cultural look at major social control institutions (e.g., family, schools, peers, law enforcement, religion) which affect their lives. P/NP or letter grading.

**167. Urban Anthropology. (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for junior/senior social sciences majors. Survey of urbanization throughout the world, with emphasis on urban adaptation of rural migrants. Special focus on problems of rural/urban migration of ethnic minority groups and subsequent adaptation of them within the U.S. explored in terms of methods and perspectives of anthropology. 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 health care of Native North Americans (within present boundaries of the 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.

### 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 the 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.

**M172V. Culture Change and the Mexican People. (4)** (Same as Chicana and Chicano Studies M172V.) Lecture, three hours. Requisite: course 9 or Chicana and Chicano Studies 10A or 10B. 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 the 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.

### 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

**175R. Societies of Central Asia. (4)** Lecture, three hours. Overview of culture and society among the diverse peoples of Inner Asia, including Mongolia, Tibet, and Soviet Central Asia. Topics include environment and economic adaptation, politics in traditional isolation and within the framework of recent national integration, kinship, forms of marriage and status of women, religion and the 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 the closely linked civilizations of China, Korea, and Japan, providing a comparative analysis of fundamental institutions such as family, state, and religion and assessing effects of urbanization and industrialization. Letter grading.

**175U. Cultures of the 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 a history of colonialism and war to capitalism; multiple and conflicting linkages of Korean people involving class, gender, family/kinship, and nation. Letter grading.

**175W. Ideology and Social Change in Contemporary China. (4)** Lecture, three hours. Introduction to sociocultural changes in China from 1949 to the 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.



### Middle East

**176. Culture Area of the Middle East. (4)** Lecture, three hours. Study of the 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 the city. Presentation of anthropological material relevant to understanding the Middle East as a culture area, and Islam as basis of its shared tradition. Letter grading.

### Pacific

**177. Cultures of the Pacific. (4)** Lecture, three hours. Four major culture areas of Australia, Melanesia, Polynesia, and Micronesia. General geographical features, prehistory, and language distribution of the whole region. Distinctive sociocultural features of each culture area presented in context of their adaptive significance. P/NP or letter grading.

### History, Theory, and Method

**180. Quantitative Methods in Anthropology. (5).** Lecture, three hours; laboratory, one hour. Requisite: course M80. Methods of quantitative data analysis. Topics to be selected from linear regression analysis (univariate and multivariate), principal component analysis, discriminant analysis, cluster analysis, nonparametric tests, and log-linear models. Emphasis on computer-based applications of data analysis techniques. 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 the 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 our 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 the Renaissance to the present, stressing how each of the major branches of archaeology has evolved a special character determined by peculiarities of its own data, methods, and intellectual affiliation. P/NP or letter grading.

**186. Models and Modeling in Anthropology. (4)** Lecture, three hours. Modeling from both individual and social structure viewpoints. Introduction to four groups of models, along with ethnographic examples — decision tree models, indifference curve and marginal cost models, adaptation and learning models, and information diffusion models. Letter grading.

**186P. Models of Cultural Evolution. (4)** Lecture, two hours; discussion, one hour. Requisite: course 7 or 10. Introduction to Darwinian models of cultural evolution. How organic evolution has shaped the capacity for culture. How processes of cultural transmission and modification explain cultural variation in space and time. P/NP or letter grading.

**CM189A-CM189B. Theoretical Behavioral Ecology. (4-4)** (Same as Organismic Biology CM189A-CM189B.) Lecture, three hours. Preparation: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Course CM189A is requisite to CM189B. Students expected to do simple algebra, elementary calculus, and probability. A rich body of mathematical theory describing the evolution of animal behavior exists. Introduction to this body of theory at a 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 the models, and how main results are derived. Presentations supplemented by a survey of results printed in the literature, especially those derived using more advanced methods. Concurrently scheduled with courses CM289A-CM289B. Letter grading.

### Special Studies

**M194. Senior Seminar: Language, Interaction, and Culture. (4)** (Same as Applied Linguistics and TESL M194 and Sociology M194.) Seminar, four hours. Limited to seniors in Language, Interaction, and Culture minor. Capstone course. Students carry out and present empirical research project that integrates methodologies and perspectives of at least two of the disciplinary areas (anthropology, applied linguistics, sociology) covered in course. Letter grading.

**M196A-M196B. Contemporary Issues in Urban Poverty Research. (4-4)** (Same as Sociology M196A-M196B.) Lecture, three hours. Requisites: Honors Collegium 7A, 7B. Two-term research seminar designed to engage students in ongoing faculty research projects focusing on models of urban poverty and underclass behaviors. P/NP or letter grading.

**197HA. 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.

**197HB. 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.

**197HC. 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.

**197HD. 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.

**197K-197Z. Selected Topics in Anthropology. (2 to 4 each)** Lecture or seminar, three hours. Study of selected topics of anthropological interest taught by resident and visiting faculty members. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit with consent of instructor. P/NP or letter grading.

**199. Special Studies in Anthropology. (2 to 8)** Tutorial, to be arranged. Eight units may be applied toward upper division anthropology courses required for the major. P/NP or letter grading.

### Graduate Courses

**200. Proseminar: Practice of Anthropology. (4)** (Formerly numbered 200A.) Seminar, three hours. Required of new graduate students. Discussion of anthropology as a four-field discipline and interconnections among the 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 grading.

**M201A-M201B. Graduate Core Seminars: Archaeology. (6-6)** (Same as Archaeology M201A-M201B.) Seminar, three hours. Required of anthropology students in archaeology field. Seminar discussions based on carefully selected list of 30 to 40 major archaeology works. These core seminars provide students with foundation in breadth of knowledge required of a professional archaeologist. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of the multidisciplinary background of modern archaeology and relevant interpretive 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 the theoretical writings that shaped foundations of anthropology as a 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 the 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 the 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 a sociocultural perspective. Discussion of linguistic, philosophical, psychological, and anthropological contributions to understanding of verbal communication as a 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 the attribute and ending at level of the region. S/U or letter grading.

**M211. Regional Analysis in Archaeology. (4)** (Same as Archaeology M201C.) Lecture, three hours. Course 210 is not requisite to M211. Survey of analytical methods used in archaeology to study prehistoric settlement systems. Specific issues include settlement distribution with respect to natural resources, settlement hierarchy, and patterns of exchange. 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.

**212Q. Problems in Southwestern Archaeology. (4)** Lecture, three hours. Consideration of prehistoric cultural systems in the American Southwest, with emphasis on description and explanation of organizational variability and change. Specific research questions vary with each course offering. May be repeated for credit. S/U or letter grading.

**212R. Problems in Oceanic Archaeology. (4)** Lecture, three hours. Prehistory of Oceania. Content may vary, but problems considered include history and process of island occupation, island adaptation, and evolution of social stratification. May be repeated for credit. S/U or letter grading.

**M212S. Special Topics in Archaeology. (4)** (Same as Archaeology M205A.) Lecture, three hours. Designed for graduate students in archaeology or in other departments. Open to undergraduates with consent of instructor. Special advanced topics in archaeology such as new strategies, methodologies, excavation projects, regional synthesis, or comparisons on a worldwide basis, including current work by core faculty of the program and special visitors. S/U or letter grading.

**M212T. Special Topics in Archaeology. (6)** (Same as Archaeology M205B.) Lecture, three hours; laboratory, two hours. Advanced laboratory training for graduate students. 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 the 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 the Near East, Mesoamerica, and the 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 to 10 (spring) or over 50 (summer) hours. Off-campus field archaeology course offered for 6 units in Spring Quarter and 12 units in Summer Quarter. Intensive training in archaeological 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 a 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.

**218. Style and Ethnicity. (4)** Seminar, three hours. How stylistic variation in material culture informs on and mediates the 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 the archaeological record. Role of craft specialization in cultural evolution. 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 man's evolution. S/U or letter grading.

## Cultural Anthropology

**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 the Asian American personality within the 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 the 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 the sociocultural context examined in depth. May be repeated for credit. S/U or letter grading.

**M234. Seminar: Psychocultural Studies and Medical Anthropology. (4)** (Same as Psychiatry M210.) 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 the World. (4)** Seminar, three hours. Whether and how culture and thought shape each other is a 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. (4)** (Same as Psychiatry M282.) Seminar, three hours. Exploration of how sociocultural and political dynamics shape perceptions of and understandings about the human body, and how, reciprocally, those perceptions and understandings influence social processes. Includes materials from both non-Western and Western societies. Letter grading.

**M235. The Individual in Culture. (4)** (Same as Psychiatry M213.) 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.

**M236Q. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4)** (Same as Education M222A, Psychiatry M235, and Psychology M295.) Laboratory, four hours. Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Discussion of some uses of observations and their implications for research in social sciences. Students expected to integrate observational work into their current research interests. 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 and TESL 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.

**242. Ethnography of Communication. (4)** 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.

**243P. American Indian Ethnolinguistics and Sociolinguistics. (4)** Lecture, three hours. Preparation: prior coursework in either anthropology, linguistics, or American Indian studies. Social and cultural aspects of language use in Native North American speech communities. Specific foci include both micro-sociolinguistic topics (such as multilingualism, cultural differences regarding appropriate communicative behavior, and variation within speech communities) and macro-sociolinguistic topics (such as language contact, language change, and language in American Indian education). Graduate students conduct library and/or other research and participate in group discussion. 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, an important minority dialect in the 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 a 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 Intra-cultural Variation. (4)** Lecture, three hours. Problem of variation as it impinges on disciplines of anthropology and linguistics. Among objectives of course are the following: to acknowledge importance of speech variation in anthropological linguistics research, to critically assess a 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 and TESL M272.) Seminar, four hours. Requisite: Applied Linguistics and TESL 201. 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 and TESL 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 and TESL M266.) Seminar, four hours. Requisite: Applied Linguistics and TESL 201. 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 and TESL M224.) Seminar, four hours. Requirement: Applied Linguistics and TESL M206. Exploration of process of socialization through language and socialization to use language across the life span, across communities of practice within a 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 Discourse Analysis I, II. (4-4)** (Same as Applied Linguistics and TESL M270A-M270B.) Seminar, four hours. Two-term sequence on ethnographic approaches to recording and analyzing communicative events and practices in their sociocultural context, involving student-initiated fieldwork in a community setting. Emphasis on hands-on activities within theoretical frameworks that consider language as a social and cultural practice. **M249A.** Requirement: course 242 or Applied Linguistics and TESL 260 or Sociology C244A. Devoted to skills related to collecting socially and culturally meaningful data. Letter grading. **M249B.** Requirement: course M249A. Devoted to production of ethnographic analysis, including how to present an analysis in form of a conference talk and how to develop an analysis into a grant or dissertation proposal. S/U or letter grading.

**M249P. Ethnographic Technologies Laboratory I. (4)** (Same as Applied Linguistics and TESL M270P.) Laboratory, four hours. Corequisite: course M249A or Applied Linguistics and TESL M270A. Hands-on mentorship in entering a community, obtaining informed consent, interviewing, note taking, and videorecording verbal interaction. S/U grading.

**M249Q. Ethnographic Technologies Laboratory II. (4)** (Same as Applied Linguistics and TESL M270Q.) Laboratory, four hours. Corequisite: course M249B or Applied Linguistics and TESL M270B. Hands-on mentorship in editing ethnographic video footage, incorporating video frame grabs into transcript and analysis of verbal interaction, writing a grant proposal, and assembling a conference presentation. 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 a 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 which address practice and resistance, as part of an effort to understand processes that have shaped modern and postcolonial society and culture. 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 a 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.

## Applied Anthropology

**260. Urban Anthropology. (4)** Seminar, three hours. Requirement: course 167. Intensive anthropological examination of the urban setting as a human environment. S/U or letter grading.

**261Q. Issues in Applied Anthropology. (4)** Seminar, three hours. Use of seminar format to explore selected domestic and international problems from applied anthropological perspective. Consideration of history of applied anthropology, ethics, and careers strategies. S/U or letter grading.

**263P. Gender Systems. (4)** 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. (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 a 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. (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 the self and society. Letter grading.

**M266. Health and Culture in the Americas. (4)** (Same as Community Health Sciences M260 and Latin American Studies M260.) Lecture, three hours; discussion, one hour. Preparation: bilingual skills (English/Spanish) for Spanish discussion section. Recommended preparation: Community Health Sciences 132. Health issues throughout the Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. 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 health care of Native North Americans (within present boundaries of the 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 the American Indian. (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 the 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. (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 the Middle East. (4)** Seminar, three hours. Survey of literature and problems of various cultures of the Middle East. 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 the 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 the 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.

**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 anthropology and archaeology. May be repeated for credit. S/U or letter grading.

**286P. Selected Topics in Computer Simulation and Modeling. (4)** Lecture, three hours. Requirement: course 180. 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 the concept of culture, narrative, ethnographic writing, reflexivity, politics of representation, historicity, and study of the self, identity, and the 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 a variety of geographical areas. Reconsideration of history of anthropology for, as Talal Asad argues, "anthropology emerged as a distinctive discipline at the beginning of the 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.

**CM289A-CM289B. Theoretical Behavioral Ecology. (4)** (Same as Organismic Biology CM295A-CM295B.) Lecture, three hours. Preparation: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Course CM289A is requisite to CM289B. Students expected to do simple algebra, elementary calculus, and probability. A rich body of mathematical theory describing the evolution of animal behavior exists. Introduction to this body of theory at a 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 the models, and how main results are derived. Presentations supplemented by a survey of results printed in the literature, especially those derived using more advanced methods. Concurrently scheduled with courses CM189A-CM189B. 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.

**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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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 a 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 AND TEACHING ENGLISH AS A SECOND LANGUAGE

*College of Letters and Science*

UCLA  
3300 Rolfe Hall  
Box 951531  
Los Angeles, CA 90095-1531  
(310) 825-4631  
<http://www.humnet.ucla.edu/humnet/al/frames/alhome.htm>

John H. Schumann, Ed.D., *Chair*

## Professors

Roger W. Andersen, Ph.D.  
Lyle F. Bachman, Ph.D.  
Marianne Celce-Murcia, Ph.D.  
Charles Goodwin, Ph.D.  
Marjorie Harness Goodwin, Ph.D.  
Nina M. Hyams, Ph.D.  
Edward L. Keenan, Ph.D.  
Reynaldo F. Macias, Ph.D.  
Pamela Munro, Ph.D.  
Elinor Ochs, Ph.D.  
Emanuel A. Schegloff, Ph.D.  
John H. Schumann, Ed.D.

## Professors Emeriti

Russell N. Campbell, Ph.D.  
Evelyn R. Hatch, Ph.D.  
Earl J. Rand, Ph.D.

## Lecturers

Donna M. Brinton, M.A.  
Janet Goodwin, M.A.  
Christine Holten, M.A.  
Linda Jensen, M.A.

## Scope and Objectives

UCLA is a dynamic place to study applied linguistics. The Department of Applied Linguistics and Teaching English as a Second Language offers a Ph.D. in Applied Linguistics and a Master of Arts in Applied Linguistics and Teaching English as a Second Language. Three areas have been identified as integral to a thorough understanding of the field of applied linguistics: language acquisition, language assessment, and discourse and grammar analysis. Program participants are encouraged to study themes within these areas from a variety of perspectives.

Departmental faculty members, as well as professors in Anthropology, East Asian Languages and Cultures, Education, Linguistics, Neurobiology, Psychology, and Sociology, among others, represent a wide range of expertise and experience in language-related research. Their guidance and collaboration with students result in substantial research findings in the areas of specialization within the program, and their participation reinforces the interdisciplinary nature of applied linguistics research. Graduates pursue academic and professional careers at the highest level of service and inquiry.

The goal of the Ph.D. program in Applied Linguistics is to prepare students to apply relevant elements of linguistics, ethnography, psycholinguistics, and sociolinguistics to the investigation of language-related problems and issues in the everyday world. This is to be achieved by providing students with a broad background of information and the investigatory skills needed for teaching at the university level, program planning, and effective quantitative and qualitative research. The program is designed to encourage the mentorship relationship between students and faculty, as students are assigned a faculty adviser with whom they work throughout the program.

The M.A. program in Applied Linguistics and Teaching English as a Second Language (TESL) is designed as a first step in a research career in applied linguistics. It provides both breadth of knowledge in several areas of applied linguistics and the specialized knowledge and skills needed to plan and conduct research in one of the three areas of specialization.

Teacher education is no longer the main focus of the department; however, the department offers opportunities to students interested in pursuing this area as part of their academic program. Elective courses build on existing knowledge acquired in the required coursework in applied linguistics, and thus provide students with guidance in applying theoretical constructs to real-world classroom settings where language is taught and used. Language education skills provide graduate students with a secure means of financial support during their graduate program, and these skills may open doors to professional opportunities in academic and private sectors once students have completed their degree program. As part of the M.A. and Ph.D. programs, students may complete additional coursework to obtain the graduate-level Certificate in Teaching English as a Second Language.

## Language Acquisition

Language acquisition research seeks to (1) describe interlanguage systems, (2) examine underlying cognitive mechanisms that could account for these systems, (3) examine the social, affective, and neurobiological factors that influence second language development, and (4) explore the effect of instruction on the process. Additional areas of inquiry include comparisons between native and nonnative linguistic systems and how speakers use them in natural discourse, and explanations for variable success in second language acquisition in terms of the neural underpinnings of language as well as the neural basis for perception, attention, memory, and emotion.

## Language Assessment

Language assessment is concerned with the empirical investigation of theoretical questions on the one hand, and with providing useful tools for assessment in applied linguistics on the other. Language testing research has as its goals the formulation and empirical investiga-

tion of theories of language test performance and the demonstration of the ways in which performance on language tests is related to communicative language use in its widest sense.

#### Discourse and Grammar Analysis

Discourse and grammar analysis is concerned with how language users produce and interpret language in context. Discourse analysts research the linguistic structures of speech acts, conversational sequences, speech activities, oral and literate registers, and stance (among other constructs) and seek to relate these constructs to social and cultural norms, preferences, and expectations. The field articulates how lexico-grammar and discourse systematically vary across social situations and at the same time help to define those situations.

A limited number of teaching assistantships are available to qualified M.A. and Ph.D. students. For information and applications, write to the Academic Coordinator, ESL Service Courses, 3300 Rolfe Hall, UCLA, Box 951531, Los Angeles, CA 90095-1531.

## Undergraduate Study

### 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 and Teaching English as a Second Language M194 and six courses from the following, with at least one course from each group: group 1 — Anthropology M140, 141, 142A, 143, 144, M145, 146; group 2 — Sociology CM124A, CM124B, CM125, 126, M176; group 3 — Applied Linguistics and Teaching English as a Second Language 100, C116, 121, 125, M161, 170, Chicana and Chicano Studies 160, 161, 162, Japanese M120, CM122, Linguistics 114, 170.

No more than two upper division elective courses may be applied toward both the students' majors and this minor. All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

### Teaching English as a Second or Foreign Language Minor

The Teaching English as a Second or Foreign Language minor provides students with an overview of current second language pedagogical theories and practices; the experience of observing the second language acquisition process both in and out of the classroom; a supervised practicum experience in a variety of second language classroom settings; and an opportunity to reflect on the interaction of theory and practice in the teaching of English as a second or foreign language.

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 Course (4 units):* Linguistics 20 with a grade of C or better.

*Required Upper Division Courses (28 units):* (1) Three pedagogical foundation courses from Applied Linguistics and Teaching English as a Second Language 101 or 101W or C110, C116, C118; (2) a minimum of two pedagogical skill courses from C111, C112, C113, C115, C117; (3) a maximum of two courses in language and/or educational issues from English 121, English Composition 120A, 120B, 120C, 132C, Linguistics 10, C130, 140, 175. Students may complete all requirements for the minor by taking courses in items 1 and 2 above.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major requirements, 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 minor adviser before enrolling in any courses for the minor.

All minor courses must be taken for a letter grade, with a minimum grade of C (2.0) in each and an overall C average. 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 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).

The ESLPE is required of all entering UCLA students whose first language is not English and who have not otherwise satisfied the English as a Second Language (ESL) requirement. 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.

The following nonnative-speaking students are exempt from the ESLPE: (1) first-year undergraduate students exempted based on their performance on the Subject A Examination (see Subject A in the Undergraduate Study section of this catalog), (2) undergraduate transfer students with grades of B or better in the English Composition 3 and English 4W equivalent courses at their transfer institutions (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).

All other students must sit for the ESLPE and may be required to complete one or more ESL courses to satisfy the ESL requirement. 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 undergraduates is English as a Second Language 33A, 33B, 33C, and 35; each course must be passed 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 33A, 33B, and 33C; each course 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. 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.

College of Letters and Science undergraduates may satisfy the English Composition requirement by completing course 36 with a grade of C or better (C– or a Passed grade is not acceptable). Admission into course 36 is determined by completion of course 35 with a passing grade or proficiency demonstrated on the ELSPE.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Applied Linguistics and Teaching English as a Second Language offers the Master of Arts (M.A.) degree in Applied Linguistics and Teaching English as a Second Language, Master of Arts (M.A.) degree in Teaching English as Second Language, and Ph.D. in Applied Linguistics.

## Admission

### M.A. in Applied Linguistics and Teaching English as a Second Language

Students normally apply for the M.A. program if they desire advanced training in the field. Because of the sequential nature of courses given during the first year, students are admitted only for Fall Quarter. To be admitted to the M.A. program, all applicants, including those who are U.S. citizens and those who are from other countries, must hold the equivalent of an American bachelor's degree. Applicants must also have completed the equivalent of Linguistics 120A and 120B at UCLA (or make them up as deficiency courses).

The admissions committee screens all applications using the following criteria: grade-point average (must be 3.0 or better), scores from the Graduate Record Examination (GRE), the score from the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination for international applicants whose native language is not English, a relevant research paper; letters of recommendation, and a statement of purpose. A personal interview is not required for admission. The statement of purpose should contain the following information: (1) reasons for wishing to study applied linguistics at UCLA; (2) area of applied linguistics in which the applicant may want to specialize and do research, the reasons for this interest, and the qualifications and professional experience relevant to doing research in this area; and (3) knowledge of other languages, dialects, or cultures.

International students who hold a bachelor's degree or higher from a university in a country where the official language is English and in which English is the medium of instruction, or who have completed at least two years of full-time study at such an institution, are exempt from the TOEFL or IELTS and the UCLA En-

glish as a Second Language Placement Examination (ESLPE). All other applicants must take the TOEFL or IELTS prior to arrival at UCLA, submitting the score as part of the application process. These students must also take the ESLPE on arrival at UCLA. Depending on the results of this examination, students may be required to take English as a Second Language courses to improve their command of academic English.

Applications for admission may be obtained from the graduate adviser. As noted, the program requires three letters of recommendation in support of the application. Applicants should submit the letters of recommendation directly to the Graduate Adviser, Department of Applied Linguistics and Teaching English as a Second Language, 3300 Rolfe Hall, UCLA, Box 951531, Los Angeles, CA 90095-1531. Because admission is limited to approximately 20 students per year, it is important that completed applications and all supporting material be submitted by December 15.

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

The M.A. program in Teaching English as a Second Language is not currently accepting applications.

### Ph.D. in Applied Linguistics

The basic requirement for admission to the Ph.D. program is the completion of an M.A. degree in Teaching English as a Second Language (TESL), Linguistics, or Applied Linguistics, or in a related field that is deemed the equivalent of one of these degree programs. Applicants who hold a graduate degree in TESL, linguistics, applied linguistics, psycholinguistics, or sociolinguistics from a university other than UCLA may be admitted and may be required to make up deficiencies in course preparation as deemed necessary by the faculty. Applicants whose graduate degree is in other related disciplines (such as a foreign language, English, education, psychology, sociology, or anthropology) are advised to complete the UCLA M.A. in Linguistics or Applied Linguistics and TESL before seeking admission to the Ph.D. program.

Prospective candidates are required to submit the following items by the preceding December 15: (1) a statement of purpose describing their research background and the type of dissertation they hope to prepare, (2) three letters of recommendation from professors who are well acquainted with their academic background, (3) the M.A. thesis or related research papers, and (4) Graduate Record Examination (GRE) scores. International applicants whose native language is other than English must submit scores on the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination.

The admissions committee considers all of the above criteria, as well as undergraduate and graduate grade-point averages.

## Master's Degrees

### M.A. in Applied Linguistics and Teaching English as a Second Language

The three areas of specialization are second language acquisition, assessment, and discourse analysis.

The M.A. degree is offered through the thesis plan. A total of 10 courses is required, seven of which must be in the 200 series. Students lacking a significant foreign language background are required to complete additional foreign language electives. Requisites include introductory courses in phonetics, phonology, and syntax equivalent to courses taught at UCLA and a minimum of two quarters of a foreign language.

Coursework includes a mix of foundation, specialization, and elective courses. Students who wish to obtain a Certificate in Teaching English as a Second Language or desire advanced language education training in order to serve as teaching assistants might choose to take certain professional development electives. Students who come to the program from fields other than linguistics may need to take additional courses in the nature of language and language analysis. In order to enhance an interdisciplinary perspective, students are also encouraged to take relevant electives in other departments and programs.

There is a language requirement for this degree.

### Teaching English as a Second Language Certificate

Graduate students enrolled in degree programs who successfully complete a required list of eight courses and two quarters of a foreign language may qualify for a Teaching English as a Second Language Certificate, which is not a California State Teaching Credential.

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

The M.A. degree is offered through the thesis plan. A total of 14 courses is required, five of which must be at the graduate level. Requirements include core and elective courses.

One quarter of supervised teaching is required during the first year unless students have had extensive teaching experience. If this requirement is completed at UCLA in an adult education setting, students are eligible for the California Adult Education Credential in English as a Second Language.

There is a language requirement for this degree.

## Doctoral Degree

### Ph.D. in Applied Linguistics

The three areas of specialization are second language acquisition, assessment, and discourse analysis.

For basic preparation in applied linguistics, students can choose either a phonetics and phonology track, a syntax and semantics track, or

a discourse analysis track. There are required courses for each track. As a breadth requirement, students must take at least 32 units of graduate-level coursework. The 32 units may not include courses taken while completing designated basic preparation courses and must include 8 units in one area outside the area of specialization.

Written and oral qualifying examinations are required. The written examination is in the form of two original research papers of publishable quality in different areas of specialization. Following successful completion of the papers, students take the University Oral Qualifying Examination, which focuses on the dissertation prospectus.

There is a language requirement for this degree.

## Applied Linguistics

### Graduate Courses

**501. Cooperative Program. (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA program 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 Ph.D. students. Independent study in an area of applied linguistics. 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 the 32-unit requirement for Ph.D. May not be applied toward the 32-unit requirement. May be repeated for credit. 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.

## Applied Linguistics and Teaching English as a Second Language

### 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 a variety of natural settings. P/NP or letter grading.

**101. Introduction to Language Learning and Language Teaching. (4)** Lecture, two hours; discussion, two hours. Requisite: Linguistics 1. 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. P/NP or letter grading.

**101W. Introduction to Language Learning and Language Teaching. (5)** Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H. 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 Letters and Science Writing II requirement. Letter grading.

**C110. Theories of Language Education and Learning. (4)** Lecture, four hours. Requisite: Linguistics 20. Survey of theory and practice in teaching of second languages, including (1) current and historical views of second language instruction, (2) overview of first language acquisition and comparison of second language acquisition, (3) survey of factors which affect second language acquisition process, (4) presentation of language learning and teaching models. Concurrently scheduled with course C210. P/NP or letter grading.

**C111. Writing for Second/Foreign Language Education. (4)** (Formerly numbered C106.) Lecture, four hours. Requisite: course 101 or C110. Survey of important theoretical and methodological issues related to second language written discourse and composition for second 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 Language Education. (4)** (Formerly numbered C107.) Lecture, four hours. Requisite: course 101 or C110. Survey of important theoretical and methodological issues related to second/foreign 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.

**C113. Phonetics for Second/Foreign Language Education. (4)** (Formerly numbered C103.) Lecture, four hours. Requisite: Linguistics 20. Examination of phonological structure of contemporary American English, with emphasis on appropriate teaching techniques in ESL/EFL 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.

**C115. Media for Second/Foreign Language Education. (4)** Lecture, four hours. Requisite: course 101 or C110. Rationale and pedagogical application for using media equipment and materials in the second/foreign 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 language instruction. Concurrently scheduled with course C215. P/NP or letter grading.

**C116. Structure of Present-Day English. (4)** (Formerly numbered C122.) Lecture, six hours. Requisite: Linguistics 20. Survey of grammatical structures of English. Aims to provide insights from discourse analysis and a variety of approaches to grammatical analysis, including error analysis and remediation techniques. May be concurrently scheduled with course C216. Letter grading.

**C117. Literature in Second/Foreign Language Education. (4)** (Formerly numbered C109.) Lecture, four hours. Requisite: course 101 or C110. Survey of important theoretical and methodological issues related to teaching literature to students in ESL/EFL settings and examination of appropriate classroom materials. Strong emphasis on cultural basis for literature. Concurrently scheduled with course C217. P/NP or letter grading.

**C118. Language Teaching Practicum. (4)** Seminar, four hours. Requisites: courses 101 or C110, C116. Theoretical and practical concerns regarding second 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 C218. P/NP grading.

**C119. Current Issues in Second/Foreign Language Education. (4)** Seminar, four hours. Requisite: course 101 or C110. Specialized topics in language education. Emphasis varies according to current topics of the theoretical concern in field of second/foreign language education. May be repeated for credit with topic change. Concurrently scheduled with course C219. P/NP or letter grading.

**121. Language Learning and Immigrant Experience. (4)** Seminar, four hours. Exploration of value and relevance of linguistic anthropological, ethnomethodological, sociocultural, pragmatic, and sociolinguistic approaches to study of immigration and second language acquisition. Readings from language learning memoir provide literary account of immigrant experience which illustrates intimate relationship between language and culture in second language learning. Letter grading.

**125. Language Socialization. (4)** Seminar, four hours. Exploration of process of socialization through language, and socialization to use language across life span, across communities of practice within a 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.

**M161. Talk and the Body. (4)** (Formerly numbered 161.) (Same as Anthropology M148 and Communication Studies M123.) Seminar, four hours. Relationship between language and human body raises a host of interesting topics. New approaches to phenomena such as embodiment become possible when the body is analyzed, not as an isolated entity, but as a 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. 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 a social and cultural practice. Letter grading.

**M194. Senior Seminar: Language, Interaction, and Culture. (4)** (Same as Anthropology M194 and Sociology M194.) Seminar, four hours. Limited to seniors in Language, Interaction, and Culture minor. Capstone course. Students carry out and present empirical research project that integrates methodologies and perspectives of at least two of the disciplinary areas (anthropology, applied linguistics, sociology) covered in course. Letter grading.

### Graduate Courses

**200. Research in Applied Linguistics. (4)** Seminar, four hours. Requisites: courses 201, 202, 204, M206. Within context of a current research area in applied linguistics (language assessment, language acquisition, discourse/functional grammar), all M.A. students prepare and submit viable research proposal for M.A. thesis. Letter grading.

**201. 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. Letter grading.

**202. 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, and neurobiological factors which affect ultimate success of learner. Letter grading.

**204. Foundations of Language Assessment. (4)** Seminar, four hours. Requisite: Linguistics 20. Conceptual foundations of language assessment, including nature of measurement, nature of language ability, uses of language assessment in research, types and characteristics of assessment methods, reliability, and validity. Current issues and problems in language assessment. Letter grading.

**M206. Social Foundations of Language. (4)** (Formerly numbered 206.) (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.

**C210. Theories of Language Education and Learning. (4)** (Formerly numbered 210.) Lecture, four hours. Requisite: Linguistics 20. Survey of theory and practice in teaching of second languages, including (1) current and historical views of second language instruction, (2) overview of first language acquisition and comparison of second language acquisition, (3) survey of factors which affect second language acquisition process, (4) presentation of language learning and teaching models. Concurrently scheduled with course C110. S/U or letter grading.

**C211. Writing for Second/Foreign Language Education. (4)** Lecture, four hours. Requisite: course C210. Survey of important theoretical and methodological issues related to second language written discourse and composition for second 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 Language Education. (4)** Lecture, four hours. Requisite: course C210. Survey of important theoretical and methodological issues related to second and foreign 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 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 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.

**214. Materials Development for Language Education. (4)** Seminar, four hours. Preparation: at least two years of second language instruction experience. Requisite: course C210. Planning and preparation of an original set of language teaching materials geared to needs of a specified group of learners. Revisions of first drafts and evaluation of one's own work and that of one's peers. Introduction to process of publishing language teaching materials. S/U or letter grading.

**C215. Media for Second/Foreign Language Education. (4)** (Formerly numbered 215.) Lecture, four hours. Requisite: course C210. Rationale and pedagogical application for using media equipment and materials in the second/foreign 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 language instruction. Concurrently scheduled with course C115. S/U or letter grading.

**C216. Structure of Present-Day English. (4)** Lecture, six hours. Requisite: Linguistics 20. Survey of grammatical structures of English. Aims to provide insights from discourse analysis and a variety of approaches to grammatical analysis, including error analysis and remediation techniques. May be concurrently scheduled with course C116. Additional assignments required of graduate students. Letter grading.

**C217. Literature in Second/Foreign Language Education. (4)** Lecture, four hours. Requisite: course C210. Survey of important theoretical and methodological issues related to teaching literature to students in ESL/EFL 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.

**C218. Language Teaching Practicum. (4)** (Formerly numbered 218.) Seminar, four hours. Requisites: courses C210, C216. Theoretical and practical concerns regarding second language teaching, with emphasis on field-work experiences and grounding of solutions to problems faced in current research in language education and language pedagogy. Concurrently scheduled with course C118. S/U grading.

**C219. Current Issues in Second/Foreign Language Education. (4)** (Formerly numbered 219.) Seminar, four hours. Requisite: course C210. Specialized topics in language education. Emphasis varies according to current topics of theoretical concern in field of second/foreign language education. May be repeated for credit with topic change. Concurrently scheduled with course C119. Additional assignments required of graduate students. S/U or letter grading.

**220. Language Acquisition. (4)** Seminar, four hours. Requisites: course 202, Linguistics 120B. Designed for advanced graduate students (beginning Ph.D. and second-year M.A.). Hands-on project-oriented survey of research on acquisition of both first and second languages from a crosslinguistic and interdisciplinary perspective. Letter grading.

**221. Experiential Seminar: Second Language Learning. (4)** (Formerly numbered 227.) Requisite: course 202. Students learn an 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)** Requisite: course 202. 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.

**223. Topics in Psycholinguistics. (4)** Requisite: course 202. 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.

**M224. Language Socialization. (4)** (Formerly numbered 224.) (Same as Anthropology M248.) Seminar, four hours. Requisite: course M206. Exploration of process of socialization through language and socialization to use language across the life span, across communities of practice within a 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.

**229. Current Issues in Language Acquisition. (4)** Requisite: course 202. Designed to explore current issues in language acquisition from both a theoretical and applied research perspective and to provide actual experience in addressing a current topic. Specific topics vary according to trends in the field. May be repeated for credit with topic change.

**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)** Requisite: course 220. Advanced seminar on language acquisition in which a particular linguistics topic (e.g., development of tense/aspect, reference, subordination, agreement) is pursued from crosslinguistic and cross-disciplinary perspectives. Focus on language-specific vs. universal (i.e., crosslinguistically valid) mechanisms of language development. May be repeated for credit with topic change.

**240. Design and Development of Language Assessment Procedures. (4)** Requisite: course 204. 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. S/U or letter grading.

**241. Analysis and Use of Language Assessment Data. (4)** Requisite: course 204. 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. S/U or letter grading.

**242. Experimental Design and Statistics for Applied Linguistics. (4)** Requisite: course 204. Specialized topics of interest to graduate students in applied linguistics, with focus on design and interpretation of research projects in the 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 the field. Project required. S/U or letter grading.

**249. Current Issues in Language Assessment. (4)** Requisite: course 204. Designed to explore current issues in language assessment from both theoretical and practical perspectives and to provide actual experience in addressing a current issue. Specific topics vary according to trends in the field. May be repeated for credit with topic change. S/U or letter grading.

**250. Advanced Seminar: Language Assessment. (4)** Requisites: courses 204, 241. Designed to cover application of a 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)** 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 the 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.

**260. Discourse Analysis. (4)** Requisite: course M206. Survey course covering language teaching and discourse analysis; discourse analysis and syntax; planned and unplanned discourse; conversational analysis; analysis of speech events; unequal power discourse; and analysis of classroom discourse.

**263. Crosslinguistic Topics in Functional Grammar I: Typology. (4)** Seminar, four hours. Survey of a 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)** 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.

**265. Topics in Functional Grammar. (4)** Requisite: course 201. Specialized topics in functional grammar of interest to graduate students in applied linguistics. Emphasis varies according to current topics of theoretical import in the field, such as voice, nominal reference, and word order. May be repeated for credit with topic change.

**M266. Topics in Semantics and Pragmatics. (4)** (Same as Anthropology M247.) Requisite: course 201. 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, eventuality, reported speech, etc. May be repeated for credit with topic change.

**268. Crosslinguistic Research Laboratory. (4)** Advanced procedures in data analysis in crosslinguistic research, including critical reading of relevant publications. Students must work toward a 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)** 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 the field. May be repeated for credit with topic change.



**M270A-M270B. Ethnographic Methods in Discourse Analysis I, II. (4-4)** (Same as Anthropology M249A-M249B.) Two-term sequence on ethnographic approaches to recording and analyzing communicative events and practices in their sociocultural context, involving student-initiated fieldwork in a community setting. Emphasis on hands-on activities within theoretical frameworks that consider language as a social and cultural practice. S/U or letter grading. **M270A.** Seminar, four hours. Prerequisite: course 260 or Anthropology 242 or Sociology C244A. Devoted to skills related to collecting socially and culturally meaningful data. Letter grading. **M270B.** Lecture, four hours. Prerequisite: course M270A. Devoted to production of ethnographic analysis, including how to present an analysis in form of a conference talk and how to develop an analysis into a grant or dissertation proposal. S/U or letter grading.

**M270P. Ethnographic Technologies Laboratory I. (4)** (Same as Anthropology M249P.) Corequisite: course M270A or Anthropology M249A. Hands-on mentorship in entering a community, obtaining informed consent, interviewing, note taking, and videorecording verbal interaction. S/U grading.

**M270Q. Ethnographic Technologies Laboratory II. (4)** (Same as Anthropology M249Q.) 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 a grant proposal, and assembling a conference presentation. S/U grading.

**271. Advanced Seminar: Cohesion Analysis of English Structure. (4)** Prerequisite: 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 a variety of English texts representing several discourse types.

**M272. Grammar and Discourse. (4)** (Same as Anthropology M246A.) Prerequisite: course 201. 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.) Prerequisite: 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)** Prerequisite: 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 the form(s), exploration of meaning and function of the form(s).

**278. Discourse Laboratory. (4)** Prerequisites: courses M206, 260, two other discourse analysis courses. Designed for applied linguistics Ph.D. students. Advanced procedures in data analysis in the field of discourse analysis, including development of a large-scale research project and critical review of current research. May be repeated for credit. S/U or letter grading.

**291. Current Issues in Applied Linguistics. (4)** Specialized topics in applied linguistics of current relevance in two or more of the following areas: language acquisition, language assessment, and discourse analysis/functional grammar, and of interest to students in applied linguistics and TESL. Emphasis varies according to current topics of theoretical concern in the 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**400. Applied Linguistics and TESL M.A. Colloquium. (4)** Discussion, four hours. 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. Preparation: appointment as a teaching assistant. Orientation, preparation, and supervision of graduate students who have responsibility for teaching ESL courses at UCLA. Syllabus revision and materials preparation. May not be applied toward degree requirements for M.A. or certificate in TESL or Ph.D. in Applied Linguistics. 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. (4)** Limited to graduate students. Independent study in an area related to English as a second language. May not be repeated for credit.

**598. M.A. Research and Thesis Preparation. (4 to 8)** 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.

## Course List

### Language Acquisition

**Applied Linguistics and Teaching English as a Second Language**

- 221. Experiential Seminar: Second Language Learning
- 222. Discourse-Centered Language Learning
- 223. Topics in Psycholinguistics
- M224. Language Socialization
- 229. Current Issues in Language Acquisition
- 230. Advanced Seminar: Interlanguage Analysis
- 231. Crosslinguistic Topics in Language Acquisition

#### Education

- 217D. Language Development and Education
- 227B. Research on Cognitive and Language Characteristics of Exceptional Individuals

#### Linguistics

- 213A. Grammatical Development
- 213B. Brain Bases for Language
- C233. Language Development
- C235. Neurolinguistics
- 254A. Topics in Linguistics
- 259A, 259B. Topics in Linguistics II: Proseminar
- 264A-264B-264C. Seminars: Special Topics in Linguistic Theory

#### Psychiatry and Biobehavioral Sciences

- 257A-257B-257C. Communication Disorders Associated with Developmental Disabilities and Psychiatric Disorders

#### Psychology

- 240A-240B. Developmental Psychology
- 242F. Seminar: Developmental Psychology — Development of Language and Communication
- 260A-260B-260C. Proseminars: Cognitive Psychology
- 268B. Seminar: Human Information Processing — Human Learning and Memory
- 268D. Seminar: Human Information Processing — Language and Cognition

## Language Assessment

**Applied Linguistics and Teaching English as a Second Language**

- 240. Design and Development of Language Assessment Procedures
- 241. Analysis and Use of Language Assessment Data
- 242. Experimental Design and Statistics for Applied Linguistics
- 249. Current Issues in Language Assessment
- 250. Advanced Seminar: Language Assessment
- 258. Assessment Laboratory

#### Education

- 200B. Survey Research Methods in Education
- 200C. Analysis of Survey Data in Education
- 202. Evaluation Theory
- 211A. Measurement of Educational Achievement and Aptitude
- 211B. Measurement in Education: Underlying Theory
- 211C. Item Response Theory
- 219. Laboratory: Advanced Topics in Research Methodology
- 221. Computer Analyses of Empirical Data in Education
- 222C. Qualitative Data Reduction and Analysis
- 230A. Introduction to Research Design and Statistics
- 230B-230C. Linear Statistical Models in Social Science Research
- 230X. Applied Research Design and Statistics for Social Sciences
- 231A. Multivariate Analysis
- 231B. Factor Analysis
- 231C. Analysis of Categorical and Other Nonnormal Data
- 231D. Advanced Quantitative Models in Nonexperimental Research: Multilevel Analysis
- M231E. Statistical Analysis with Latent Variables

- 252A. Multivariate Analysis
- 252B. Discrete Multivariate Analysis
- 253. Factor Analysis
- 254A. Psychological Scaling
- 254B. Cluster Analysis
- 255. Quantitative Aspects of Assessment
- M257. Multivariate Analysis with Latent Variables
- 259. Quantitative Methods in Cognitive Psychology

- 259. Quantitative Methods in Cognitive Psychology

- 231A. Multivariate Analysis

- 231B. Factor Analysis

- 231C. Analysis of Categorical and Other Nonnormal Data

- 231D. Advanced Quantitative Models in Nonexperimental Research: Multilevel Analysis

- M231E. Statistical Analysis with Latent Variables

#### Psychology

- 250A, 250B. Advanced Psychological Statistics
- 252A. Multivariate Analysis
- 252B. Discrete Multivariate Analysis
- 253. Factor Analysis
- 254A. Psychological Scaling
- 254B. Cluster Analysis
- 255. Quantitative Aspects of Assessment
- M257. Multivariate Analysis with Latent Variables
- 259. Quantitative Methods in Cognitive Psychology

## Discourse and Grammar Analysis

#### Anthropology

- 204. Core Seminar: Linguistic Anthropology
- M234Q. Psychological Anthropology
- M241. Topics in Linguistic Anthropology
- 242. Ethnography of Communication
- 245. Linguistic and Intracultural Variation
- M246A. Grammar and Discourse
- M246B. Grammar and Discourse Practicum
- M247. Topics in Semantics and Pragmatics
- M249A-M249B. Ethnographic Methods in Discourse Analysis I, II

**Applied Linguistics and Teaching English as a Second Language**

- 260. Discourse Analysis
- 263. Crosslinguistic Topics in Functional Grammar I: Typology
- 264. Crosslinguistic Topics in Functional Grammar II: Discourse
- 265. Topics in Functional Grammar
- M266. Topics in Semantics and Pragmatics
- 268. Crosslinguistic Research Laboratory
- 269. Current Issues in Discourse Analysis

M270A-M270B. Ethnographic Methods in Discourse Analysis I, II

271. Advanced Seminar: Cohesion Analysis of English Structure

M272. Grammar and Discourse

M273. Grammar and Discourse Practicum

274. Advanced Seminar: Contextual Analysis of English Structure

278. Discourse Laboratory

#### Education

204D. Minority Education in Cross-Cultural Perspective

#### English

241. Studies in Structure of the English Language

#### German (Germanic Languages)

C238. Linguistic Theory and Grammatical Description

#### Japanese (East Asian Languages)

C222. Structure of Japanese I

C223. Structure of Japanese II

224A-224B. Seminars: Selected Topics in Japanese Discourse Linguistics

225A-225B. Seminars: Linguistic Analysis of Japanese Narratives

226. Survey of Functional Linguistics

CM227. Contrastive Analysis of Japanese and Korean

228. Fundamentals in Discourse Data Analysis

#### Korean (East Asian Languages)

C220. Structure of Korean

224A-224B. Seminars: Selected Topics in Korean Linguistics

CM227. Contrastive Analysis of Japanese and Korean

#### Linguistics

201. Phonological Theory II

202. Language Change

203. Phonetic Theory

204. Experimental Phonetics

205. Morphological Theory

206. Syntactic Theory II

207. Semantic Theory II

C209A, C209B. Computational Linguistics I, II

210A, 210B. Field Methods I, II

214. Survey of Current Syntactic Theories

215. Syntactic Typology

220. Linguistic Areas

225. Linguistic Structures

251A, 251B. Topics in Phonetics and Phonology

252A, 252B. Topics in Syntax and Semantics

253A, 253B. Topics in Language Variation

254A, 254B. Topics in Linguistics

256A, 256B. Topics in Phonetics and Phonology II: Proseminar

257A, 257B. Topics in Syntax and Semantics II: Proseminar

258A, 258B. Topics in Language Variation II: Proseminar

259A, 259B. Topics in Linguistics II: Proseminar

263A-263B-263C. Seminars: Language Variation (only one of these may be applied toward the 32-unit requirement)

#### Sociology

C244A-C244B. Conversational Structures I, II

C258. Talk and Social Institutions

266. Selected Problems in Analysis of Conversation

267. Selected Problems in Communication

#### Spanish (Spanish and Portuguese)

209. Dialectology

256A-256B. Studies in Spanish Linguistics

257. Studies in Dialectology

## 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 an audience, ask and answer questions, participate appropriately in conversations with members of the academic community, and improve through self-evaluation of speech. P/NP (undergraduates), S/U (graduates), or letter grading.

**33A. Low Intermediate English as a Second Language. (4)** Recitation, eight hours; laboratory, two hours. Prerequisite: Extension course XL832 (C or better) or 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 a degree. Intensive instruction in structure of English, with focus on vocabulary building, listening and speaking skills, and basic composition techniques.

**33B. High Intermediate English as a Second Language. (4)** Recitation, five hours. Prerequisite: 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.

**33C. Advanced English as a Second Language. (4)** Recitation, five hours. Prerequisite: 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.

**34. Public Speaking for Academic Purposes. (4)** Lecture, four hours. Prerequisite: 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 an audience, respond to questions posed by the audience, and improve through self-evaluation of speech. P/NP (undergraduates), S/U (graduates), or letter grading.

**35. Developmental Composition for ESL Students. (5)** Lecture, four hours. Prerequisite: course 33C (C or better) or proficiency demonstrated on English as a Second Language Placement Examination and/or Subject A Examination. Developmental composition skills for ESL students, with focus on the 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 a grade of C or better satisfies Subject A requirement. Letter grading.

**36. Intermediate Composition for ESL Students. (5)** Lecture, four hours. Prerequisite: 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 Letters and Science Writing I requirement. Letter grading.

**37. English Grammar and Style for Academic Purposes. (4)** Lecture, four hours. Prerequisite: 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.

**38. 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.

**39A. Intensive Language and Fluency Training for International Teaching Assistants. (4)** Lecture, six hours. Recommended for individuals whose SPEAK score is 40 or below. Designed to aid international graduate students who wish to become teaching assistants, with focus on development of general communicative competence and 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 SPEAK score is 40 or 45. 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 SPEAK score is 45 or above. Designed to help nonnative speakers of English communicate effectively as teaching assistants. High-level problems of formal presentations. Activities include giving prepared speeches and leading and participating in discussions. Self and peer feedback provided. P/NP (undergraduates), S/U (graduates), or letter grading.

### Upper Division Courses

**106. Advanced Composition for ESL Students. (4)** Prerequisites: course 36 (C or better) or proficiency demonstrated on English as a Second Language Placement Examination, and an 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.

**107. Advanced Reading and Vocabulary for ESL Students. (4)** Lecture, four hours. Prerequisite: 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.

**108. Pronunciation: Sound System of English. (4)** (Formerly numbered 103.) Lecture, four hours. Prerequisite: course 33B or 33C or 35 or proficiency demonstrated on English as a Second Language Placement Examination. Detailed and systematic study of the 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.

**109. Introduction to Literature for ESL Students. (4)** Lecture, four hours. Prerequisite: 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 the English language. P/NP (undergraduates), S/U (graduates), or letter grading.

**199. Special Studies in English as a Second Language. (4)** Independent studies course for undergraduate and graduate students who desire more advanced or specialized treatment of issues in English as a second language beyond those covered in current courses. May be repeated for credit. See academic coordinator for course contract. P/NP (undergraduates), S/U (graduates), or letter grading.

# ARCHAEOLOGY

Interdepartmental Program  
College of Letters and Science

UCLA  
A148 Fowler Building  
Box 951510  
Los Angeles, CA 90095-1510  
(310) 825-4169  
<http://www.sscnet.ucla.edu/ia>

Sarah P. Morris, Ph.D., *Chair*

## Professors

Jeanne Arnold, Ph.D. (*Anthropology*)  
Jesse L. Byock, Ph.D. (*Germanic Languages*)  
Elizabeth Carter, Ph.D. (*Near Eastern Languages and Cultures*)  
Christopher B. Donnan, Ph.D. (*Anthropology*)  
Susan B. Downey, Ph.D. (*Art History*)  
Steven Lattimore, Ph.D. (*Classics*)  
Sarah P. Morris, Ph.D. (*Classics*)  
Donald A. Preziosi, Ph.D. (*Art History*)  
Dwight Read, Ph.D. (*Anthropology*)  
Lothar von Falkenhausen, Ph.D. (*Art History*)

## Professors Emeriti

C. Rainer Berger, Ph.D. (*Anthropology, Geography, Geophysics*)  
Giorgio Buccellati, Ph.D. (*Ancient Near East, History*)  
Merrick Posnansky, Ph.D. (*History, Anthropology*)  
Henry B. Nicholson, Ph.D. (*Anthropology*)  
James R. Sackett, Ph.D. (*Anthropology*)

## Associate Professors

Irene A. Bierman, Ph.D. (*Art History*)  
Hung-hsiang Chou, Ph.D. (*East Asian Languages and Cultures*)  
Gail E. Kennedy, Ph.D. (*Anthropology*)  
Richard Leventhal, Ph.D. (*Anthropology*)  
Charles Standish, Ph.D. (*Anthropology*)

## Assistant Professors

Richard Lesure, Ph.D. (*Anthropology*)

## 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, zoology, etc.). There are opportunities for participation in a variety of field, laboratory, and computer studies.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official,

specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Archaeology Program offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Archaeology.

## Admission

Because the Archaeology Program is interdisciplinary, any undergraduate major may be considered for admission to the M.A. program, although those applicants who have had little previous archaeological education may be admitted under provisional status and required to take a series of courses to make up deficiencies. A Graduate Record Examination (GRE) General Test report is required of all new applicants. The following application materials should be submitted directly to the chair of the program: an acceptable plan of study (including a statement of objectives, an outline of projected coursework, and a general indication of an M.A. paper); three letters of recommendation; and a research paper preferably relevant to archaeology or comparable evidence of scholarly work. Applicants who have not completed a course in the history of archaeology or in quantitative methods in archaeology are required to take corresponding courses at UCLA. The courses do count toward the minimum course requirements for the degree. Applicants are accepted for admission for Fall Quarter only.

Completion of a master's program is required for the Ph.D. degree in Archaeology. Applicants who do not have a UCLA M.A. in Archaeology should refer to the above requirements. Admission to the Ph.D. program for students completing a UCLA M.A. in Archaeology is based on (1) written recommendation by all three members of the M.A. committee, (2) submission of a plan of study, including projected coursework, choice of foreign language, description of qualifying examination components, and dissertation topics, and (3) quality of the M.A. core examination results and M.A. paper.

Ph.D. students entering the program with an M.A. from another university are required to pass the comprehensive core examination. Students entering with an M.A. from another university are required to demonstrate the ability to read at least one foreign language relevant to the area of interest and approved by their adviser. This requirement may be met by taking a reading examination administered by the program.

The program's *Study Guidelines* brochure is sent on request to the Chair, Archaeology Pro-

gram, A148 Fowler Building, UCLA, Box 951510, Los Angeles, CA 90095-1510.

## Master's Degree

For areas of specialization, see Doctoral Degree.

The M.A. degree is offered through the comprehensive examination plan. A minimum of 42 units (nine courses, five of which must be graduate) is required, including a laboratory-based course and two additional elective graduate courses.

Both theoretical and practical knowledge of methods and techniques used in the field are necessary for required fieldwork.

There is a language requirement for this degree.

## Doctoral Degree

Areas of specialization include Africa; analysis of archaeological materials; ancient Near East; Andean South America; Egypt; Islamic world; Caribbean; China and the Far East; classical Greece and Rome; dating techniques in archaeological sciences; India and Central Asia; Mesoamerica; Pacific; paleoenvironmental studies; Western North America. Other areas of specialization are also available.

Formal course requirements include a graduate-level course in research design and core seminars. Other course requirements are decided by the student's committee.

Both theoretical and practical knowledge of methods and techniques used in the field are necessary for required fieldwork.

Written and oral qualifying examinations are required. The written examination covers three areas: (1) topical specialization, (2) analytical theory, method, and technique, and (3) regional culture history.

Following successful completion of the written examination, students submit a dissertation proposal that includes a particular research problem on which they are examined and take the University Oral Qualifying Examination.

There is a language requirement for this degree.

## Archaeology

### Upper Division Course

**C110. Archaeological Materials Identification and Characterization.** (6) Lecture, three hours; laboratory, four 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.

## Graduate Courses

**M201A-M201B. Graduate Core Seminars: Archaeology. (6-6)** (Same as Anthropology M201A-M201B.) Seminar, three hours. Required of all students. Seminar discussions based on carefully selected list of 30 to 40 major archaeology works. These compulsory core seminars provide students with foundation in breadth of knowledge required of a professional archaeologist. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of the multidisciplinary background of modern archaeology and relevant interpretative strategies. May be repeated for credit with consent of adviser. S/U or letter grading.

**M201C. Regional Analysis in Archaeology. (4)** (Same as Anthropology M211.) Lecture, three hours. Survey of analytical methods used in archaeology to study prehistoric settlement systems. Specific issues include settlement distribution with respect to natural resources, settlement hierarchy, and patterns of exchange. Letter grading.

**M205A. Special Topics in Archaeology. (4)** (Formerly numbered M205.) (Same as Anthropology M212S.) Lecture, three hours. Designed for graduate students in archaeology or in other departments. Open to undergraduates with consent of instructor. Special advanced topics in archaeology such as new strategies, methodologies, excavation projects, regional synthesis, or comparisons on a worldwide basis, including current work by core faculty of the program and special visitors. S/U or letter grading.

**M205B. Special Topics in Archaeology. (6)** (Same as Anthropology M212T.) Lecture, three hours; laboratory, two hours. Advanced laboratory training for graduate students. 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. (6)** Lecture, three hours; laboratory, four 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 the Near East, Mesoamerica, and the 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.

**259. 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. 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 the literature, with specific test cases from actual excavations and site reports. Coverage of theoretical implications of such disciplines as surveying and pedology with the help of specialists. 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. 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.

## Related Courses

Related courses, not listed individually, include regional geography, ancient and regional history, ethnography, folklore, history of technology, and the Earth sciences. Also recommended are the appropriate modern and ancient languages for the area of study.

Most archaeology courses are taught in the various departments. The following is a list of such courses, by topic and department. Students are encouraged to examine the course listings of all departments for a truly interdisciplinary course of study.

## Methodology and History

### Ancient Near East (Near Eastern Languages)

261. Practical Field Archaeology

### Anthropology

M115A-M115B. Historical Archaeology

115P. Archaeological Field Training

C115R. Strategy of Archaeology

117. Archaeological Laboratory Methods

117P. Selected Laboratory Topics in Archaeology

117Q. Intensive Laboratory Training in Archaeology

121A. Primate Fossil Record

121B. Australopithecines

121C. Evolution of Genus *Homo*

132. Technology and Environment

138. Methods and Techniques of Ethnohistory

158. Hunting and Gathering Societies

180. Quantitative Methods in Anthropology

183. History of Archaeology

186. Models and Modeling in Anthropology

210. Analytical Methods in Archaeological Studies

M211. Regional Analysis in Archaeology

217. Explanation of Societal Change

221A-221B. Fossil Evidence for Human Evolution

283. Formal Methods of Data Analysis in Anthropology

### Art History

C203A-C203B. Museum Studies

265. Fieldwork in Archaeology

## New World

### Anthropology

113P. Archaeology of North America

113Q. Prehistory and Ethnography of California

113R. Southwestern Archaeology

114P. Ancient Civilizations of Western Middle America (Nahuatl Sphere)

114Q. Ancient Civilizations of Eastern Middle America (Maya Sphere)

114R. Ancient Civilizations of Andean South America

212P. Selected Topics in Hunter/Gatherer Archaeology

212Q. Problems in Southwestern Archaeology

214. Selected Topics in Prehistoric Civilizations of the New World

215. Field Training in Archaeology

219. Complex Hunters/Gatherers in Theoretical Perspective

### Art History

C117A. Pre-Columbian Art of Mexico

C117B. Pre-Columbian Art of the Maya

C117C. Pre-Columbian Art of the Andes

118A. Arts of Oceania

118D. Arts of Native North America

220. Oceanic, Pre-Columbian, African, and Native North American Art

## Old World: Africa

### Art History

118C. Arts of Sub-Saharan Africa

C119A. Advanced Studies in African Art: Western Africa

C119B. Advanced Studies in African Art: Central Africa

220. Oceanic, Pre-Columbian, African, and Native North American Art

### History

M175A. Topics in African History: Prehistoric Africa — Technological and Cultural Traditions

197A-197Z. Undergraduate Seminars

201A-201U. Topics in History

## Old World: Europe

### Anthropology

112. Old Stone Age Archaeology

213. Selected Topics in Old World Archaeology

### Art History

M102A. Minoan Art and Archaeology

M102B. Mycenaean Art and Archaeology

M102C. Archaic Greek Art and Archaeology

M102D. Classical Greek Art and Archaeology

M102E. Hellenistic Greek Art and Archaeology

M102F. Etruscan Art

M102G. Roman Art and Archaeology

M102H. Late Roman Art

221. Topics in Classical Art

223. Classical Art

### Classics

M153A. Minoan Art and Archaeology

M153B. Mycenaean Art and Archaeology

M153C. Archaic Greek Art and Archaeology

M153D. Classical Greek Art and Archaeology

M153E. Hellenistic Greek Art and Archaeology

M153F. Etruscan Art

M153G. Roman Art and Archaeology

M153H. Late Roman Art

251A-251D. Seminars: Classical Archaeology

252. Topography and Monuments of Athens

253. Topography and Monuments of Rome

### Indo-European Studies

131. European Archaeology: Proto-Civilizations of Europe

132. European Archaeology: Bronze Age

250A-250B. European Archaeology

## Old World: India and the Far East

### Art History

114A. Early Art of India

114C. Japanese Art

114D. Later Art of India

114E. Arts of Korea

114F. Arts of Southeast Asia

C115A. Advanced Indian Art

C115B. Advanced Chinese Art

C115C. Advanced Japanese Art

C115D. Art and Material Culture, Neolithic to 210 B.C.

C115E. Art and Material Culture of Early Imperial China, 210 B.C. to A.D. 906

C115F. Art and Material Culture of Late Imperial China, 906 to 1911

C259. Advanced Japanese Art

260A. Indian Art

260B. Chinese Art

260C. Japanese Art

**Chinese (East Asian Languages)**

190. Archaeology in China

290A-290B. Seminars: Selected Topics in Chinese Archaeology

295A-295B. Seminars: Selected Topics in Chinese Cultural History

**Old World: Islam**

**Art History**

104A. Western Islamic Art

104B. Eastern Islamic Art

C104C. Problems in Islamic Art

213. Advanced Studies in Islamic Art

**Old World: Near East**

**Ancient Near East (Near Eastern Languages)**

160A-160B. Introduction to Near Eastern Archaeology

161A-161B-161C. Archaeology of Mesopotamia

162. Archaeology and Religion of the Holy Land

163A-163B. Archaeology of Iran

164A-164B-164C. Archaeology of Historic Periods in Mesopotamia

220. Seminar: Ancient Egypt

M250. Seminar: Ancient Mesopotamia

250X. Seminar: Ancient Mesopotamia

260. Seminar: Ancient Near Eastern Archaeology

262. Seminar: Object Archaeology

**Anthropology**

110. World Archaeology

**Art History**

101A. Egyptian Art and Archaeology

101B. Egyptian Art and Archaeology of the Middle and New Kingdoms

210. Egyptian Art

**History**

M105. History of Ancient Mesopotamia and Syria

193D. Religions of the Ancient Near East

200A-200U. Advanced Historiography

201A-201U. Topics in History

Richard S. Weinstein, M.A.

**Professors Emeriti**

Marvin Adelson, Ph.D.

Samuel Aroni, Ph.D.

Baruch Givoni, Ph.D.

F. Eugene Kupper, M.Arch.

Murray A. Milne, M.Arch.

Richard Schoen, M.Arch.

Thomas R. Vreeland, Jr., M.Arch.

**Associate Professor**

George Rand, Ph.D.

**Assistant Professor**

Kostas Terzidis, Ph.D.

**Studio Professor**

Greg Lynn, M.Arch.

**Adjunct Professors**

Barton Phelps, M.Arch.

Robert J. Yudell, M.Arch.

**Scope and Objectives**

The Department of Architecture and Urban Design at UCLA offers four degree programs tailored to the needs of different groups of students: M.Arch. I, M.Arch. II, M.A., and Ph.D.

M.Arch. I is a three-year first professional degree program which is 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.

**Graduate Study**

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

**Graduate Degrees**

The Department of Architecture and Urban Design offers the Master of Architecture I (M.Arch. I) and Master of Architecture II (M.Arch. II) degrees, and the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Architecture.

**Admission**

**Master of Architecture I**

The M.Arch. I program accepts applications from students holding a bachelor's degree or its equivalent, comparable in standard and content to a bachelor's degree from the University of California. The program accepts applications from students with a broad diversity of backgrounds. Although no formal training in architecture is required, first-year classes assume some familiarity with the history and culture of architecture, possession of basic graphics skills, and understanding of fundamental concepts of mathematics and physics.

Applicants are also strongly advised to become familiar with basic works in the history and theory of architecture before entering the program. Therefore, applicants must have taken at least one college-level course in each of the following areas: Newtonian physics, mathematics (covering algebra plus geometry or trigonometry), a university survey of the history of architecture (minimum one semester or two quarters) encompassing examples from antiquity to the present, and drawing or basic design.

Applicants should contact the graduate adviser for further information on these requisites. The admissions committee considers applications from those who do not have these requisites at the time of application. Such applicants must specify how they plan to complete the requisites before entry into the program. The graduate adviser can provide guidance on how to do so. Admission is only offered on the condition that the applicant produce satisfactory evidence of having completed requisites before commencing classes. Instructors may test background in these areas before admitting students to certain courses. If applicants lack this necessary proficiency, they may need to spend an additional year fulfilling curricular requirements. Students who have had previous architectural training may be allowed to waive certain courses.

**ARCHITECTURE AND URBAN DESIGN**

*School of the Arts and Architecture*

UCLA  
1317 Perloff Hall  
Box 951467  
Los Angeles, CA 90095-1467

(310) 825-0525, 825-7857  
<http://www.aud.ucla.edu/>

Sylvia Lavin, Ph.D., *Chair*

**Professors**

Dana Cuff, Ph.D.

Diane Favro, Ph.D.

Thomas S. Hines, Ph.D.

Craig Hodgetts, M.Arch.

Jurg Lang, Dipl.Arch.

Sylvia Lavin, Ph.D.

Robin Liggett, Ph.D.

Mark Mack, M.Arch.

Thom Mayne, M.Arch.

Barton Myers, M.Arch.

Ben Refuerzo, M.Arch.

Dagmar Richter, Dipl.Arch.

Anthony Vidler, Dipl.Arch.

Applicants are required to submit three letters of recommendation, academic transcripts, Graduate Record Examination (GRE) test scores, a statement of purpose, and a creative portfolio. In addition to the *UCLA Application for Graduate Admission*, the Departmental Supplement must be submitted; it is available from the Admissions Office, Department of Architecture and Urban Design, School of the Arts and Architecture.

The M.Arch. I program is a full-time program and does not accept part-time students. All new students must enter in Fall Quarter. Additional information about the program may be obtained by writing directly to the departmental admissions officer.

For applicants whose native language is not English, a score of at least 580 (paper and pencil test) or 237 (computer-based test) on the Test of English as a Foreign Language (TOEFL) or an overall band score of 7.0 on the International English Language Testing System (IELTS) examination is required for admission. In addition, on arrival at UCLA students are required to take the English as a Second Language Placement Examination (ESLPE) and, beginning in the first quarter of residence, to take any English as a Second Language courses needed, as determined by the results of the ESLPE. Because such courses do not count toward the minimum coursework requirement, students required to take them must expect to spend additional time in residence.

### **Architecture M.Arch. I/Urban Planning M.A.**

The Department of Architecture and Urban Design and the Department of Urban Planning offer a concurrent plan of study providing an integrated curriculum for architects interested in specializing in social, economic, and environmental policy issues and for urban planners interested in integrating architecture and urban design into policy and planning practice. Education in planning offers an overview of theories and methods that permit identification and treatment of urban problems; education in architecture stresses physical, aesthetic, and technical issues in the design of buildings and building complexes. In the program, students pursue studies in both schools/departments and receive both the M.Arch. I and the M.A. in Urban Planning at the end of four years.

Students who are interested in the concurrent degree program must apply and be admitted to the M.Arch. I program in the Department of Architecture and Urban Design and to the M.A. program in the Department of Urban Planning. For additional information, contact the graduate advisers in both departments.

### **Master of Architecture II**

The M.Arch. II is a second professional degree program in architecture and urban design. The degree can be completed in four quarters in residence. The program combines advanced theoretical studies and professional applications. It emphasizes advanced studies in archi-

ture and urban design and requires that applicants hold a five-year Bachelor of Architecture degree or the equivalent.

Applicants are required to submit three letters of recommendation, academic transcripts, Graduate Record Examination (GRE) test scores, a statement of purpose, and a creative portfolio. In addition to the *UCLA Application for Graduate Admission*, the Departmental Supplement must be submitted. It is available from the Admissions Office, Department of Architecture and Urban Design, School of the Arts and Architecture.

For applicants whose native language is not English, see English entrance requirements under Master of Architecture I.

### **M.A. in Architecture**

The M.A. program offers an academic degree and prepares students to do specialized research or teaching in fields related to the architecture profession. Applicants are required to hold a baccalaureate degree (or its equivalent) comparable in standard and content to a bachelor's degree from the University of California. Applicants should possess the experience and knowledge that would allow advanced research in whatever aspect of architecture they plan to explore within the context of the M.A. program.

Applicants are required to submit three letters of recommendation, academic transcripts, a statement of purpose, Graduate Record Examination (GRE) test scores, and a creative portfolio. In addition to the *UCLA Application for Graduate Admission*, the Departmental Supplement must be submitted. It is available from the Admissions Office, Department of Architecture and Urban Design, School of the Arts and Architecture.

For applicants whose native language is not English, see English entrance requirements under Master of Architecture I.

It may be possible for an M.A. student in Architecture to petition to transfer from the M.A. to the Ph.D. program. See below.

### **Ph.D. in Architecture**

Applicants to the Ph.D. program must hold a bachelor's degree from an accredited college or university and should have completed a first professional degree in architecture (a five-year Bachelor of Architecture degree or a professional Master of Architecture degree). Applicants who hold degrees in other fields also are encouraged to apply; however, at the discretion of the Ph.D. program committee, they may be required to complete specific coursework in the department as a condition of admission.

Applicants must meet admission requirements of the Graduate Division and the department. The application dossier must include (1) a short biographical résumé, (2) transcripts of academic record, (3) examples of research and/or creative work, (4) three letters of recommendation, (5) statement of purpose and proposed program of studies, and (6) Graduate

Record Examination (GRE) scores. Where feasible, the Ph.D. program committee may require an interview.

For applicants whose native language is not English, see English entrance requirements under Master of Architecture I.

Admission to the program is granted to a small group each year, according to the following criteria:

1. Evidence of capacity for original scholarship and research in architecture, and ability to achieve eminence in the field
2. Demonstration of an outstanding academic record through the evidence of grades (3.5 minimum grade-point average), GRE scores, and references
3. Demonstration of adequate communication skills, particularly in writing, in the work submitted
4. Presentation of a clear and realistic statement of purpose

Continuing students may petition to transfer from the M.A. to the Ph.D. program before completion of the M.A. thesis, but approval is granted only in exceptional cases. Students should consult their primary adviser to determine the feasibility of transfer from one degree program to another. If the primary adviser so recommends, an M.A. student may petition the Ph.D. program committee at the end of the fourth quarter. The request must be accompanied by a current transcript, a research sample, a research proposal, and a short written report by the primary adviser. Based on these materials the Ph.D. program committee recommends one of the following: (1) immediate admission into the Ph.D. program, (2) completion of a thesis leading to an M.A. degree and the option thereafter to apply separately for admission into the Ph.D. program, or (3) the student takes a terminal M.A. degree.

## **Master's Degrees**

### **Master of Architecture I**

The M.Arch. I degree is offered through the comprehensive examination plan, which includes a formal presentation of the final design project or a formal presentation of the final design project and submission of an exit document. A minimum of 124 units of coursework is required of which at least 24 four-unit courses must be taken at the graduate level. Required coursework includes core courses, design studios, critical studies, and electives.

### **Master of Architecture II**

Areas of study are design, technology, and critical studies in architectural culture.

The M.Arch. II degree is offered through the comprehensive examination plan, which includes a formal presentation of the final design project or a formal presentation of the final design project and submission of an exit document. A minimum of 50 units of coursework is required, 38 units of which must be at the grad-

uate level. All students are required to take at least three advanced studios and a minimum of six electives.

### M.A. in Architecture

Students are required to focus their work on a specific academic area or professional issue. Specializations are currently available in critical studies in architectural culture and technology. In addition, students have the option of the open M.A. whereby they structure their own area of interest from the courses offered by the department.

The M.A. degree is offered through the thesis plan. Students are required to complete a minimum of 16 courses (64 units) of graduate or upper division work. At least five of the courses must be 200-series courses and at least two must be 500-series courses.

### Doctoral Degree

#### Ph.D. in Architecture

Students are required to undertake a program of study that includes one major area, either critical studies in architectural culture or technology. Majors outside these areas, or a combination of the two, may be undertaken, subject to the approval of the Ph.D. program committee, if supported by qualified departmental faculty members who are available and willing to provide the necessary instruction and guidance. Students are required to include in the program of study at least one minor field, which must be chosen from outside the department.

In general, students are required to take sufficient coursework to provide adequate preparation for the qualifying examinations and the dissertation. All candidates are required to complete 72 units of graduate coursework, half of which must be in architecture and urban design.

Students admitted to the Ph.D. program without a professional degree in architecture are required to take at least another 24 units of graduate-level courses in architecture and urban design, as recommended by the adviser and approved by the Ph.D. program committee.

Students who hold a professional degree in architecture before admission to the program are required to complete four quarters in residence and 48 units of coursework in order to establish eligibility to take the qualifying examinations.

Students who hold an M.Arch. I, M.Arch. II, or M.A. degree in Architecture from the department may petition the Ph.D. program committee to reduce these course requirements to a minimum of three quarters in residence and 36 units of coursework.

Written and oral qualifying examinations are required. The purpose of the examinations is to demonstrate a broad mastery of the field of architecture, required levels of competence in the major and minor fields, and the appropri-

ateness of and adequate preparation for the proposed dissertation topic. Students take a written and oral examination in the major field.

Following successful completion of these examinations, students take the University Oral Qualifying Examination, which focuses primarily on the subject of the proposed dissertation.

There is a language/quantitative studies requirement for this degree.

## Architecture and Urban Design

### Lower Division Course

**88. Lower Division Seminar: Special Topics in Architecture and Urban Design. (4)** Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in architecture and urban design approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

### Upper Division Courses

**M190. Human Environment: Introduction to Architecture and Urban Planning. (4)** (Same as Urban Planning M190.) Lecture, three hours; outside study, nine hours. Kinds of problems that arise in creating and maintaining an 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 the human-made to the natural environment. Students encouraged to comprehend major urban issues both as citizens and as potential technical experts.

**CM191. Introduction to Sustainable Architecture and Community Planning. (4)** (Formerly numbered C191.) (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 C247A. Letter grading.

**C192. Modern and Postmodern Architecture. (4)** Lecture, three hours. Examination of 20th-century architecture from revolutionary concepts of modern movement, including manifestations in international style, to current transcendence of that movement with postmodernism and a resurgent new modernism. Concurrently scheduled with course C282B.

**C193. City Studies: Culture and City Form. (4)** Lecture, three hours. Design of cities from early times to the present, with special emphasis on great 19th- and 20th-century cities of Europe and America. Establishment of basic principles of good city design. Discussion of current theories of city design. Concurrently scheduled with course C280.

**194A-194B. History of Architecture and Urban Design. (4-4)** Lecture, three hours. Consideration of architectural and urban projects in relation to their theoretical, philosophical, and sociopolitical contexts, including issues of gender and diversity. **194A.** Introduction to history of architecture and urban design from prehistory to age of mannerism. Discussion of world at large, analyzing synchronic architectural and urban solutions. **194B.** Introduction to history of architecture and urban environments from Baroque period to the present.

**199. Special Studies. (2 to 8)** Independent research or investigation on a selected topic to be arranged with a faculty member. May be repeated for credit.

## Graduate Courses

**201. Theories of Architecture. (4)** (Formerly numbered 201A.) 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 the nature of speculative inquiry in an architectural context.

**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.

**M225A-M225B-M225C. Fundamentals of Architectonics. (4-4-4)** (Same as Design | Media Arts CM221, CM222, CM223.) Lecture, three hours; outside study, nine hours. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. May be repeated for credit with consent of adviser. S/U or letter grading. **M225A.** Proportion; **M225B.** Symmetry; **M225C.** Compartment and Order.

**226A. Introduction to Computer-Aided Architectural Design, Two-Dimensional. (4)** Lecture, three hours; laboratory, one hour. Concepts of hardware, software, and networks; paint, draft, multimedia, DTP, and presentation programs; CAD in an office environment.

**226B. Introduction to Computer-Aided Architectural Design, Three-Dimensional. (4)** Lecture, three hours; laboratory, one hour. Concepts of three-dimensional space, modeling, and virtual reality; file formats; modeling, rendering, and animation programs; video conference.

**226C. Computer Visualization. (4)** Lecture, three hours. Designed for graduate students. Concept and techniques of computer visualization of artifacts, including realistic rendering and animation.

**M227A. Programming Computer Applications in Architecture and Urban Design. (4)** (Same as Design | Media Arts CM241.) 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.

**M227B. Introduction to Geometric Modeling. (4)** (Same as Design | Media Arts CM242.) 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 | Media Arts CM243.) 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.

**242. Climate Responsive Design. (4)** Preparation: professional degree in architecture. Theory and method of design of buildings which specifically respond to local climate; intensive course in building climatology for advanced graduate studies students.

**243. Energy Modeling. (4)** Preparation: one course in building climatology and one course in environmental controls. Geometric description of a building and computerized modeling of its instantaneous energy flows, using one of the large energy analysis computer programs such as DOE 2.1B.

**C247A. Introduction to Sustainable Architecture and Community Planning.** (4) 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 CM191. Letter grading.

**247B. Energy/Resource-Conserving Solar Design and Practice.** (4) Lecture, three hours. Preparation: one climatology course. Requisite: course C247A. Extension of concepts and sizing of integrated systems introduced in course C247A; stand-alone approaches particularly in developing countries; impacts of global warming, deforestation on architecture; recycling; programming for project studio 403B.

**248A-248B. Passively Integrated Solar Systems.** (4-4) Requisites: courses 242, 442. Analysis of different passively integrated solar systems for heating and cooling buildings, considering their anticipated performance and suitability for different climates and building types. Focus on quantitative aspects, including calculations of performance in terms of energy saving and expected indoor comfort conditions. **248A.** Heating; **248B.** Cooling.

**255A-255B. Climatic Issues in Urban Design.** (4-4) Seminar, three hours. In-depth examination of impact of urban design (e.g., urban density, urban profile, public parks) on some aspect of urban climate, such as urban temperature, wind field, solar radiation availability, etc.

**M259. Advanced Real Estate Development for Planners and Architects.** (4) (Same as Urban Planning M259.) Discussion, three hours. Requisite: Urban Planning 216. Review of basic site planning and design, with emphasis on how development plans (including proposed design solutions) are iteratively modified to achieve economic and political feasibility. Organized as a studio to produce a buildable project, including design and finance plans, for a client. S/U or letter grading.

**271. Elements of Urban Design.** (4) 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.

**M272. Real Estate Development and Finance.** (4) (Same as Urban Planning M272.) Lecture, two hours; workshop, two hours; outside study, eight hours. 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 which are interactively modified to meet economic feasibility tests. S/U or letter grading.

**C280. City Studies: Culture and City Form.** (4) Lecture, three hours. Design of cities from early times to the present, with special emphasis on great 19th- and 20th-century cities of Europe and America. Establishment of basic principles of good city design. Discussion of current theories of city design. Concurrently scheduled with course C193.

**C282B. Modern and Postmodern Architecture.** (4) Lecture, three hours. Examination of 20th-century architecture from revolutionary concepts of modern movement, including manifestations in international style, to current transcendence of that movement with postmodernism and a resurgent new modernism. Concurrently scheduled with course C192.

**283. Special Topics in Modern Architecture.** (4) Lecture, three hours. Exploration of topics central to development of modern architecture. Examination of themes such as modernism and psychoanalysis, architecture and environment, modern domestic architecture, and windows, mirrors, and glass in modern architecture through readings from literary, artistic, theoretical, and architectural sources.

**284. Architectural Culture of the French Enlightenment.** (4) Lecture, three hours. Exploration of French architectural culture of the 18th century. Examination of urban places and activities, intersection of new social and architectural formations, transformation of architectural institutions, and developments in theories of architecture, as well as techniques of their dissemination.

**286A-286B. Ancient Architecture.** (4-4) Lecture, three hours. Study of architectural developments from archaic Greece to the late Roman Empire. Examination of ancient buildings as functional constructs whose appearance was determined by aesthetic, religious, social, political, urban, and technological factors.

**287. Architecture in Europe and the Middle East, 400 to 1500.** (4) Lecture, three hours. Study of East/West relationships, cultural concerns, and social interactions as seen through some major urban and architectural developments in Europe and the Middle East.

**288A-288B. Renaissance and Baroque Architecture.** (4-4) Lecture, three hours. Examination of European architecture from the 15th to 17th century, with primary focus on developments in the Italian peninsula. Examination of Renaissance and baroque structures contextually, exploring changing cultural and theoretical values as well as aesthetic characteristics.

**289. Special Topics in Architecture and Urban Design.** (2 to 4) Selected academic topics initiated by students, student teams, or faculty and directed by a faculty member. May be repeated for credit.

**290. Landscape Studies.** (4) Lecture, three hours. Introduction to cultural geography of American built environment. Exploration of key issues through case studies of settlement patterns, vernacular and political landscapes, origin myths, Enlightenment rationales, technological change, market forces, historic preservation, gardens, horticulture, and landscape design. 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.

**292. Social Meaning of Space.** (4) Discussion, three hours. Evolution of concept of space from its origins in ritual and primitive social organizations, concentrating on the child's evolving conception of space, literature on perceptual development, and studies of adaptation to spatial order of the human-made environment.

**293. Politics, Ideology, and Design.** (4) 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 a set of varied physical environments and to a 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.

**294A-294B. Environmental Psychology.** (4-4) Lecture, three hours. Introduction to models, concepts, and theories concerning impact of the environment on human behavior, perception, and thought. Review of research results concerning space perception, cognitive mapping, preferences and attitudes toward the environment, effects of crowding and stress, personal space and territoriality.

**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.

**298A-298B-298C. Research Practicum in Architecture.** (2 to 4 each) (4) (Formerly numbered 298A-298D.) In-depth examination of research methods in the various major fields. May be repeated for credit. **298A.** Research Practicum in Critical Studies in Architectural Culture; **298B.** Research Practicum in Technology; **298C.** Research Practicum in Design Theory and Methods.

**375. Teaching Apprentice Practicum.** (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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 a lottery) from a number of 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) (Not the same as course 402 prior to Fall Quarter 1999.) 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 a lottery) from a number of 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.

**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 a 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.

**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 a manipulative exercise which allows for experimentation of its intrinsic possibilities, students undertake a series of closely controlled exercises dealing with combining the 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 a 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 a single building project. Letter grading.

**428. Advanced Architectural Drawing.** (4) Discussion, three hours; studio, three hours. Emphasis on exploration of interrelationship between drawing and design. Development of more advanced design strategies and modes of graphic exploration and presentation.

**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.

**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.



**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.

**436. Introduction to Building Construction. (2)** (Not the same as course 436 prior to Fall Quarter 1999.) 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)** (Not the same as course 437 prior to Fall Quarter 1999.) 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 a range of technical systems. Letter grading.

**441. Environmental Control Systems. (4)** 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 a building.

**442. Building Climatology. (4)** Preparation: basic physics. Design of buildings which 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.

**444. Light and the Visual Environment. (4)** Preparation: one course in building climatology. Exploration of extent to which physical form of a building controls the luminous environment of its occupants; design of naturally and artificially illuminated interior spaces; parameters of human visual comfort.

**448. Communication and Diffusion of Innovation. (4)** Seminar, three hours. Innovation in the building industry and design professions. Successful creation and introduction of innovative products, processes, and technologies. Students expected to contribute to the meager literature of the field through case studies and projects. Visitors and field trips.

**461. Architectural Practice. (4)** Seminar, three hours. Historical development of the 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.

**496. Special Projects in Architecture. (2 to 8)** Projects initiated either by individual students or student teams and directed by a faculty member. May be repeated for credit.

**497. Special Projects in Urban Design. (2 to 8)** Projects initiated either by individual students or student teams and directed by a faculty member. May be repeated for credit.

**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)** 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)** May be repeated for credit. S/U grading.

**597. Preparation for Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8)** May be repeated for credit. S/U grading.

**598. Preparation in Architecture/Urban Design for Master's Thesis. (2 to 8)** May be repeated for credit. S/U grading.

**599. Ph.D. Dissertation Research in Architecture. (2 to 8)** Limited to doctoral students. May be repeated for credit. S/U grading.

## ART

*School of the Arts and Architecture*

UCLA  
1300 Dickson Art Center  
Box 951615  
Los Angeles, CA 90095-1615  
(310) 825-3281  
<http://www.art.ucla.edu>

Barbara Drucker, M.F.A., *Chair*

### Professors

John Baldessari, M.A.  
Chris Burden, M.F.A.  
Barbara Drucker, M.F.A.  
Roger Herman, M.F.A.  
Henry T. Hopkins, M.A.  
Mary Kelly, M.A.  
Paul McCarthy, M.F.A.  
Lari Pittman, M.F.A.  
Charles Ray, M.F.A.  
Nancy Rubins, M.F.A.  
Adrian Saxe, B.F.A.  
James Welling, M.F.A.

### Professors Emeriti

Samuel Amato, B.F.A.  
William J. Brice  
Raymond B. Brown, M.A.  
Elliot J. Elgart, M.F.A.  
Robert F. Heinecken, M.A.

### Associate Professor

Patricia Wickman, M.F.A.

### Lecturer

Don Suggs, M.F.A.

### Adjunct Assistant Professor

Juli Carson, Ph.D.

## Scope and Objectives

The Department of Art offers professional art training which 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 and Master of Fine Arts degrees are offered in painting and drawing, new genres, photography, sculpture, and ceramics. An interdisciplinary studio option is offered within the M.F.A. program. In addition, a Master of Arts degree is offered in critical and curatorial studies. 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.

## Undergraduate Study

### Art B.A.

#### Preparation for the Major

*Required:* Art 1A, 1B, 11A, 11B, 11D, 11E, 31A, 31B, 32, and one course from Art History 50, 51, 54, 55A, 55B, 56A, 56B, 57.

## The Major

*Required:* A minimum of 13 upper division courses, including Art 100, 150, six courses from at least four of the following: 130, 133, 137, 140, 145, 147, 148, one course from Art History 101A through C119B, and four art electives.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Art offers the Master of Arts (M.A.) and Master of Fine Arts (M.F.A.) degrees in Art.

## Admission

### M.A. in Art

Students are admitted to the M.A. program in Fall Quarter only. Admission requires a bachelor's degree or the equivalent and faculty approval following a review of the application. Applicants with bachelor's degrees in art or art history are preferred, but those from a diversity of specializations and backgrounds also are encouraged to apply.

Applicants are required to submit a statement of purpose, a writing sample (a brief exhibition or public program proposal, a published criticism, or a short research paper), and a slide portfolio of curatorial work (if applicable). Entry into the program is conditional on having taken the following UCLA courses or their equivalent in coursework or experience in the field: World Arts and Cultures 185A, 185B, and 185C. Applicant finalists should be available for an interview.

### M.F.A. in Art

Students are admitted to the M.F.A. program in Fall Quarter only. Admission requires a bachelor's degree or the equivalent and approval of the faculty following a review of the application. Applicants are evaluated on their creative work and must submit slides (maximum of 20) or videotape (if applicable).

## Master's Degrees

### M.A. in Art

Areas of study include critical and curatorial studies. Students are expected to focus on a specific professional issue and genre of exhibition appropriate to it. The program offers a curatorial option in public programs.

The M.A. degree is offered through the comprehensive examination plan, which includes a formal exhibition or public program, photo records (if appropriate), and the curatorial statement of purpose. A minimum of 36 quarter units is required, 20 at the graduate level.

### M.F.A. in Art

Areas of study include painting and drawing, sculpture, photography, ceramics, new genres, and interdisciplinary studio. There are no limits to the variations, extent, or value of these designations.

The M.F.A. degree is offered through the comprehensive examination plan and is awarded on the basis of the quality of the student's work as demonstrated in the exhibition which accompanies the comprehensive examination, not on the basis of the number of units of credit the student completes.

A minimum of 72 units is required, including 40 units in the 200 series. A minimum of 40 quarter units of art history in undergraduate or graduate study is required. Art history courses completed as an undergraduate count toward fulfilling the department's 40-unit art history requirement but do not count toward the 72 units required for the degree.

## Art

### Lower Division Courses

**1A. Drawing. (4)** Studio, eight hours; five hours arranged. Course in basic drawing skills intended as preparation for work in a variety of media.

**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.

**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 the photographic medium within the 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 a 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. (4)** (Formerly numbered 31.) Discussion, three hours. Survey of 20th-century European/American art, its antecedents, and its social and political context. Letter grading.

**31B. Modernism. (4)** Discussion, three hours. Requisite: course 31A. Continuation of course 31A, with focus primarily on latter half of the 20th century. Letter grading.

**32. Survey of Critical Thought. (4)** Discussion, three hours. Overview of premodern, modern, and postmodern theory as reflected in critical writing and artistic practice, with emphasis on the 1940s to the present.

### Upper Division Courses

**100. Issues in Contemporary Art. (4)** Discussion, three hours. Requisites: courses 31A, 31B, 32. Selected topics in theoretical, critical, aesthetic, and historical studies and their relevance to practicing artists. May be repeated for a maximum of 16 units. Letter grading.

**130. Advanced Drawing. (4)** Studio, eight hours; five hours arranged. Requisite: course 1A. Drawing as both an independent expressive medium and as a means of visualization. May be repeated for a maximum of 16 units. Letter grading.

**133. Advanced Painting. (4)** Studio, eight hours; five 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 a maximum of 16 units. Letter grading.

**137. Advanced New Genres. (4)** Studio, eight hours; five hours arranged. Requisite: course 11D. Emphasis to be selected by faculty from one or more of the following media: installation, performance, video, film, other non-traditional media and processes. May be repeated for a maximum of 16 units. Letter grading.

**140. Advanced Printmaking. (4)** Studio, eight hours; five 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 a maximum of 16 units. Letter grading.

**145. Advanced Sculpture. (4)** Studio, eight hours; five 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 non-studio pieces. May be repeated for a maximum of 16 units. Letter grading.

**147. Advanced Photography. (4)** Studio, eight hours; five 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 a maximum of 16 units. Letter grading.

**148. Advanced Ceramics. (4)** Studio, eight hours; five 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 a range of possibilities, including handforming and modeling, preparation and use of molds, slipcasting, and use of potter's wheel. May be repeated for a maximum of 16 units. Letter grading.

**150. Senior Studio. (4)** Studio, eight hours; five hours arranged. Limited to seniors. Advanced studio projects, with emphasis on analysis and criticism of individual creative work and ideas. May be repeated once for credit. 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 an 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 which 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.

**M186A. Beyond the Mexican Mural: Beginning Muralism and Community Development. (4)** (Same as Chicana and Chicano Studies M186A and World Arts and Cultures M125A.) Studio/lecture, six hours. Corequisite: course M186AL. Investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a community. Students research, design, and work with community participants. P/NP or letter grading.

**M186AL-M186BL-M186CL. Beyond the Mexican Mural: Muralism and Community Laboratory. (2-2-2)** (Same as Chicana and Chicano Studies M186AL-M186BL-M186CL and World Arts and Cultures M125AL-M125BL-M125CL.) Laboratory, two hours. Course M186AL is requisite to M186BL, which is requisite to M186CL. Mural and Digital Laboratory is an art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in a 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 a community setting. P/NP or letter grading. **M186AL.** Beginning; **M186BL.** Intermediate; **M186CL.** Advanced.

**M186B. Beyond the Mexican Mural: Intermediate Muralism and Community Development. (4)** (Same as Chicana and Chicano Studies M186B and World Arts and Cultures M125B.) Studio/lecture, six hours. Requisites: courses M186A, M186AL. Corequisite: course M186BL. Continuation of investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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 the 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 a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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.

**M188. Whose Monument Where: Course on Public Art. (4)** (Same as Chicana and Chicano Studies M188 and World Arts and Cultures M126.) Lecture, four hours. Recommended corequisite: course M186A, M186B, or M186C. Examination of public monuments in the U.S. as a basis for cultural insight and critique of American values from perspective of an artist. Use of urban Los Angeles as textbook in urban space issues such as who is the "public," what is "public space" at the end of the 20th century, what defines a neighborhood, and do different ethnic populations use public space differently. P/NP or letter grading.

**189. Special Topics in Studio. (4)** Studio/museum visits, eight hours; four hours arranged. Limited to junior/senior Art majors. 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 once. Letter grading.

**197. Honors Course. (4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average overall, 3.5 grade-point average in major. Limited to juniors/seniors. Individual studies for majors. May be repeated once for credit. P/NP or letter grading.

**199. Special Studies in Art. (2 to 8)** Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to seniors. Individual studies for majors. May be taken for a maximum of 8 units. P/NP or letter grading.

### Graduate Courses

**271. Painting. (2 to 8)** Studio, eight hours. Study in painting and associated media. May be repeated for credit with consent of adviser.

**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.

**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.

**274. 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.

**275. New Genre. (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.

**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.

**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 a significant body of original work reflecting student's expressive and theoretical concerns. May be repeated for credit.

**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.

**280. Graduate Seminar: Art. (4)** Discussion, 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.

**C281. Exhibition and System. (4)** (Formerly numbered 281.) Seminar, four hours. Examination of temporary exhibition and its associated field of publications as an 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)** (Formerly numbered 282.) 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)** (Formerly numbered 283.) Seminar, six hours (2-unit course) or 12 hours (4-unit course). Selected topics in art explored through variety of approaches which 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.

**375. Teaching Apprentice Practicum (1 to 4).** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. 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)** 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. (2 to 12)** Tutorial, to be arranged. May not be applied toward M.A. course requirements. May be repeated. S/U grading.

## ART HISTORY

*College of Letters and Science*

UCLA  
100 Dodd Hall  
Box 951417  
Los Angeles, CA 90095-1417  
(310) 206-6905  
<http://www.humnet.ucla.edu/humnet/artist/ArtHistoryHome.html>

Anthony Vidler, Dipl.Arch, *Chair*

### Professors

Albert Boime, Ph.D.  
Robert L. Brown, Ph.D.  
Susan B. Downey, Ph.D.  
Mary Kelly, M.A.  
Cecelia F. Klein, Ph.D.  
David M. Kunzle, Ph.D.  
Donald F. McCallum, Ph.D.  
Donald A. Preziosi, Ph.D.  
Debra L. Silverman, Ph.D.  
Anthony Vidler, Dipl.Arch.  
Lothar von Falkenhausen, Ph.D.  
Cécile Whiting, Ph.D.  
Joanna Woods-Marsden, Ph.D.

### Professors Emeriti

Katharina Otto-Dorn, Ph.D.  
Carlo Pedretti, M.A. (*Armand Hammer Professor Emeritus of Leonardo Studies*)

### Associate Professors

Irene A. Bierman, Ph.D.  
Zoë S. Strother, Ph.D.

### Assistant Professors

Burglind Jungmann, Ph.D.  
Miwon Kwon, Ph.D.  
Hui Shu Lee, Ph.D.  
Steven D. Nelson, Ph.D.  
Charlene Villaseñor Black, Ph.D.

### Lecturers

Shelley M. Bennett, Ph.D.  
Jean S. Weisz, Ph.D., *Senior Emerita*

## Scope and Objectives

The department offers programs leading to the Bachelor of Arts, Master of Arts, and Ph.D. degrees. Art history courses survey Western and non-Western art from earliest human history to the present. Students learn to treat artistic monuments and trends from a historical point of view, analytically rather than subjectively. The curriculum prepares students for careers in which broad knowledge of art is important and provides students preparing for graduate study with a foundation for research requiring independent critical judgment.

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

To be admitted as Art History majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two art history courses in ancient, Renaissance and baroque, medieval, or modern art and two non-Western art history courses.

### 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) 101A, 101B, M102A through M102E, (2) M102F through M102K, (3) 105A through 105E, (4) 106A through 106D, 108A, 108B, (5) 108C, C109A through 109D, (6) 110A through 110G, C150A through 150D, (7) C112A through CM112D

Group B: (8) 104A, 104B, C104C, (9) 114A, 114D, 114F, C115A, (10) 114C, 114E, C115B through C115F, (11) C117A, C117B, C117C, 118D, 118E, (12) 118A, 118C, C119A, C119B

Five art history electives from the above 12 areas are required; courses 127, 197, and 199 may also be included.

Two terms of one foreign language or equivalent are also required. The language is in addition to the College foreign language requirements.

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 195A and 195B with a grade 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 195A and 195B with a grade of A.

## 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 recently approved 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 185A, 185B, and three elective courses selected from Art History 100, C103C, World Arts and Cultures 185C, 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 requirements, 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.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the

graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Art History offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Art History.

### Admission

A minimum grade-point average of 3.25 overall and 3.5 in upper division art history courses is required of applicants to the M.A. program. The Graduate Record Examination (GRE) is required, although there is no minimum score. Three letters of recommendation (preferably from art historians) are required. The statement of purpose submitted with the application is given weight in the evaluation and should be as specific as possible about the applicant's interests in art history. Also required are two writing samples (two 10-page research papers). Applicants must have completed six full courses in the history of art (grades of B or better and not including studio courses), with at least two courses in Fields A and B as noted under Areas of Study in *Program Requirements for UCLA Graduate Degrees*. Specific areas may not be offered in satisfaction of more than one requirement.

Applicants demonstrating exceptional promise but lacking some or all of the six required courses may, at the discretion of the graduate review committee, be admitted on condition that they make up those courses. Deficiencies must be made up during the first two quarters in residence and may not be applied toward the required courses for the degree. Instead of taking a course, students may elect to substitute a competency examination in the deficient area.

The M.A. in Art History is usually required for admission to the Ph.D. program. However, students with an M.A. degree in other disciplines may apply for admission. The graduate review committee determines the equivalency of the M.A. on an individual basis. An M.A. in Art History from another institution may be accepted as equivalent to that from UCLA or the holder may be accepted into the program at a stage determined by the graduate review committee. All incoming Ph.D. students must show evidence of having taken and passed with grades of B or better at least two courses (upper division and/or graduate) in areas not related to the proposed major (as outlined in M.A. course requirements in *Program Requirements for UCLA Graduate Degrees*). Deficiencies must be made up during the first two quarters in residence and may not be applied toward the eight courses required for the Ph.D. degree.

The application must include, in addition to official transcripts, all of the following: (1) a standard statement of purpose (approximately 400 words), (2) a copy of the applicant's M.A. thesis or, if no thesis was written, one major research paper written at the M.A. level in the major or intended major field, (3) three or more letters of recommendation from individuals familiar with the applicant's scholarly work, of which one must be a detailed letter of assessment and endorsement from the individual who served as the major adviser for the M.A., (4) a written statement from the intended Ph.D. major adviser of willingness to supervise the applicant's Ph.D. work, (5) evidence of reading fluency in two appropriate foreign languages, (6) Graduate Record Examination (GRE) scores.

If an applicant is applying directly to the Ph.D. program from the M.A. in Art History program at UCLA, there is a slightly modified procedure. For details, contact the departmental graduate counselor.

A reading knowledge of French and German is requisite for admission at the Ph.D. level for those majoring in all areas except Asian (i.e., Chinese, Japanese, South Asian, Southeast Asian, Korean), pre-Columbian and Latin American, Native North American, oceanic, Islamic, and Italian art history.

### Master's Degree

In addition to the fields under Doctoral Degree, there is a museum studies field for the M.A. degree.

The M.A. degree is offered through the comprehensive examination plan and requires the completion of a major and two minors within the Art History major. Major areas include Western and non-Western, critical theory, and museum studies (field experience is recommended). Course requirements range from 10 to 13 courses, depending on major/minor. All students must take a course in art historical theories and methodologies and a course in the historiography of art history, or theory and criticism in art history.

There is a language requirement for this degree.

### Doctoral Degree

Fields include Aegean, American, baroque, Byzantine, contemporary (post-1945), 18th century, Greek, medieval, 19th century, Renaissance, Roman, 20th century, African, Chinese, Indian, Islamic, Japanese, Native North American, oceanic, pre-Columbian, Southeast Asian, Korean, and critical theory.

At the time of application to the Ph.D. program, the student selects a major field of study within art history; by the end of the second quarter of residence, an additional minor (or minors) is selected. The major and minor faculty advisers are responsible for the student's course of study and completion of requirements within the field. The department offers three options in the selection of majors and minors. Course

requirements vary from a total of eight to 11 graduate and undergraduate courses, depending on major/minor.

Written and oral qualifying examinations are required. The written examination tests knowledge in the major and minor fields of study. Following successful completion of the written examination, students select a dissertation topic and take the University Oral Qualifying Examination.

There is a language requirement for this degree.

## Art History

### Lower Division Courses

**50. Ancient Art. (4)** Lecture, three hours; quiz, one hour. Prehistoric, Egyptian, Mesopotamian, Aegean, Greek, Hellenistic, and Roman art and architecture.

**51. Medieval Art. (4)** Lecture, three hours; quiz, one hour. Early Christian, Byzantine, Islamic, Carolingian, Ottoman, Romanesque, and Gothic art and architecture.

**54. Modern Art. (4)** Lecture, three hours; quiz, one hour. Art and architecture from 1800 to the present in Europe and the U.S.

**55A. Introduction to African Art. (4)** Lecture, three hours; discussion, one hour. Introduction to field of African art history, with focus on selected traditions. P/NP or letter grading.

**55B. Arts of Pre-Columbian America. (4)** Lecture, three hours; discussion, one hour. Survey of sequence of cultures which developed in the area between (and including) Mexico and Peru from ca. 1000 B.C. to the Conquest.

**56A. Art of India and Southeast Asia. (4)** Lecture, three hours; discussion, one hour. Survey of major artistic monuments of Indo-Iranian and Southeast Asian cultures, concentrating on formal and iconographical problems, as well as social and political conditions under which artworks were patronized and produced.

**56B. Introduction to Chinese Art. (4)** Lecture, three hours; discussion, one hour. Introduction to discipline of Chinese art history. Fundamentals of formats, methods, and materials of Chinese art, visual and textual sources, peculiarities of patronage, traditional art history and criticism, and approaches to representation in premodern China.

**57. Renaissance and Baroque Art. (4)** Lecture, three hours; discussion, one hour. History of art and architecture in Western Europe from 1400 to 1750.

**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 a specific term. P/NP or letter grading.

**88A. Buddha's Life and Teachings in Art, Texts, and Worship. (4)** 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.

### Upper Division Courses

**100. Art Historical Theories and Methodologies. (4)** Discussion, 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.

**101A. Egyptian Art and Archaeology. (4)** Lecture, three hours. Study of architecture, sculpture, painting, and minor arts during the Predynastic period and Old Kingdom.

**101B. Egyptian Art and Archaeology of the Middle and New Kingdoms. (4)** Lecture, three hours. Requisite: course 50. Study of architecture, sculpture, painting, and minor arts during the Middle and New Kingdoms.

**M102A. Minoan Art and Archaeology. (4)** (Same as Classics M153A.) Lecture, three hours. Requisite: course 50 or Classics 10. Study of development of art and architecture in Minoan Crete from ca. 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. Study of development of art and architecture in Mycenaean Greece from ca. 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. 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. 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. Study of development of art and architecture of Greek world from middle of the 4th century B.C., including transmittal of Greek art forms to the Romans. P/NP or letter grading.

**M102F. Etruscan Art. (4)** (Same as Classics M153F.) Lecture, three hours. Requisite: course 50 or Classics 20. Arts of Italic peninsula from ca. 1000 B.C. to end of the 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. Art and architecture of Rome and its Empire from ca. 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 the 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: course 50 or Classics 10 or 20 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)** (Formerly numbered 110F.) Lecture, three hours; demonstrations/field trips. Concurrently scheduled with courses C203A-C203B. P/NP or letter grading. **C103A.** 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.** 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.

**104A. Western Islamic Art. (4)** Lecture, three hours. From the Tigris and Euphrates Rivers to Spain, 7th to 16th century.

**104B. Eastern Islamic Art. (4)** Lecture, three hours. From the Tigris and Euphrates Rivers through Afghanistan and parts of central Asia; Ottoman Empire.

**C104C. Problems in Islamic Art. (4)** Lecture, three hours. Monuments or theoretical problems related to Islamic culture and artistic production. Concurrently scheduled with course C214.

**105A. Early Christian Art. (4)** Lecture, three hours. Requisite: course 51. Origins and development of architecture, sculpture, and painting of early Christianity to the iconoclastic controversy.

**105B. Early Medieval Art. (4)** Lecture, three hours. Requisite: course 51. Art and architecture of Western Europe from the Migration period until A.D. 1000.

**105C. Romanesque Art. (4)** Requisite: course 51. Art and architecture of Western Europe in the 11th and 12th centuries.

**105D. Gothic Art. (4)** Lecture, three hours. Requisite: course 51. Art and architecture of Europe in the 13th century.

**105E. Byzantine Art. (4)** Lecture, three hours. Requisite: course 51. Theory and development of Byzantine art from the iconoclastic controversy to 1453 and diffusion of Byzantine art in Armenia, Georgia, the Caucasus, and Russia.

**105F. Late Gothic Art and Architecture. (4)** Lecture, three hours. Strongly recommended preparation: course 51. Art and architecture of Europe in the 14th and early 15th centuries. P/NP or letter grading.

**106A. Italian Art of the Trecento. (4)** Lecture, three hours. Requisite: course 57. Art and architecture of the 14th century.

**106B. Italian Art of the Quattrocento. (4)** Lecture, three hours. Requisite: course 57. Art and architecture of the 15th century.

**106C. Italian Art of the Cinquecento. (4)** Lecture, three hours. Requisite: course 57. Art and architecture of the 16th century.

**106D. Late Renaissance Art: Counter-Reformation. (4)** Lecture, three hours. Requisite: course 57. Painting, sculpture, and architecture of the late 16th and early 17th centuries considered in context of the Counter-Reformation.

**108A-108B. Northern Renaissance Art. (4-4)** Lecture, three hours. Requisite: course 57. Course 108A is requisite to 108B. Painting and sculpture in the Northern Renaissance.

**108C. From Bruegel to Rubens. (4)** Lecture, three hours. Requisite: course 57. Art and history in the 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 the northern independent (Dutch) Netherlands (1609 to 1621), and renewal of war (1621 to 1648). P/NP or letter grading.

**C109A. Baroque Art. (4)** (Formerly numbered 109A.) Lecture, three hours. Requisite: course 57. 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.

**109C. European Art of the 18th Century. (4)** Lecture, three hours. Requisite: course 57. Painting, architecture, and sculpture of the 18th century examined in light of political and intellectual developments. Special emphasis on effect of the rise of democratic institutions, especially the French Revolution.

**109D. Art and Architecture of Georgian England. (4)** Lecture, three hours.

**110A. European Art of the 19th Century. (4)** Lecture, three hours. Requisite: course 54. Neoclassicism and Romanticism, with emphasis on France — development and influence of David, Ingres, and Delacroix.

**110B. European Art of the 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.

**110C. European Art of the 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.

**110E. Art and Politics in the Contemporary Americas: Post-World War II U.S. Art and Politics. (4)** 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.

**110F. Selected Topics in Modern Art. (4)** Lecture, three hours. Requisite: course 54. Changing topics in modern art (post-1780) which 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 the Contemporary Americas: Latin America. (4)** Requisite: course 54. Nationalist and revolutionary responses of Latin America to U.S. imperialism. Discussion of the cases of Mexico, Cuba, Chile, and Nicaragua.

**C110H. Latin American Art of the 20th Century. (4)** Lecture, three hours. 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.

**C112A. American Art before the Civil War. (4)** Lecture, three hours. Painting, sculpture, and architecture in the U.S. from Colonial period through the Civil War. Concurrently scheduled with course C212A.

**C112B. American Art in the Gilded Age, 1860 to 1900. (4)** Lecture, three hours. Painting, sculpture, and architecture in the U.S. from the Civil War to turn of the century. Concurrently scheduled with course C212B.

**C112C. American Art, 1900 to 1945. (4)** Lecture, three hours. Painting, sculpture, and photography in the 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.

**114A. Early Art of India. (4)** Lecture, three hours. Not open to freshmen. Survey of Indian art from Indus Valley cultures to the 10th century. Emphasis on Buddhist and Hindu backgrounds of the arts.

**114C. Japanese Art. (4)** Lecture, three hours. Not open to freshmen. Japanese art from its beginning in prehistory through the 19th century. Emphasis on development of Buddhist art and its relationship with the culture.

**114D. Later Art of India. (4)** Lecture, three hours. Not open to freshmen. Survey of Indian art from the 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 the Neolithic Period through the Yi dynasty. Particular emphasis on early archaeology and state formation, Buddhist art, Koryo ceramics, and Yi literati painting.

**114F. Arts of Southeast Asia. (4)** Lecture, three hours. Not open to freshmen. Southeast Asian art from its beginning in prehistory through the 19th century. Study of art of selected cultures from Burma, Malaysia, Thailand, Cambodia, Vietnam, and Indonesia.

**C115A. Advanced Indian Art. (4)** Lecture, three hours. Requisite: course 114A. Study in Indian sculpture and architecture. Concurrently scheduled with course C257.

**C115B. Advanced Chinese Art. (4)** Lecture, three hours. Study in Chinese painting and sculpture. Concurrently scheduled with course C258.

**C115C. Advanced Japanese Art. (4)** Lecture, three hours. Requisite: course 114C. Study in Japanese painting and sculpture. Concurrently scheduled with course C259.

**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.

**C117A. Pre-Columbian Art of Mexico. (4)** Lecture, three hours. Requisite: course 55B. Study of art of selected cultures of northern Mesoamerica from ca. 1200 B.C. to the Conquest, with emphasis on historical and iconographic problems. Concurrently scheduled with course C218A.

**C117B. Pre-Columbian Art of the Maya. (4)** Lecture, three hours. Requisite: course 55B. Study of art of selected Maya-speaking cultures of southern Mesoamerica from ca. 2000 B.C. to the Conquest, with particular emphasis on history and iconography. Concurrently scheduled with course C218B.

**C117C. Pre-Columbian Art of the Andes. (4)** Lecture, three hours. Requisite: course 55B. Study of art of selected cultures of Colombia, Ecuador, Peru, and Bolivia from ca. 4000 B.C. to the Conquest, with particular emphasis on history and iconography of art of Peru. Concurrently scheduled with course C218C.

**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 the centuries before the Spanish conquest, with emphasis on their social and historical context and major scholarly debates. Concurrently scheduled with course C218D. P/NP or letter grading.

**118A. Arts of Oceania. (4)** Lecture, three hours. Requisite: course 55A. Survey of arts of the major island groupings of the Pacific, emphasizing style-regions and broad historical relationships.

**118C. Arts of Sub-Saharan Africa. (4)** Lecture, three hours. Survey, with emphasis on sculpture, of selected traditions within a style-region framework.

**118D. Arts of Native North America. (4)** Lecture, three hours. Requisite: course 55A. Survey of painting, sculpture, and other arts from the Eskimo to peoples of the Caribbean and Southwestern U.S.

**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 which reflect interests of individual regular and visiting faculty members. P/NP or letter grading.

**C119A. Advanced Studies in African Art: Western Africa. (4)** Lecture, three hours. Selected topics in arts of peoples living west and north of Cameroun, with emphasis on special problems of theory and method. Concurrently scheduled with course C216A.

**C119B. Advanced Studies in African Art: Central Africa. (4)** Lecture, three hours. Selected topics in arts of peoples of equatorial, southern, and eastern Africa, with emphasis on special problems of theory and method. Concurrently scheduled with course C216B.

**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.

**C140A. History of Korean Painting. (4)** Lecture, three hours. Requisite: course 114E. Korean painting history from Three Kingdom period to the 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 the 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 which reflect interests of individual regular and/or visiting faculty members. Concurrently scheduled with course C242D. 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 the 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 the Present. (4)** Lecture, three hours. Requisite: course 54. Study of politics of representation at end of the 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)** (Formerly numbered 110D.) Lecture, three hours. Requisite: course 54. Changing topics in contemporary art (post-1945) which reflect interests of individual regular and/or visiting faculty members. May be repeated once for credit. P/NP or letter grading.

**195A-195B. Departmental Honors Courses. (4-4)** 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 an appropriate faculty member, culminating in departmental honors thesis of approximately 30 pages. In Progress grading.

**197. Honors Course. (4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average overall, 3.5 grade-point average in major. Limited to juniors/seniors. Individual studies for majors. May be repeated once for credit. P/NP or letter grading.

**199. Special Studies in Art. (2 to 8)** Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to seniors. Individual studies for majors. Eight units may be applied toward the major. P/NP or letter grading.

## Graduate Courses

**200. Art Historical Theories and Methodologies. (4)** Discussion, three hours. Critical examination of history of the discipline of art history, with studies of various theoretical, critical, and methodological approaches to visual arts from antiquity to the present. May be repeated for credit with consent of adviser.

**201. Topics in Historiography of Art History. (4)** Discussion, three hours. Critical examination of historiographic traditions of specific areas and fields within the discipline of art history, concentrating on particular time periods, geographical areas, artistic traditions, or the work of one or more authors. May be repeated for credit with consent of adviser.

**202. Topics in Theory and Criticism in Art History. (4)** Discussion, 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.

**C203A-C203B. Museum Studies. (4-4)** (Formerly numbered 203.) Lecture, three hours; demonstrations/field trips. May be repeated for credit with consent of adviser. Concurrently scheduled with courses C103A-C103B. S/U or letter grading. **C203A.** 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.** 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.

**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)** Discussion, three hours. Changing topics in museological, curatorial, and exhibition practices which reflect interests of regular and visiting faculty members. S/U or letter grading.

**204. Restoration, Preservation, and Conservation. (4)** Seminar, two hours. May not be repeated.

**205. Studies in Prints. (4)** Seminar, two hours. Critical studies in history and connoisseurship of graphic arts in the Western world. Group or individual studies often culminate in professionally directed exhibitions produced by Grunwald Center for the Graphic Arts. May be repeated for credit with consent of adviser.

**206. Studies in Drawings. (4)** Seminar, two hours. Critical studies in history and connoisseurship of draughtsmanship in the Western world. Individual studies emphasizing professional presentation. Group studies may culminate in exhibitions sponsored by Grunwald Center for the Graphic Arts. May be repeated for credit with consent of adviser.

**C209A. Baroque Art. (4)** Lecture, three hours. Requisite: course 57. 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 101A, 101B, M102A. Art in Egypt during the Late period and Greco-Roman period. Students should be ready to prepare for every meeting a briefing of a topic from archaeological memoirs, not to exceed 10 minutes. Some lectures. May be repeated for credit with consent of adviser.

**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, the Cyclades, or Western Anatolia. May be repeated for credit with consent of adviser.

**C212A. American Art before the Civil War. (4)** Lecture, three hours. Painting, sculpture, and architecture in the U.S. from Colonial period through the Civil War. May be repeated for credit with consent of adviser. Concurrently scheduled with course C112A.

**C212B. American Art in the Gilded Age, 1860 to 1900. (4)** Lecture, three hours. Painting, sculpture, and architecture in the U.S. from the Civil War to turn of the century. May be repeated for credit with consent of adviser. Concurrently scheduled with course C112B.

**C212C. American Art, 1900 to 1945. (4)** Lecture, three hours. Painting, sculpture, and photography in the 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.

**213. Advanced Studies in Islamic Art. (4)** Seminar, two hours. Art and architecture of Islamic world (Spain to Iran) from the 7th to 17th century. Monuments or theoretical problems related to Islamic culture and artistic production. May be repeated for credit with consent of adviser.

**C214. Problems in Islamic Art. (4)** Lecture, 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.

**C216A. Advanced Studies in African Art: Western Africa. (4)** Lecture, three hours. Selected topics in arts of peoples living west and north of Cameroun, with emphasis on special problems of theory and method. May be repeated for credit with consent of adviser. Concurrently scheduled with course C119A.

**C216B. Advanced Studies in African Art: Central Africa. (4)** Lecture, three hours. Selected topics in arts of peoples of equatorial, southern, and eastern Africa, with emphasis on special problems of theory and method. May be repeated for credit with consent of adviser. Concurrently scheduled with course C119B.

**217. Primitivism and Art. (4)** Lecture, three hours. History of primitivism in visual arts and its institutional base from ancient Greece to the 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 ca. 1200 B.C. to the Conquest, with emphasis on historical and iconographic problems. May be repeated for credit with consent of adviser. Concurrently scheduled with course C117A.

**C218B. Pre-Columbian Art of the Maya. (4)** Lecture, three hours. Requisite: course 55B. Study of art of selected Maya-speaking cultures of southern Mesoamerica from ca. 2000 B.C. to the Conquest, with particular emphasis on history and iconography. May be repeated for credit with consent of adviser. Concurrently scheduled with course C117B.

**C218C. Pre-Columbian Art of the Andes. (4)** Lecture, three hours. Requisite: course 55B. Study of art of selected cultures of Colombia, Ecuador, Peru, and Bolivia from ca. 4000 B.C. to the 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.

**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 the centuries before the 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.

**219A. Oceanic Art. (4)** Discussion, two hours. Studies in selected topics in the art of Pacific islands. May be repeated for credit with consent of adviser.

**219B. Pre-Columbian Art. (4)** Discussion, two hours. Studies in selected topics in art of pre-Hispanic Latin America. May be repeated for credit with consent of adviser.

**219C. African Art. (4)** Discussion, two hours. Studies in selected topics in art of sub-Saharan Africa. May be repeated for credit with consent of adviser.

**219D. Native North American Art. (4)** Discussion, two hours. Studies in selected topics in art of the American Indian. May be repeated for credit with consent of adviser.

**220. Oceanic, Pre-Columbian, African, and Native North American Art. (4)** Discussion, two 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.

**221. Topics in Classical Art. (4)** Lecture, two to three hours. Studies in Parthian art. Site-by-site survey of the Near East (Afghanistan, Iran, Iraq, Syria) during period of Greek and Parthian control. May be repeated for credit with consent of adviser.

**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.

**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.

**226A-226B. Medieval Art and Architecture. (4-4)** 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 grading.

**229. Renaissance and Baroque Paleography. (4)** Seminar. Preparation: knowledge of Italian, working knowledge of Latin. Workshop approach to documents pertaining to artistic commissions from the 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.

**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.

**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.

**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.

**240. Baroque Art. (4)** Seminar, two hours. Emphasis on selected topic (e.g., particular artist, trend, or problem). Research papers and oral reports required. Language requirements depend on area of focus. May be repeated for credit with consent of adviser.

**M241A-M241B. Seminars: Modern European History. (4-4)** (Same as History M230A-M230B.) Seminar, three hours. May be repeated for credit with consent of adviser. In Progress and S/U or letter grading.

**C242A. History of Korean Painting. (4)** Lecture, three hours. Requisite: course 114E. Korean painting history from Three Kingdom period to the 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 the 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 which 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 from 1700 to 1900. (4)** Lecture, two to three hours. May be repeated for credit with consent of adviser.

**245. European Art from 1700 to 1900. (4)** Seminar, two hours. May be repeated for credit with consent of adviser.

**246. Art and Architecture of Georgian England. (4)** Seminar, two hours. May be repeated for credit with consent of adviser.

**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 the 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 the Present. (4)** Lecture, three hours. Requisite: course 54. Study of politics of representation at end of the century, covering dominant strategies and trends in postmodernist art. Concurrently scheduled with course C150C. S/U or letter grading.

**251. Contemporary Art. (4)** Discussion, three hours. Selected topics in contemporary art, criticism, and theory. S/U or letter grading.

**253. Modern Art. (4)** Seminar, two hours. Changing topics in modern art (including illustration and other popular forms) which 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.

**C254. Latin American Art of the 20th Century. (4)** Lecture, three hours. 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 the present. Discussion of weekly readings, student oral presentations, and papers. May be repeated for credit with consent of adviser.

**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.

**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.

**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.

**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.

**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)** Participation in archaeological excavations or other archaeological research under supervision of the staff. May be repeated for credit with consent of adviser.

**M270. Art Law. (4)** (Same as Law M301.) 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 the fine arts. Consideration of U.S. domestic law as well as international treaties and foreign law in addressing such controversial issues as the international trade in art, art in public places, and moral rights. Distinguished guest speakers and one field trip.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**495. Teaching Art History. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a 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)** 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)** S/U grading.

**598. Research for and Preparation of M.A. Thesis. (2 to 12)** S/U grading.

**599. Research for and Preparation of Ph.D. Dissertation. (2 to 12)** S/U grading.

## Related Courses

### Classics

251A. Seminar: Classical Archaeology — Aegean Bronze Age

251B. Seminar: Classical Archaeology — Greco-Roman Architecture

251C. Seminar: Classical Archaeology — Greco-Roman Sculpture

251D. Seminar: Classical Archaeology — Greco-Roman Painting

## ARTS AND ARCHITECTURE

*School of the Arts and Architecture*

UCLA  
303 East Melnitz Building  
Box 951427  
Los Angeles, CA 90095-1427

(310) 206-6465  
<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 the 21st Century. (5)** Lecture, four hours; discussion, one hour; outside study/event attendance, 10 hours. Through series of direct encounters with art and artists across a global range of practices, course equips students with kinds of critical skills that enhance their understanding of, and sharpen their appetite for, a 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 the Arts. (4)** Lecture, four hours; discussion and/or laboratory, three hours; outside study, five hours. Selected topics in the arts explored through a variety of approaches which may include projects, readings, discussion, research papers, and oral presentations. Topics to be announced in advance. May be repeated for a maximum of 8 units. P/NP or letter grading.

**101. Aesthetics of Multimedia. (4)** Lecture, three hours; laboratory, one hour; outside study, eight hours. The 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.

## ASIAN AMERICAN STUDIES

*Interdepartmental Program  
College of Letters and Science*

UCLA  
3230 Campbell Hall  
Box 951546  
Los Angeles, CA 90095-1546  
(310) 825-2974  
<http://www.sscnet.ucla.edu/aasc/>

Min Zhou, Ph.D., *Chair*  
Valerie J. Matsumoto, Ph.D., *Vice Chair*

### Faculty Advisory Committee

Pauline Agbayani-Siewert, Ph.D.  
Chi-Fun Cindy Fan, Ph.D.  
Shirley Hune, Ph.D.  
Marjorie Kagawa-Singer, Ph.D.  
Snehendu B. Kar, Dr.P.H., M.Sc.  
Harry H.L. Kitano, Ph.D.  
Rachel C. Lee, Ph.D.  
Jinqi Ling, Ph.D.  
David Wong Louie, M.F.A.  
Valerie J. Matsumoto, Ph.D., *Vice Chair*  
Robert A. Nakamura, M.F.A.  
Don T. Nakanishi, Ph.D.  
Paul Ong, Ph.D.  
Kyeoung Park, Ph.D.  
Michael Salman, Ph.D.  
Shu-mei Shih, Ph.D.  
Henry Yu, Ph.D.  
Min Zhou, Ph.D., *Chair*

### Affiliated Faculty Professors

Emil Berkanovic, Ph.D. (*Community Health Sciences*)  
Edna Bonacich, Ph.D. (*Sociology, UC Riverside*)  
Lucie C. Cheng, Ph.D. (*Sociology*)  
King-Kok Cheung, Ph.D. (*English*)  
Gaurang Mitu Gulati, J.D., *Acting (Law)*  
Shirley Hune, Ph.D. (*Urban Planning*)  
Jerry Kang, J.D., (*Law*)  
Snehendu B. Kar, Dr.P.H., M.Sc. (*Community Health Sciences*)  
James E. Lubben, D.S.W. (*Social Welfare*)  
Takashi Makinodan, Ph.D., *in Residence (Medicine)*  
Robert A. Nakamura, M.F.A. (*Film, Television, and Digital Media*)  
Don T. Nakanishi, Ph.D. (*Education*)  
Paul Ong, Ph.D. (*Urban Planning*)  
William G. Ouchi, D.Litt., Ph.D. (*Management*)  
Hiromi Lorraine Sakata, Ph.D. (*Ethnomusicology*)  
Min Zhou, Ph.D. (*Sociology*)

### Professors Emeriti

Harry H.L. Kitano, Ph.D. (*Social Welfare*)  
Kazuo Nihira, Ph.D. (*Psychiatry and Behavioral Sciences*)

### Associate Professors

Pauline Agbayani-Siewert, Ph.D. (*Social Welfare*)  
Roshan Bastani, Ph.D. *in Residence (Health Services)*  
Chi-Fun Cindy Fan, Ph.D. (*Geography*)  
Clara Chu, Ph.D. (*Information Studies*)  
Jinqi Ling, Ph.D. (*English*)  
David Wong Louie, M.F.A. (*English*)  
Valerie J. Matsumoto, Ph.D. (*History*)  
Ailee Moon, Ph.D. (*Social Welfare*)



Kyeyoung Park, Ph.D. (*Anthropology*)  
 Michael Salman, Ph.D. (*History*)  
 Shu-mei Shih, Ph.D. (*East Asian Languages and Cultures*)  
 James Tong, Ph.D. (*Political Science*)  
 Cindy Yee-Bradbury, Ph.D. (*Psychology*)

#### Assistant Professors

Mitchell J. Chang, Ph.D. (*Education*)  
 Marjorie Kagawa-Singer, Ph.D. (*Community Health Sciences*)  
 Vinay Lal, Ph.D. (*History*)  
 Rachel C. Lee, Ph.D. (*English*)  
 Mitchell T. Maki, Ph.D. (*Social Welfare*)  
 Ninez Ponce, Ph.D., in *Residence (Health Services)*  
 Henry S.N. Yu, Ph.D. (*History*)

#### Lecturers

Sefa Aina, B.A.  
 Esha De, Ph.D.  
 John Esaki, M.F.A.  
 Stewart Kwoh, J.D.  
 Nobu McCarthy, B.A.  
 Glenn Omatsu, M.A.  
 Duong Pham, Ph.D.  
 Kent Wong, Ph.D.

#### Adjunct Professor

Russell Leong, M.F.A. (*English*)

#### Adjunct Associate Professors

Yuji Ichioka, Ph.D. (*History*)  
 Nancy Harada, Ph.D. (*Medicine*)

## Scope and Objectives

The Asian American Studies Program, an interdepartmental program supported by the Asian American Studies Center, promotes the study of Asian American and Pacific Island peoples 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 program 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, social organization, and culture.

## 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 is required for admission to the major.

#### Transfer Students

There are no specific preparation courses for the Asian American Studies major readily available at other institutions. Students should concentrate on the Intersegmental General Education Transfer Curriculum (IGETC) or UCLA general education requirements.

## The Major

**Required:** A total of 14 courses (one lower division, 13 upper division), including Asian American Studies 99 and 100, one research methods course, two Asian American theme courses, two courses with focus on an Asian Pacific American ethnic-specific group, two ethnic/race/gender relations courses, two courses on history/culture/social or political institutions of Asia, and three elective courses selected from Asian American studies or the approved list of interdepartmental courses. At least seven of the courses taken for the major must be from the approved list of interdepartmental courses (available in the program office each term) and seven must be Asian American studies courses.

Students must also demonstrate proficiency equivalent to the completion of an elementary/basic one-year course of study in an Asian language prior to graduation.

No more than 8 units of course 199 may be applied toward the major.

All courses applied toward the major must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable), and students must maintain an overall grade-point average of 2.0 in all courses.

## Honors Program

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 a cumulative GPA of 3.0 or better, and (3) completed Asian American Studies 99, 100, and one research methods course selected from a list maintained in the program 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.

Honors students must take Asian American Studies 199HA during Spring Quarter of the junior year. During Fall and Winter Quarters of the senior year, they take courses 199HB and 199HC, 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 and file a petition with the program counselor, Asian American Studies Center, 3230 Campbell Hall.

**Required Lower Division Course (4 units):** Asian American Studies 99.

**Required Upper Division Courses (24 units):** Asian American Studies 100, one Asian American theme course, one course with focus on an Asian Pacific American ethnic-specific group, and three Asian American studies elective courses. No more than 4 units of course 199 may be applied toward the minor, and only courses in Asian American studies or those multiple-listed with the program may be taken to fulfill requirements for the minor.

All minor courses must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable), with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Asian American Studies Program offers the Master of Arts (M.A.) degree in Asian American Studies.

## Admission

### M.A. in Asian American Studies

In addition to the University's minimum requirements, applicants to the M.A. program are expected to present evidence of their previous interest in Asian American studies through courses taken at the undergraduate level, by research papers written independently or for related classes, or by work experience in an Asian American community. In any case, applicants are required to submit a paper or article, preferably on Asian Americans, directly to the program as part of the application. Three letters of recommendation are also required.

### Asian American Studies M.A./Public Health M.P.H.

The Asian American Studies Program and the Department of Community Health Sciences offer a concurrent degree program whereby students can work for the M.A. in Asian American Studies and the M.P.H. Students must complete the program requirements for both degrees. However, a maximum of 12 units of coursework in public health may be applied toward both degrees. When applying, the same statement of purpose may be submitted to each program. Applicants interested in this concurrent program should contact the Asian American Studies Program and the Student Services Office, UCLA School of Public Health.

## Asian American Studies M.A./ Social Welfare M.S.W.

The Department of Social Welfare and the Asian American Studies Program offer a concurrent program whereby students may pursue the M.S.W. and M.A. in Asian American Studies at the same time. Applicants are required to satisfy the regular admission requirements of both programs.

Students complete the Asian American studies courses in the first year and the social welfare courses in the second and third years. The Asian American Studies Program requires a thesis to be completed by the third year. Students must complete the program requirements for both degrees. However, a maximum of 8 units of coursework in social welfare may be applied toward both degrees.

Applicants may submit the same statement of purpose to each program, but all other parts of the application process are separate to each graduate program. Applicants interested in the concurrent degree program should contact the Asian American Studies Program or the Department of Social Welfare.

## Master's Degree

The Asian American Studies Program is interdepartmental, and its major fields are determined by the participating faculty from various departments.

The M.A. degree is offered through the comprehensive examination and thesis plans. The thesis plan includes a field research thesis option for students who are interested in the practical application of what they have learned in their graduate coursework or who intend to pursue careers with Asian American community organizations and agencies. A total of 11 courses, seven at the graduate level, is required.

There is a language/research methodology requirement for this degree.

## Asian American Studies

### Lower Division Courses

**21. Asians and Pacific Islanders in American Society. (4)** Lecture, three hours; discussion, one hour. Multidisciplinary examination of history and cultures of Asians and Pacific Islanders in the U.S. Topics include origins and history of migration to the U.S., social movements, ethnic images in literature and art, communities in the U.S. and California, and their current issues. P/NP or letter grading.

**99. History of Asians in America. (4)** (Formerly numbered 100A.) Lecture, three hours; discussion, one hour. Multidisciplinary examination of history of Asians and Pacific Islanders in the U.S. P/NP or letter grading.

### Upper Division Courses

**100. Contemporary Asian American Communities. (4)** (Formerly numbered 100B.) Lecture, three hours; discussion, one hour. Multidisciplinary introduction to Asian American communities in the U.S. Topics include demographics and social, political, and economic issues. P/NP or letter grading.

**101A. Field Studies Methods in Asian Pacific Communities. (4)** Lecture, three hours. Preparation: one course from 100 through 197Z. 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.

**101B. Internships in Asian Pacific Communities. (4)** Discussion, 90 minutes; fieldwork, eight hours minimum. Requisite: course 101A or another Asian American studies course (except 199). Integrates academic and empirical work by providing students the 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.

**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.

**105. Asian American Historiography. (4)** Seminar on exploration of how works of history are written about Asian Americans. Focus on problems of historiography and method when considering source materials related to history and experience of Asian Americans. P/NP or letter grading.

**107A. Introductory Video Ethnography and Documentary Workshop. (4)** (Formerly numbered 107.) Laboratory, three hours. Introduction to concepts and methods of video documentation and video ethnography of the Asian Pacific American community. Topics include scriptwriting, budgeting, video image and sound control through camcorder functions, basic composition/lighting, sound recording, interviewing techniques, and editing. Students required to do off-campus fieldwork and complete video documentary. P/NP or letter grading.

**107B. Advanced Video Ethnography and Documentary Workshop. (4)** Laboratory, three hours. Requisite: course 107A. Advanced concepts and methods of video documentation and video ethnography of the Asian Pacific American community. Topics include scriptwriting, budgeting, video image and sound control through camcorder functions, basic composition/lighting, sound recording, interviewing techniques, and editing. Students required to do off-campus fieldwork and complete video documentary. P/NP or letter grading.

**M108B. Policy, Planning, and Community. (4)** (Formerly numbered 108B.) (Same as Urban Planning M195.) 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.

**M110. Ethnic, Cultural, and Gender Issues in America's Health Care 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 health care delivery in the U.S. 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.

**113. Asian Americans and the Law. (4)** Survey of major federal and California case and legislative law directed specifically toward Asian Americans from 1850 to World War II and relocation. Major subject areas include anti-Asian labor legislation, legal prohibitions against Asians' right to testify, Japanese relocation orders, and equal educational opportunity for Asians. P/NP or letter grading.

**115. Asian American Women. (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.

**116. Asian American Social Movements. (4)** 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.

**119. Asian American Aesthetics. (4)** (Formerly numbered M119.) Lecture, four hours. Designed for juniors/seniors. Exploration of shared and distinctive aspects of aesthetics found among groups of Asian Americans through lecture, readings, and field study. Formal and informal expressions of the culture, with focus on origins, artists, arts activists, and reinterpretations of culture through the arts. Individual project required. P/NP or letter grading.

**121B. Exploring Asian American Theater: Special Problems. (4)** Study of an Asian American play; 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.

**M123. Asian Pacific Americans in the U.S. Economy. (4)** (Same as Economics M189.) Lecture, three hours. Examination of several dimensions of Asian American participation, from labor market experience to use of government services to entrepreneurial activity. Attention to linking understanding of Asian American experience to public policies available to address problems of economically disadvantaged. P/NP or letter grading.

**M129A. Health Issues for Asian Americans and Pacific Islanders: Myth or Model? (4)** (Formerly numbered M197.) (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-130E. Asian American History and Experience. (4 each)** Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of specific Asian American populations. Examination of historical and contemporary sociocultural, economic, and political issues as they affect formation and character of various Asian American communities. P/NP or letter grading. **130A.** Filipino American Experience; **130B.** Korean American Experience; **130C.** Vietnamese American Experience; **130D.** Japanese American History; **130E.** Chinese American Experience.

**131A. Filipino American Community and Family. (4)** Lecture, three hours; discussion, one hour. Requisite: course 130A. Introduction to Filipino American families and communities. Examination of interaction of Filipino American families and the larger social and political environment. P/NP or letter grading.

**M132A. 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.

**M132B. Chinese Immigrant Literature and Film. (4)** (Same as Chinese M153 and Comparative Literature M171.) Lecture, two 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.

**M133. Indian Identity in the U.S. and the Diaspora. (4)** (Same as History M189B.) Lecture, three hours. 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.

**135A. Asian Pacific American Communities in Hawaii: Critical Issues Past and Present. (4)** Lecture, four hours. Through perspectives of history, economy, politics, education, ethnicity, and critical issues in Asian and Pacific Islander communities, study of Hawaii as a model for multiculturalism. Selected guest lectures by prominent Hawaii residents. Interaction with faculty and students at University of Hawaii. Field trips. Conducted at University of Hawaii, Manoa, in summer. P/NP or letter grading.

**135B. Asian Pacific Communities in Hawaii: Field Studies. (4)** Lecture, one hour; discussion, three hours; internship, 10 hours minimum. Requisite or corequisite: course 135A. Participation in academic internships (minimum 50 hours) in social service, cultural, political, educational, and community organizations to gain experiential learning experience in Hawaii's multicultural society. Given in Hawaii. P/NP or letter grading.

**M153. The U.S. and the Philippines. (4)** (Same as History M153.) Lecture, three hours. Recommended preparation: History 190A, 190B, 190C. Designed for juniors/seniors. Examination of complex interrelationship between U.S. colonialism, Philippine nationalism, history of Filipino Americans, and Philippine diaspora in the 20th century.

**M154. Chinese Immigration. (4)** (Same as Sociology M153.) Lecture, two 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 the social environment. P/NP or letter grading.

**M163. Investigative Journalism and Communities of Color. (4)** (Same as Afro-American Studies M195.) 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.

**164. Women, Violence, and Resistance. (4)** (Formerly numbered 197M.) Lecture, four hours; discussion, one hour. 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, and South Asian cultures. Letter grading.

**171A-171E. Critical Issues in U.S.-Asia Relations. (4 each)** Lecture/seminar, three hours. Not open to freshmen. Critical examination of U.S. involvement in specific Asian countries, including study of historical, cultural, political, and socioeconomic factors that shape relations between Asia and the U.S. Examination of impact of relationships in the Pacific Rim and Asian Americans and their communities. P/NP or letter grading. **171A.** U.S.-Philippine Relations; **171B.** U.S.-Korea Relations; **171C.** U.S.-Vietnam Relations; **171D.** U.S.-Japan Relations; **171E.** U.S.-China Relations.

**196. Seminar: Asian American Studies. (4)** Seminar, three to four hours. Limited to senior Asian American Studies majors. Organized on a topics basis with readings, discussions, and papers. Consult Asian American Studies Center for topics to be offered in a specific term. P/NP or letter grading.

**197A-197Z. Topics in Asian American Studies. (4 each)** Lecture, three to four hours. Limited to juniors/seniors. Variable topics in Asian American studies on selected issues in education, literature, social process, public policy, and economic development. P/NP or letter grading.

**M197C. Topics in Asian American Literature. (5)** (Same as English M197C.) 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 the Asian American community; and themes related to such problems as generational differences, gender politics, or interethnic encounters. May be repeated for credit. P/NP or letter grading.

**M197H. Culture, Media, and Los Angeles. (6)** (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.

**199. Special Topics in Asian American Studies. (2 to 4)** Requisite: course 100A or 100B or comparable knowledge in Asian American studies. Limited to juniors/seniors. Special individual studies on topics such as ethnic literature, public policies, economic development, immigrant education, and/or social policies related to Asian American studies. May be repeated for a maximum of 8 units.

**199HA. Honors Seminar. (4)** Seminar, three to four hours. Requisites: courses 99, 100. Introduction to research techniques and applications of critical methodology in study of Asians and Pacific Islanders in the U.S., in which students develop plan for independent research. Coursework may also include writing of proposal for research grant. Letter grading.

**199HB-199HC. Honors Seminars. (4-4)** Tutorial, to be arranged. Requisite: course 199HA. Course 199HB is requisite to 199HC. Tutorials in which students write theses under direction of a faculty member. In Progress and letter grading.

## Graduate Courses

**200A. Critical Issues in Asian American Studies. (4)** Designed for graduate students. Examines and seeks to develop a critical appreciation of research literature on Asians in America and to develop alternative interpretations of the Asian American experience. Topics include Asian American history and economic/political and social/psychological issues.

**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 which explicate development, structure, and dynamics of Asian Pacific American communities in studying community issues and concerns.

**200C. Critical Issues in Asian American Studies. (4)** Lecture, three hours. Designed for graduate students. Critical review of research methods, strategies, and philosophies in Asian American studies.

**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.

**M215. Asian American Jurisprudence. (4)** (Formerly numbered M213.) (Same as Law M315.) Lecture, three hours. Exploration of Asian American legal systems, considering both dominant and oppositional concepts of law. Consideration of primary historical documents to examine ways Asian Americans have been victims of the legal system, as well as astute manipulators of the legal system. S/U or letter grading.

**M239. Race and Ethnicity as a Concept in Practice and Research. (4)** (Same as Community Health Sciences M239.) Discussion, three hours. Integration of cross-cultural findings in health care with current American (U.S.) health care system paradigms to facilitate designing culturally based public health programs and train culturally competent practitioners. Letter grading.

**M260. Topics in Asian American Literature. (4)** (Formerly numbered M297A.) (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 the Third World. (4)** (Same as Comparative Literature M274.) Seminar, three hours. Investigation of politics of power, gender, and race in complex relationships between the 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 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.

**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 the 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 the Asian experience, sending and receiving country perspectives, research and policy issues. S/U or letter grading.

**297C. Urbanization in Asia — Policy Issues and Problems. (4)** Seminar, three hours. Urbanization in less-developed countries in Asia with specific reference to its peculiar features and characteristics, and relationship of urbanization to the development process. Topics include urbanization development, structural and policy determinants of urbanization, urban policy and strategies, and country case studies. S/U or letter grading.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

**596. Directed Individual Study or Research. (2 to 8)** Hours to be arranged.

**598. Research for and Preparation of M.A. Thesis. (2 to 8)** Preparation of research data and writing of M.A. thesis. S/U grading.

## Related Courses

### Afro-American Studies

M158B-M158C. Introduction to Afro-American History  
M164. Afro-American Experience in the U.S.

### American Indian Studies

M161. Comparative American Indian Societies

### Anthropology

M134. Cultural Construction of Gender and Sexuality: Homosexualities  
139. Field Methods in Cultural Anthropology  
146. Language and Culture of Polynesia: Past, Present, and Future  
M154P. Gender Systems: North American  
M154Q. Gender Systems: Global  
M155. Women's Voices: Their Critique of Anthropology of Japan  
M155Q. Women and Social Movements  
166. Cross-Cultural Research on Urban Gangs  
167. Urban Anthropology  
175R. Societies of Central Asia  
175S. Japan  
175T. Civilizations of East Asia  
175U. Cultures of the Indonesian Archipelago  
175V. Ethnology of Korea: Re-Presenting Lives in Contemporary South Korea  
175W. Ideology and Social Change in Contemporary China  
177. Cultures of the Pacific

### Chicana and Chicano Studies

101. Theoretical Concepts in Chicana and Chicano Studies  
M159A, M159B. History of the Chicano Peoples

**Communication Studies**

- M124. Psychology of Language and Gender  
130. Cultural Factors in Interpersonal Communication  
M153. The Media and Aggression against Women

**Community Health Sciences**

- M140. Health Issues for Asian Americans and Pacific Islanders: Myth or Model?

**Comparative Literature**

- M168. Korean American Literature  
M171. Chinese Immigrant Literature and Film

**Economics**

152. Trade Unions and Professional Associations  
M189. Asian Pacific Americans in the U.S. Economy

**English**

- M102A. Asian American Literature to 1980  
M102B. Asian American Literature since 1980  
119. Literature of California and the American West  
140A. Criticism: History and Theory  
178. Perspectives in Study of American Culture  
196. Interracial Encounters in Contemporary American Literature  
M197C. Topics in Asian American Literature

**Ethnomusicology**

146. Folk Music of South Asia

**Film and Television**

- 106C. History of African, Asian, and Latin American Film

128. Media and Ethnicity

**Geography**

142. Population Geography  
144. Ethnicity in the American City  
146. Gender, Race, and Geography of Employment in American Cities  
148. Economic Geography  
150. Urban Geography  
156. Metropolitan Los Angeles  
186. Contemporary China

**Health Services**

- M110. Ethnic, Cultural, and Gender Issues in America's Health Care Systems

**History**

99. Introduction to Historical Practice  
M153. The U.S. and the Philippines  
154A-154B. U.S. Urban History  
155A-155B. American Working Class Movements  
157A-157B. North American Indian History  
160A-160B. U.S. and Comparative Immigration History  
161. Asians in American History  
162. American West  
163. History of California  
164. History of Los Angeles  
182A-182B. Thought and Society in China  
183A. Culture and Power in Late Imperial China  
183B. Selected Topics in Chinese History from 1500  
183C. History of Women in China, A.D. 1000 to the Present  
184. 20th-Century China  
185A. Japanese Popular Culture  
185B. Women in 20th-Century Japan  
186. Shinto, Buddhism, and Japanese Folk Religion  
187A-187B-187C. Japanese History  
188A. Early History of India  
188B-188C. History of British India I, II  
189A. Cultural and Political History of Contemporary South Asia  
M189B. Indian Identity in the U.S. and the Diaspora  
189C. Special Topics in Contemporary Indian History  
190A-190B. History of Southeast Asia  
190C. Philippine History

- 190D. Vietnam: Past and Present

**Information Studies**

- 111D. Ethnic Groups and their Bibliographies: Asian American History and Culture

**Lesbian, Gay, Bisexual, and Transgender Studies**

- M134. Cultural Construction of Gender and Sexuality: Homosexualities

**Political Science**

102. Statistical Analysis of Political Data  
104A-104B. Introduction to Survey Research  
144A. Ethnic Politics: Chicano/Latino Politics  
M144B. Ethnic Politics: African American Politics  
159A-159B. Government and Politics of China  
160. Government and Politics of Japan

**Psychology**

- 129C. Culture and Mental Health  
136C. Survey Methods in Psychology  
142H. Advanced Statistical Methods in Psychology (Honors)  
151. Computer Applications in Psychology  
175. Community Psychology

**Social Welfare**

101. Social Welfare in a Multicultural Society  
104A. Filipino American Community and Family  
104B. Japanese American Redress  
104F. Japanese American Community and Family

**Sociology**

104. Introduction to Sociological Research Methods  
106A. Introduction to Field Research Methods  
113. Statistical and Computer Methods for Social Research  
151. Comparative Immigration  
152. Comparative Acculturation and Assimilation  
M153. Chinese Immigration  
156. Ethnic and Status Groups  
157. Social Stratification  
158. Urban Sociology  
160. Intergroup Conflict and Prejudice  
188. Comparative East Asian Societies before World War II  
189. Japanese Society

**Theater**

- 102E. Theater of Non-European World

**Urban Planning**

197. Planning for Minority Communities

**Women's Studies**

130. Women of Color in the U.S.  
M155Q. Women and Social Movements

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## ASTRONOMY

See Physics and Astronomy

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## ATMOSPHERIC SCIENCES

*College of Letters and Science*

UCLA  
7127 Math Sciences  
Box 951565  
Los Angeles, CA 90095-1565  
(310) 825-1217  
fax: (310) 206-5219  
<http://www.atmos.ucla.edu>

Kuo-Nan Liou, Ph.D., *Chair*  
James C. McWilliams, Ph.D., *Co-Vice Chair*  
Lawrence Lyons, Ph.D., *Co-Vice Chair*

**Professors**

Michael Ghil, Ph.D.  
Kuo-Nan Liou, Ph.D.  
Lawrence R. Lyons, Ph.D.  
James C. McWilliams, Ph.D.  
Carlos R. Mechoso, Ph.D.  
J. David Neelin, Ph.D.  
Richard M. Thorne, Ph.D.  
Roger M. Wakimoto, Ph.D.

**Professors Emeriti**

Akio Arakawa, D.Sc.  
James G. Edinger, Ph.D.  
George L. Siscoe, Ph.D.  
Sekharipuram V. Venkateswaran, Ph.D.  
Morton G. Wurtele, Ph.D.  
Michio Yanai, D.Sc.

**Associate Professors**

Robert G. Fovell, Ph.D.  
Suzanee E. Paulson, Ph.D.

**Assistant Professors**

Nicolas Gruber, Ph.D.  
Alexander D. Hall, Ph.D.  
Suzanne E. Paulson, Ph.D.  
Bjorn B. Stevens, Ph.D.  
Jochen P. Stutz, Ph.D.

**Lecturer**

Jeffrey K. Lew, Ph.D.

**Adjunct Professor**

David Halpern, Ph.D.

## Scope and Objectives

The atmospheric sciences present a wide variety of problems of compelling scientific interest and increasing social concern. This is exemplified by efforts to improve air quality, deprecations caused by severe storms and floods, attempts to control or modify weather phenomena, problems of long-range weather forecasts and climate change, 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 Sciences 2, 3, 6, 10; Chemistry and Biochemistry 20A; Mathematics 3A, 3B, and 3C, or 31A, 31B, 32A, 32B, 33A, and 33B; Physics 1A or 1AH, 1B or 1BH, 1C or 1CH, 4AL, 4BL; Program in Computing 10A.

#### Transfer Students

To be admitted as Atmospheric, Oceanic, and Environmental Sciences majors, transfer students with 90 or more units must complete the following introductory courses 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.

#### The Major

*Required:* Atmospheric Sciences 101, 102, 103, 104, three additional upper division atmospheric sciences courses selected in consultation with the undergraduate advisers, and two courses from a list of chemistry, mathematics, and physics 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, 135A, 136, Physics 131, 132; students preparing for graduate studies in upper atmosphere and space physics should take Mathematics 115A, 135A, Physics 110A, 110B, M122; students preparing for graduate studies in atmospheric dynamics and physics should take Atmospheric Sciences 101, CM120, C125, Mathematics 115A, 135A, 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 Sciences 101, 102, 103, 104, C110, C115, CM120, C125, 130, M140, C145, C160, C165, C170, 180, C185 and (2) four additional

courses, two of which must be upper division, from any of the above atmospheric sciences courses beyond the minimum three required or from Atmospheric Sciences 2, 3, 6, 10, 190 (must be taken twice), Chemistry and Biochemistry 103, 110A, 110B, 113A, C113B, 114, Earth and Space Sciences 15, Mathematics 115A, 115B, 132, 135A, 135B, 136, 146, 170A, 170B, Organismic Biology, Ecology, and Evolution C109, C119, 122, 123, 147, 148, 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 Sciences 104, M140, Chemistry and Biochemistry 103, 110A, 110B, C113B, 114; (2) *atmospheric chemistry and biology*: Atmospheric Sciences 101, 104, Organismic Biology, Ecology, and Evolution C109, C119, 122; (3) *atmospheric dynamics*: Atmospheric Sciences 101, 102, C125, Physics 112, 131, 132; (4) *atmospheric dynamics and mathematical modeling*: Atmospheric Sciences 101, C125, 180, Mathematics 115A, 115B, 132, 135A, 135B, 136, 142, 146; (5) *oceanography and biology*: Atmospheric Sciences 101, 103, 104, Organismic Biology, Ecology, and Evolution C109, 123, 147, 148; (6) *upper atmosphere*: Atmospheric Sciences 101, CM120, C125, C170, Physics 110A, 110B, M122.

One course may be taken on a Passed/Not Passed basis; all other minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

### Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

#### Graduate Degrees

The Department of Atmospheric Sciences offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Atmospheric Sciences.

#### Admission

For the M.S. and Ph.D. programs, applicants are required to meet University minimum requirements and submit the *UCLA Application for Graduate Admission*, the department does not require an additional application. Three letters of recommendation and scores on the

Graduate Record Examination (GRE) General Test are required. In addition to applicants who hold a bachelor's degree in meteorology or atmospheric sciences, those with a degree in related disciplines, such as astronomy, chemistry, engineering, geophysics, oceanography, mathematics, and physics, are also encouraged to apply. Programs of study are arranged through consultation between the students and the department's graduate advisers, and considerable flexibility is allowed to take maximum advantage of the previous education of students. For departmental brochures and information, write to the department.

### Master's Degree

For areas of specialization, see Doctoral Degree.

The M.S. degree is offered through the comprehensive examination and thesis plans; the latter requires a special petition process. A total of nine courses, five at the graduate level, is required.

### Doctoral Degree

Areas of specialization include dynamic and synoptic meteorology, atmospheric physics and chemistry, and upper atmosphere and space physics.

For students entering the department with an M.S. degree, there are no specific course requirements other than a formal seminar course. The graduate advisers may, at their discretion, prescribe courses in areas in which they deem students to have insufficient background in order to help them pass the comprehensive examination.

Written and oral qualifying examinations are required. Students who select the M.S. comprehensive examination plan, which also serves as the written qualifying examination for the Ph.D., in addition must take an in-depth oral examination in their area of research specialization.

Following successful completion of the examinations, students take the University Oral Qualifying Examination, which covers the selected dissertation topic and related areas.

## Atmospheric Sciences

### Lower Division Courses

**1. Introduction to Weather Maps and Weather Forecasting.** (4) Lecture, three hours. Introduction to weather maps and satellite imagery and their use in making a weather forecast. Discussions also include structure of the National Weather Service and services it provides to the general public. Course allows students to make weather forecasts for Los Angeles and one city east of the Rocky Mountains.

**2. Air Pollution.** (4) Lecture, three hours; discussion, one hour. Causes and effects of high concentrations of pollution in the 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.

**2E. Air Pollution. (5)** Lecture, three hours; discussion, three hours. Course for students with interests in environmental studies parallel to course 2; discussion section focuses on intersection of science and policy for issues in local, regional, and global air pollution; use of case-study approach and participation of experts from social, health, and life sciences in class discussions. Letter (majors) or P/NP or letter (nonmajors) grading.

**3. Introduction to the Atmospheric Environment.**

**(4)** Lecture, three hours; discussion, one hour. Nature and causes of weather phenomena, including winds, clouds, rain, lightning, tornadoes and hurricanes, solar and terrestrial radiation; phenomena of the higher atmosphere; ionosphere and auroras; causes of air pollution; proposed methods and status of weather modification.

**3A. Introduction to the Atmospheric Environment.**

**(5)** Lecture, three hours; discussion, three hours. Enforced prerequisite: Physics 1B. Course for majors parallel to course 3; discussion section includes use of calculus. Discussion topics include atmospheric thermodynamics, extratropical synoptic-scale disturbances, atmospheric aerosol and microphysical processes, clouds and storms, radiative processes, atmospheric dynamics. Letter grading.

**3E. Introduction to the Atmospheric Environment.**

**(5)** Lecture, three hours; discussion, three hours. Course for students with interests in environmental studies parallel to course 3; discussion section emphasizes environmental aspects of atmospheric phenomena, with focus on scientific issues of severe weather and climate change and particular attention to those topics that are relevant to policy issues. Letter (majors) or P/NP or letter (nonmajors) grading.

**4. California Weather and Climate. (4)** Lecture, three hours; discussion, one hour. Enforced prerequisite: course 3 or 3A. Sequel to course 3 dealing in greater detail with atmospheric phenomena relevant to the weather of California, and nature of weather and climate of various regions of the state. Topics include extratropical cyclones and fronts, thunderstorms, severe weather, sea and land breezes, Santa Ana winds, low-level temperature inversions, air pollution, climate change, and discussion of present weather.

**5. Climates of Other Worlds. (4)** Lecture, three hours; discussion, one hour. Introduction to atmospheres of planets and their satellites in the solar system using information obtained during the recent planetary exploration program. Elementary description of origin and evolution of atmospheres on the planets. Climates on the planets, conditions necessary for evolution of life, and its resulting effect on planetary environment.

**6. Climate and Climatic Change. (4)** Lecture, three hours; discussion, one hour. Introduction to physical causes of climate, classification of climate, and global distribution of climate types. Description of climate changes over time scales ranging from lifetime of Earth to el niño events. Discussion of causes of climatic change (e.g., long-term steady increase in solar luminosity, short-term fluctuations in solar luminosity, changes in Earth's orbit, changes in atmospheric composition, volcanoes, anthropogenic changes such as increased CO<sub>x</sub> and nuclear war). State of the art in modeling and predicting climate.

**6A. Climate and Climatic Change. (5)** Lecture, three hours; discussion, three hours. Enforced prerequisite: Physics 1B. Course for majors parallel to course 6; discussion section includes use of calculus. Discussion topics include atmospheric circulation, oceanic circulation, greenhouse effect, ice ages, ocean/atmosphere interactions, ozone hole, past climates, climate prediction. Letter grading.

**6E. Climate and Climatic Change. (5)** Lecture, three hours; discussion, three hours. Course for students with interests in environmental studies parallel to course 6; discussion section places scientific and technological aspects of climate and climate change in context of societal impacts of climate variations. Discussion of modern methods used to predict climate change and their impact. Letter (majors) or P/NP or letter (nonmajors) grading.

**8. Clouds, Rain, and Storms. (4)** Lecture, three hours; discussion, one hour. The raindrop and the ice crystal. Relation of meteorological conditions to cloud types. Precipitation mechanisms from clouds. Different scales of atmospheric cloud organization. Description and dynamics of spectacular weather systems, ranging from tornadoes to hurricanes. Severe weather forecasting.

**10. Introduction to the Earth System. (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Overview of Earth as a system of distinct, yet connected, physical and biological elements. Origins and characteristics of atmosphere, oceans, and land masses. Effects of biological processes in shaping the physical environment. Mechanisms that drive climate of Earth and that have produced a protective ozone shield around the planet. Exploration of possibility of technological solutions to global pollution problems.

**88. Lower Division Seminar. (4)** Seminar, three hours. Variable topics; consult *Schedule of Classes* or department for topics to be offered in a 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)** (Formerly numbered 104A, 104B, C142.) 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. Requisites: Mathematics 3C or 32A, Physics 1C or 6C. 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. Heat balance of Earth and Greenhouse effect. Physical processes in climate system. Atmospheric and oceanic circulation. El niño and year-to-year climate prediction. P/ NP or letter grading.

**103. Physical Oceanography. (4)** (Formerly numbered 143.) 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)** (Formerly numbered 2A, 144.) Lecture, three hours; discussion, one hour. Requisite: Chemistry 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 Organismic 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 the 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.

**C110. Advanced Dynamic and Synoptic Meteorology. (6)** (Formerly numbered 104C, C105.) 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 the dry line. Discussions on design of field project. Concurrently scheduled with course C228. P/ NP or letter grading.

**CM120. Introduction to Fluid Dynamics. (4)** (Formerly numbered CM140.) (Same as Earth and Space Sciences M140.) Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Equations of fluid motion. Circulation theorems. Irrotational flow. Vortex motion. Rotating frame. Hydrostatic and geostrophic balance. Sound and shock waves. Viscous flow. Concurrently scheduled with course C200A. Letter grading.

**C125. Introduction to Geophysical Fluid Dynamics. (4)** (Formerly numbered C141.) Lecture, three hours. Requisite: Physics 131. Recommended: course CM120. Equations of motion in a rotating frame, with special emphasis on shallow-water model. Potential vorticity. Geostrophic motion. Gravity and Rossby waves. Geostrophic adjustment. Quasi-geostrophic motion. Laplace tidal equation. Kelvin and mixed Rossby gravity waves. Baroclinic instability. Concurrently scheduled with course C201A. Letter grading.

**130. Circulation of Santa Monica Basin. (4)** (Formerly numbered 147.) Lecture, four hours. Enforced prerequisite: course 103. Design and construction of physical oceanographic measurement program to describe large-scale geostrophic circulation in Santa Monica Basin, which has depths as large as 1,000 meters and extends 50 kilometers offshore from Los Angeles. Letter grading.

**M140. Environmental Chemistry Laboratory. (4)** (Formerly numbered M151.) (Same as Chemistry M104.) Lecture, two hours; laboratory, three hours. Requisite: Chemistry 20B. Laboratory experience for students who wish to pursue a 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.

**C145. Microphysics of Clouds, Precipitation, and Aerosols. (4)** (Formerly numbered C152.) Lecture, three hours; discussion, one hour. Requisites: Physics 1A, 1B, and 1C, or 6A and 6B. Theoretical foundation combined with application and observation data. Topics include cloud formation and structure; condensation processes; thermodynamic equilibrium; nucleation; aerosol processes — formation, diffusion, sedimentation, condensation; precipitation; and thunderstorms. Concurrently scheduled with course C203B. Letter grading.

**C160. Remote Sensing. (4)** (Formerly numbered 160.) 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.

**C165. Atmospheric Radiation. (4)** Lecture, three hours. Requisite: Physics 1C or 6B. Principles of radiative transfer. Absorption, emission, and scattering processes. Transfer of solar and thermal infrared radiation in the atmosphere. Radiation and climate. Radiation and ozone formation. Applications of radiation principles to remote sensing. Concurrently scheduled with course C203C. Letter grading.

**C170. Introduction to Solar System Plasmas. (4)** (Formerly numbered C154.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 33A, Physics 1C. Introduction to basic plasma physical processes occurring in the 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)** (Formerly numbered 161.) 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.

**C185. Statistical Methods for Physical Sciences. (4)** (Formerly numbered C162.) Lecture, three hours; discussion, one hour. 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 theory is needed. Concurrently scheduled with course CM213. P/NP or letter grading.

**190. Operational Meteorology. (2)** (Formerly numbered 198.) Laboratory, six hours. Requisite: course C110. Limited to junior/senior atmospheric 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.

**195. Senior Paper. (4)** Limited to senior atmospheric sciences majors. Supervised through individual consultation with an appropriate faculty member, students write a research paper on a topic of their own choosing within their area of concentration in the major. May be used for writing honors thesis.

**199. Special Studies in Meteorology. (2 or 4)** Special individual studies.

## Graduate Courses

**C200A. Introduction to Fluid Dynamics. (4)** Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Equations of fluid motion. Circulation theorems. Irrotational flow. Vortex motion. Rotating frame. Hydrostatic and geostrophic balance. Sound and shock waves. Viscous flow. Concurrently scheduled with course CM120. Letter grading.

**C201A. Introduction to Geophysical Fluid Dynamics. (4)** Lecture, three hours. Equations of motion in a rotating frame, with special emphasis on shallow-water model. Potential vorticity. Geostrophic motion. Gravity and Rossby waves. Geostrophic adjustment. Quasi-geostrophic motion. Laplace tidal equation. Kelvin and mixed Rossby gravity waves. Baroclinic instability. Concurrently scheduled with course C125. Letter grading.

**201B. Atmospheric Wave Motions. (4)** Lecture, three hours. Requisite: course C125 or C201A. Wave motions in a compressible, stratified, and rotating atmosphere. Acoustic and gravity waves, anelastic and quasi-static approximations. Kelvin/Helmholtz instability. Quasi-static oscillations of a planetary atmosphere. Quasi-geostrophic motions. Baroclinic and barotropic instabilities. Propagation of planetary waves. Letter grading.

**201C. Introduction to Atmospheric Turbulence and Convection. (4)** Lecture, three hours. Requisite: course C200A. Small-scale nonhydrostatic motions in the atmosphere. Introduction to turbulence and thermal convection. Planetary boundary layer, effects of moisture on atmospheric motions, theory of moist convection, cumulus convection.

**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.

**C203B. Microphysics of Clouds, Precipitation, and Aerosols. (4)** Lecture, three hours; discussion, one hour. Theoretical foundation combined with application and observation data. Topics include cloud formation and structure; condensation processes; thermodynamic equilibrium; nucleation; aerosol processes — formation, diffusion, sedimentation, condensation; precipitation; and thunderstorms. Concurrently scheduled with course C145. Letter grading.

**C203C. Atmospheric Radiation. (4)** (Formerly numbered 203C.) Lecture, three hours. Principles of radiative transfer. Absorption, emission, and scattering processes. Transfer of solar and thermal infrared radiation in the atmosphere. Radiation and climate. Radiation and ozone formation. Applications of radiation principles to remote sensing. Concurrently scheduled with course C165. Letter grading.

**C205A. Introduction to Solar System Plasmas. (4)** Lecture, three hours; discussion, one hour. Introduction to basic plasma physical processes occurring in the 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

## Dynamic and Synoptic Meteorology

**210. Dynamics of Planetary Circulations. (4)** Lecture, three hours. Requisite: course C201A. 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.

**212A. Numerical Methods in Geophysical Fluid Dynamics. (4)** Lecture, three hours. Requisite or corequisite: course C201A. 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**212B. Numerical Modeling of the 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**212C. Numerical Modeling of the 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)** (Formerly numbered C213.) (Same as Statistics M252.) Lecture, three hours; discussion, one hour. 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 C185. 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 the atmosphere and oceans. Climatic history of our planet. Continuum mechanics of ice sheets and mantle. Oscillatory models of Quaternary glacial cycles. Transitions from equilibrium to periodic and aperiodic climate behavior. Climatic predictability. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**215. Ocean Circulation. (4)** Lecture, three hours. Requisites: courses C200A, C201A. 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**216A. Tropical Motions with Moist Processes. (4)** Lecture, three hours. Requisite: course 201C. Cumulus convection and the boundary layer in the tropics. Cloud clusters and mesoscale convection systems. Interaction of cumulus convection with large-scale environment. Tropical cyclones. Monsoon meteorology. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**216B. Wave Motions in the 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**218. Dynamics of the 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**220. Dynamics of the Middle Atmosphere. (4)** Lecture, three hours. Requisite: course C201A. Structure and composition of the middle atmosphere. Waves in the 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 C200A, C201A. 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**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)** (Formerly numbered 228.) 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 the 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

## 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**230B. Atmospheric Chemistry II. (4)** Lecture, three hours. Requisite: course M203A. Photochemistry of stratosphere and mesosphere; basic ionospheric processes; stratospheric pollution and the ozone layer; physical chemistry of upper atmosphere clouds and aerosols; comparative photochemistry of planetary atmospheres; observational techniques and results. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**234A. Cloud and Precipitation Physics I. (4)** Lecture, three hours. Requisite: course C203B. Microstructure of atmospheric clouds; structure of the three phases of water substance, including surface effects; thermodynamic theory for equilibrium between the three phases of water substance, including surface effects; theory of homogeneous and heterogeneous nucleation of water drops and ice crystals. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**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 a viscous medium; hydrodynamics of cloud drops, rain drops, and atmospheric ice particles; growth of cloud drops and atmospheric ice particles by collision. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**M235. Ocean Biogeochemical Dynamics and Climate. (4)** (Same as Organismic 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 a few million years to a few 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. 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**C240B. Remote Sensing. (4)** (Formerly numbered 240B.) 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 successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**244. Methods of Radiative Transfer. (4)** Lecture, three hours; laboratory, one hour. Requisites: courses C203C, C240B. Analytical and numerical methods of radiative transfer, pure scattering atmospheres, and Chandrasekhar's solution; discrete ordinates; n-stream representations; exponential sums; Monte Carlo techniques and three-dimensional problems; computational laboratory. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

## 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**250B. Solar System Microscopic Plasma Processes. (4)** Lecture, three hours. Requisite: course C205A. Adiabatic charged particle dynamics; incoherent radiation processes; collective effects in a plasma; propagation characteristics of electrostatic and electromagnetic waves; introduction to resonant interaction between charged particles and plasma waves. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**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 the 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.

**281. Special Topics in Dynamic Meteorology. (2 to 4)** Individual meetings with instructor to be arranged. Content varies from year to year. S/U grading.

**283. Special Topics in Atmospheric Physics. (2 to 4)** 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)** 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)** Individual meetings with instructor to be arranged. Selected topics of current research interest in solar wind, magnetospheric, or ionospheric physics.



**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 the Atmosphere.  
**296B.** Synoptic and Mesoscale Meteorology.  
**296C.** Numerical Mesoscale Modeling.  
**296D.** Climate Dynamics.  
**296E.** Numerical Modeling of the 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.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**596. Directed Studies for Graduate Students. (2 to 8)** Tutorial, to be arranged. S/U grading.

**597. Preparation for Comprehensive Examinations. (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.

## Related Courses

### Astronomy

81. Astrophysics I: Stars and Nebulae  
 82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology  
 180. Astrophysics Laboratory

### Biomathematics

202. Fourier Analysis in Biology

### Chemical Engineering

102. Chemical Engineering Thermodynamics  
 108A. Process Economics and Analysis  
 C240. Fundamentals of Aerosol Technology

### Chemistry and Biochemistry

103. Environmental Chemistry  
 110A. Physical Chemistry: Chemical Thermodynamics  
 110B. Physical Chemistry: Introduction to Statistical Mechanics and Kinetics  
 C123A-C123B. Classical and Statistical Thermodynamics  
 215D. Molecular Spectra, Diffraction, and Structure  
 223C. Statistical Mechanics  
 225. Chemical Kinetics

### Civil and Environmental Engineering

163. Introduction to Atmospheric Chemistry and Air Pollution

### Computer Science

- 10C. Introduction to Programming

### Earth and Space Sciences

- M140. Introduction to Fluid Dynamics  
 154. Solar Terrestrial Physics  
 202. Continuum Mechanics  
 204. Time-Series Analysis and Spectral Estimation  
 261. Topics in Magnetospheric Plasma Physics  
 265. Instrumentation, Data Processing, and Data Analysis in Space Physics

### Electrical Engineering

103. Applied Numerical Computing  
 161. Electromagnetic Waves

- 162A. Wireless Communication Links and Antennas  
 M185. Introduction to Plasma Electronics

### Mathematics

- 131A-131B. Analysis  
 132. Complex Analysis for Applications  
 135A-135B. Ordinary Differential Equations  
 136. Partial Differential Equations  
 142. Mathematical Modeling  
 146. Methods of Applied Mathematics  
 151A-151B. Applied Numerical Methods  
 170A, 170B. Probability Theory  
 171. Stochastic Processes  
 250C. Advanced Topics in Ordinary Differential Equations  
 265A-265B. Real Analysis for Applications  
 266A. Applied Ordinary Differential Equations  
 266B-266C. Applied Partial Differential Equations  
 269A-269B-269C. Advanced Numerical Analysis  
 271A. Tensor Analysis  
 271B. Analytical Mechanics  
 271C. Introduction to Relativity  
 274A. Asymptotic Methods  
 274B. Perturbation Methods

### Mechanical and Aerospace Engineering

103. Elementary Fluid Mechanics  
 131A. Intermediate Heat Transfer  
 150A. Intermediate Fluid Mechanics  
 150B. Aerodynamics  
 192A, 192B. Mathematics of Engineering  
 192C. Numerical Methods for Engineering Applications  
 250A. Foundations of Fluid Dynamics  
 250B. Viscous and Turbulent Flows  
 250C. Compressible Flows  
 251A. Stratified and Rotating Fluids  
 252A. Stability of Fluid Motion  
 252B. Statistical Theory of Turbulence  
 259A. Seminar: Advanced Topics in Fluid Mechanics

### Physics

108. Optical Physics  
 110A, 110B. Electricity and Magnetism  
 112. Thermodynamics  
 115A, 115B. Quantum Mechanics  
 M122. Introduction to Plasma Electronics  
 131, 132. Mathematical Methods of Physics  
 210A, 210B. Electromagnetic Theory  
 215A. Statistical Physics  
 215B. Nonequilibrium Statistical Mechanics  
 222A-222B-222C. Plasma Physics  
 231A, 231B, 231C. Methods of Mathematical Physics

### Statistics

- 100A. Introduction to Probability Theory  
 100B. Introduction to Mathematical Statistics  
 200A-200B. Statistical Theory

Elizabeth F. Neufeld, Ph.D., *Chair*  
 Peter A. Edwards, Ph.D., *Vice Chair*  
 Reid C. Johnson, Ph.D., *Vice Chair*

### Professors

Utpal Banerjee, Ph.D.  
 Lutz Birnbaumer, Ph.D.  
 Michael F. Carey, Ph.D.  
 Edward M.F. De Robertis, M.D., Ph.D. (*Norman F. Sprague Professor of Molecular Oncology*)  
 John Edmond, Ph.D.  
 Peter A. Edwards, Ph.D.  
 David S. Eisenberg, D.Phil.  
 Armand J. Fulco, Ph.D.  
 Judith C. Gasson, Ph.D.  
 Michael Grunstein, Ph.D.  
 Harvey R. Herschman, Ph.D. (*Crump Professor of Medical Engineering*)  
 Bruce D. Howard, M.D.  
 Reid C. Johnson, Ph.D.  
 Kevin McEntee, Ph.D.  
 David I. Meyer, Ph.D.  
 Elizabeth F. Neufeld, Ph.D.  
 Gregory S. Payne, Ph.D.  
 Leena Peltonen, M.D., Ph.D.  
 Leonard H. Rome, Ph.D.  
 David S. Sigman, Ph.D.  
 S. Larry Zipursky, Ph.D.

### Professors Emeriti

Roslyn B. Alfin-Slater, Ph.D.  
 Robert J. DeLange, Ph.D.  
 Samuel Eiduson, Ph.D.  
 Robert M. Fink, Ph.D.  
 Dohn G. Glitz, Ph.D.  
 Isaac M. Harary, Ph.D.  
 John G. Pierce, Ph.D.  
 Sidney Roberts, Ph.D.  
 Emil L. Smith, Ph.D.  
 Marian E. Swendseid, Ph.D.  
 Irving Zabin, Ph.D.  
 Patrice J. Zamenhof, Ph.D.

### Associate Professors

John J. Colicelli, Ph.D.  
 Stanley Nelson, Ph.D.  
 Ke Shuai, Ph.D.  
 Alexander van der Bliet, Ph.D.  
 Geraldine A. Weinmaster, Ph.D.

### Assistant Professors

Timothy F. Lane, Ph.D.  
 Karen M. Lyons, Ph.D.  
 Kelsey C. Martin, Ph.D.

### Lecturer

Felice D. Kurtzman, M.P.H.

### Adjunct Associate Professor

Raymond Deshaies

### Academic Coordinator

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.

## BIOLOGICAL CHEMISTRY

*School of Medicine*

UCLA  
 33-257 Center for the Health Sciences  
 Box 951737  
 Los Angeles, CA 90095-1737  
 (310) 825-6545  
<http://www.medsch.ucla.edu/som/biolchem/>

Interaction with other graduate programs provides access to scientists in a variety of related disciplines. Through its primary affiliation with the 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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Biological Chemistry offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biological Chemistry.

## Admission

### M.S./Ph.D. in Biological Chemistry

The department only rarely and under special circumstances accepts students into the M.S. program.

Students are admitted to the program through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences. Information may be obtained from UCLA ACCESS, 172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu). Under special circumstances, the department may admit students directly to the program in the first year.

### M.D./Ph.D. Program

Applicants may apply for the M.D./Ph.D. program by making simultaneous applications for graduate status in the Biological Chemistry Department and for admission to the School of Medicine. Acceptance by both programs is necessary. Certain changes in the requirements (e.g., fewer required courses) allow some savings in time compared to what is required to complete separate M.D. and Ph.D. degree programs.

## Master's Degree

The M.S. degree is offered through the comprehensive examination and thesis plans; the latter is allowed only in exceptional situations.

All graduate students must take the first-year ACCESS curriculum. In addition to the core course requirements, students take electives to complete the total of nine courses required for the degree.

## Doctoral Degree

Students are required to take four specified didactic courses and one additional graduate-level course selected according to their preference. Three of the courses are taken in the first year as part of the ACCESS curriculum, which also requires two seminar courses and another core course. First-year students must arrange for at least three rotations in the laboratories of different faculty members to help in the selection of a research adviser through ACCESS. After the first year, students spend most of their time on dissertation research.

Students admitted through ACCESS are required to serve as teaching assistants for two quarters.

Written and oral qualifying examinations are required. Students submit two short research proposals, one an original research proposal not directly related to the dissertation research (which serves as the written examination) and the other a discussion of the proposed dissertation research.

Following completion of the proposals, students take the University Oral Qualifying Examination, the purpose of which is to evaluate students' ability to formulate and defend the proposals.

# Biological Chemistry

## Upper Division Courses

**CM133. Principles, Practices, and Policies in Biotechnology. (2)** (Same as Biomedical Physics CM133, Chemical Engineering CM133, Chemistry CM133, Microbiology CM133, Microbiology and Immunology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

**M140. Cell Biology: Cell Cycle. (5)** (Same as Molecular, Cell, and Developmental Biology 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 Molecular, Cell, and Developmental Biology 100 or C139. Satisfies premedical requirements. Eukaryotic cellular structures and biogenesis at a 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.

**CM153G. Macromolecular Structure. (6)** (Same as Chemistry CM153G and Human Genetics CM153G.) Lecture, five hours. Requisites: Chemistry 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM253. Letter grading.

**CM159A. Mechanisms in Regulation of Transcription I. (2)** (Same as Chemistry CM159A.) First five weeks. Lecture, four hours. Requisites: Chemistry 153B, 154. Not open to graduate students. 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 CM259A. P/NP or letter grading.

**CM159B. Mechanisms in Regulation of Transcription II. (2)** (Same as Chemistry CM159B.) Second five weeks. Lecture, four hours. Requisite: course CM159A. Not open to graduate students. 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 CM259B. P/NP or letter grading.

**CM169. Cell Structure, Signaling, and Differentiation. (6)** (Same as Human Genetics CM169 and Molecular, Cell, and Developmental Biology CM169.) Lecture, five hours. Requisites: Chemistry 153A, 153B, 153C. Recommended: course CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM267. Letter grading.

**CM178. Molecular Genetics. (6)** (Same as Human Genetics CM178 and Molecular, Cell, and Developmental Biology CM178.) Lecture, five hours. Requisites: Chemistry 153A, 153B, Life Sciences 3, 4, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM248. Letter grading.

**195. Current Research in Biological Chemistry. (2)** Limited to juniors/seniors. Personal interview required. Readings, discussion of current research results, and presentation of recent literature on topics under investigation within a research group in biological chemistry. P/NP or letter grading.

**197. Topics in 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. May be repeated for credit. P/NP or letter grading.

**199. Directed Individual Research Studies in Biological Chemistry. (2 to 8)** Laboratory, four to 20 hours. Preparation: submission of written research proposal and consultation with instructor. Limited to juniors/seniors. Individual research projects carried out under direction of a faculty member. P/NP or letter grading.

## Graduate Courses

**201A-201B. Biological Chemistry. (5-5)** 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 and S/U 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.

**220A-220B-220C. Research Laboratory Rotations. (2 to 8 each)** Students arrange apprenticeships in laboratories of one or more departmental faculty members and engage in a research project under close faculty direction. Allows students to acquire in-depth laboratory experience in specific research areas and facilitates an informed decision on their part in selection of thesis/research adviser. S/U grading.

**M221. Cellular and Molecular Neurochemistry. (4)** (Same as Neurobiology M221, Neuroscience M240, Pharmacology M221, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Preparation: biochemistry. Contemporary neurochemistry topics — metabolic specialization and compartments, metabolism and function of ion channels, structure and function of neurotransmitters. Inborn errors and molecular genetics, molecular imaging, aging, and regeneration. Receptor/effector coupling. S/U or letter grading.

**M223. Membrane Molecular Biology. (4)** (Same as Physiology M223.) Lecture, two hours; discussion, two hours. Requisite: 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.

**CM233. Principles, Practices, and Policies in Biotechnology. (2)** (Formerly numbered M233.) (Same as Biomedical Physics CM233, Chemical Engineering CM233, Chemistry CM233, Microbiology CM233, Microbiology and Immunology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. S/U or letter grading.

**M234. Genetic Control of Development. (4)** (Same as Molecular, Cell, and Developmental Biology M234.) 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. Molecular and Cellular Foundations 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.

**CM248. Molecular Genetics. (6)** (Same as Human Genetics CM248, Microbiology M248, and Molecular, Cell, and Developmental Biology CM248.) Lecture, five hours. Requisite: course CM153G or Chemistry CM153G. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM178. Letter grading.

**251A-251B-251C. Seminars: Transcriptional Regulation. (2-2-2)** 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.

**CM253. Macromolecular Structure. (6)** (Same as Chemistry CM253 and Human Genetics CM253.) Lecture, five hours. Requisites: Chemistry 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM153G. Letter grading.

**M255. Biological Catalysis. (4)** (Same as Chemistry CM255, Molecular, Cell, and Developmental Biology CM252, and Pharmacology M255.) Requisites: Chemistry 110A, 153A, 153B, Life Sciences 3, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level.

**M257. Physical Chemistry of Biological Macromolecules. (2)** (Same as Chemistry M257.) Requisites: Chemistry 110A, 153A. Theory of hydrodynamic, thermodynamic, and optical techniques used to study structure and function of biological macromolecules.

**CM259A. Mechanisms in Regulation of Transcription I. (2)** (Same as Chemistry CM259A.) First five weeks. Lecture, four hours. Requisite: course CM253 or CM267. 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 CM159A. S/U or letter grading.

**CM259B. Mechanisms in Regulation of Transcription II. (2)** (Same as Chemistry CM259B.) Second five weeks. Lecture, four hours. Requisite: course CM259A. 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 CM159B. S/U or 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.

**M264A-M264B-M264C. Molecular Basis of Atherosclerosis: Selected Topics. (2-2-2)** (Same as Chemistry M264A-M264B-M264C and Microbiology M264A-M264B-M264C.) Biochemistry, morphology, and physiology of atherosclerosis. Emphasis on chemistry of lipoproteins and role of plasma lipoproteins in regulation of tissue lipid metabolism and development of atherosclerosis. Each course may be taken independently for credit.

**M266A-M266B-M266C. Seminars: Molecular Embryology. (2-2-2)** (Same as Molecular, Cell, and Developmental Biology M266A-M266B-M266C.) Advanced course in developmental genetics and biochemistry, with emphasis on early development. Intended mostly for students actively working or highly interested in embryology. S/U grading.

**CM267. Cell Structure, Signaling, and Differentiation. (6)** (Same as Chemistry M267, Human Genetics CM267, and Molecular, Cell, and Developmental Biology CM223.) Lecture, five hours. Requisites: Chemistry 153A, 153B, 153C. Recommended: course CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM169. Letter grading.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**596. Directed Individual Study and Research. (2 to 12)** Hours to be arranged. S/U grading.

**597. Preparation for Examinations. (2 to 4)** Individual study for Ph.D. qualifying examinations or M.S. comprehensive examination. S/U grading.

**598. Preparation of M.S. Thesis. (4)** 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)** Preparation of research data and writing of Ph.D. dissertation. S/U grading.

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## BIOLOGY

See Organismic Biology, Ecology, and Evolution

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## BIOMATHEMATICS

*School of Medicine*

UCLA  
AV-617 Center for the Health Sciences  
Box 951766  
Los Angeles, CA 90095-1766  
(310) 825-5554  
<http://www.biomath.medsch.ucla.edu>

Elliot M. Landaw, M.D., Ph.D., *Chair*  
Robert M. Elashoff, Ph.D., *Vice Chair*

### Professors

Abdelmonem A. Afifi, Ph.D.  
Sally M. Blower, Ph.D.  
Robert M. Elashoff, Ph.D.  
Henry S.C. Huang, D.Sc.  
Elliot M. Landaw, M.D., Ph.D.  
Kenneth L. Lange, Ph.D.  
Carol M. Newton, M.D., Ph.D.  
Michael E. Phelps, Ph.D.

### Professors Emeriti

Wilfrid J. Dixon, Ph.D.  
Robert I. Jennrich, Ph.D.

### Associate Professor

Sanjiv Gambhir, M.D., Ph.D.

### Assistant Professors

Tom Chou, Ph.D.  
Janet S. Sinsheimer, Ph.D.

### Lecturer

Jeffrey Gornbein, Ph.D.

### Adjunct Professors

Janet D. Elashoff, Ph.D.  
Alan B. Forsythe, Ph.D.

### Adjunct Associate Professors

Eli Engel, M.D., Ph.D.  
Karim F. Hirji, 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 health care. UCLA has one of the few departments in this relatively new, rapidly evolving field.

The Department of Biomathematics welcomes both undergraduate and graduate students in other majors to its courses in biomedical computing, modeling, and statistics. Premedical majors with mathematical/computer interests can receive early guidance toward an M.D./Ph.D. program in Biomathematics. The department is responsible for statistical and biomathematical training in the medical curriculum.

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 various needs of researchers desiring supplemental biomathematical training, people preparing to provide methodological support to researchers in biology or medicine, or students pursuing a stepwise approach to graduate training in biomathematics.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Biomathematics offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biomathematics.

## Admission

High academic achievement in one scientific or mathematical field is required for admission. It is not necessary for applicants to be proficient in both mathematics and biology, although some prior preparation in both fields is desirable. The General and Subject Tests of the Graduate Record Examination (GRE) are recommended. At least three letters of recommendation are required from faculty competent to evaluate qualifications for pursuing graduate study and a creative research career; additional letters are welcomed and may be requested.

In addition to completing the *UCLA Application for Graduate Admission*, applicants are required to complete a departmental application form, which should be sent directly to the department. All communications with the department, including requests for brochures and for

the departmental forms, should be sent to the Chair, Graduate Admissions Committee, Department of Biomathematics.

## Master's Degree

The M.S. degree is offered through the comprehensive examination and thesis plans; the latter requires a special petition. Students must complete a minimum of 36 units of coursework, of which 20 units must be at the graduate level.

## Doctoral Degree

Students must complete the requirements for a field of special emphasis in biology. Approved fields of special emphasis for which courses of study have been developed include genetics, immunology, molecular biology, neurosciences, pharmacology, and physiology. Others may be added in response to requests from students.

Students complete a group of four core courses and an additional 8 units from a specific list of courses. Five graduate courses in applied mathematics are required, with two substitutions possible. There is no formal requirement in biology beyond preparation for the field of major biological emphasis. Students should have strength, at the upper division level, in linear algebra, differential equations, probability and statistics, and real and complex analysis. Additional training in biostatistics is highly recommended. Students must be facile programmers and acquainted with numerical methods needed for their area of research. A broad background in biology and biological chemistry is expected, from molecular to organ-system levels. Students with an M.D. may be exempt from the required coursework.

One teaching preceptorship is required. Students participate fully in the planning and delivery of one course in biomathematics or a related subject.

Written and oral qualifying examinations are required. The written comprehensive examination tests competence in biomathematics. The written qualifying examination in the field of major biological emphasis usually is the regular comprehensive examination for doctoral students in the field.

Following successful completion of the written examinations, students take the University Oral Qualifying Examination, which critically examines their proposed dissertation work and explores the strength and integration of their biomathematical, mathematical, and biological research knowledge in the intended area of 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.

**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 are applied to selected examples in physiology and biology.

**M153A. Introduction to Regression Analysis. (4)** (Same as Biostatistics M153A and Statistics M120A.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, Statistics 100B. Linear regression, diagnostics and model building, general linear model theory, analysis of variance and covariance. Full integration of theory and software. P/NP or letter grading.

**M153B. Introduction to Generalized Linear Models. (4)** (Same as Biostatistics M153B and Statistics M120B.) Lecture, three hours; discussion, one hour. Requisite: course M153A. Nonlinear regression, exponential family, generalized linear models, categorical data analysis, statistical software. 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 the literature, with emphasis on clinical research. Output from statistical computer packages discussed in class, but students do not use the 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.

**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 the computer and run statistical software packages. Practical aspects of data collection and cleaning.

**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 the computer, and to analyze previously collected data.

**172. Clinical Trials. (4)** Lecture, three hours; discussion, two hours. Prerequisite: Biostatistics 100C or Statistics 100B. Topics include steps in bringing a possible therapy to clinical use; design of studies in animals to assess antitumor response; randomization, historical controls, p-values, size of study, stratification, and points; ethics of human experimentation; informed consent; three phases of human studies; indications for various types of controls, prognostic factors, survivorship studies, design of prognostic studies; organization of a clinical trial — administration, comparability, protocols, nursing and clinical standards, data collection and management. P/ NP or letter grading.

**190HA-190HB. Honors Research in Biomathematics. (4-4)** 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 a total of at least 8 units. Thesis required.

**199. Special Studies in Biomathematics. (2 to 8)** Limited to juniors/seniors. Special studies in biomathematics, including either reading assignments or laboratory work or both, designed for proper training of students.

## Graduate Courses

**200. Research Frontiers in Biomathematics. (2)** Series of presentations by faculty members on research frontiers in biomathematics. S/U grading.

**201. Deterministic Models in Biology. (4)** 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.

**202. Fourier Analysis in Biology. (4)** Preparation: knowledge of calculus, linear algebra, probability. Introduction to theory of Fourier transforms and Fourier series from point of view of generalized functions. Elementary applications to differential equations, quantum mechanics, image reconstruction, X-ray crystallography, branching processes, and time series. Brief review of computational techniques based on fast Fourier transform.

**M203. Stochastic Models in Biology. (4)** (Formerly numbered 203.) (Same as Human Genetics M203.) Lecture, four hours. Prerequisite: 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 a variety of other biological and medical disciplines. S/U or letter grading.

**204. Biomedical Data Analysis. (4)** 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.

**205. Electric Potential Problems in Membranes, Cells, and Tissues. (4)** Preparation: knowledge of differential equations and electrostatics. Review of electrostatics; potential problems in rectangular, spherical, and cylindrical coordinates; modeling subthreshold electrical properties of cells; microelectrode measurements of intracellular potentials; boundary conditions for current flow across membranes; eigenfunction expansions and singular perturbation analysis of intracellular and extracellular potential distribution in spherical and cylindrical cells and syncytia; computation of potential barriers for ions traversing a membrane pore.

**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 immuno-therapeutic 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)** (Formerly numbered 207.) (Same as Biostatistics M237A and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Preparation: coursework equivalent to Mathematics 115A, 131A. 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 M237B and Human Genetics M207B.) Lecture, three hours; laboratory, one hour. Preparation: coursework equivalent to Biostatistics 110A, 110B. Methods of computer-oriented genetic analysis. Topics may include segregation analysis, parametric and nonparametric linkage analysis, quantitative methods, and phylogenetics. 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.

**209. Modeling Infectious Diseases. (4)** Lecture, three hours; discussion, one hour. Preparation: calculus. Recommended: experience with ordinary differential equations, linear algebra, and computer programming. How mathematical models can be used to design vaccination and treatment strategies for controlling and eradicating infectious diseases. Integration of empirical studies with theoretical models in lectures. Letter grading.

**211. Tissue and Cell Dynamics. (4)** Lecture, three hours; discussion, one hour. Preparation: knowledge of differential equations to level of course 201, some mathematical modeling, computer programming. In-depth mathematical modeling of problems in tissue and cell dynamics to level of research literature. Analytical and numerical techniques for solving partial differential equations. S/U or letter grading.

**220. Kinetic and Steady State Models in Pharmacology and Physiology. (4)** 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 experiment design.

**M230. Computed Tomography: Theory and Applications. (4)** (Same as Biomedical Physics M230.) Computed tomography is a three-dimensional imaging technique being widely used in radiology and is becoming an 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.

**M231. Statistical Methods for Categorical Data. (4)** (Same as Biostatistics M210.) Lecture, three hours; discussion, one hour. Prerequisites: 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. Prerequisite: 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. Prerequisites: Biostatistics 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.

**M260A-M260B. Methodology in Clinical Research I, II. (6-6)** (Same as Medicine M260A-M260B.) Lecture, three hours; discussion, two 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.

**M260C. Methodology in Clinical Research III. (2)** (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 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. Prerequisite: 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 Statistics M254.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Prerequisite: Statistics 100A. Training in probability and statistics for students interested in pursuing research in computational biology, genomics, and bioinformatics. Letter grading.

**273. Stochastic Modeling in Molecular Cellular Biophysics. (4)** Lecture, three hours; discussion, one hour. Prerequisite: Mathematics 170A or equivalent experience in probability, lower division physics, or physical chemistry. Most molecular systems are large collections of molecules; behavior of such a system is stochastic. Mathematical descriptions of biochemical reactions with and without energy dissipation, molecular structures, and biophysical techniques which measure various biological processes. S/U or letter grading.

**M280. Statistical Computing. (4)** (Same as Biostatistics M280 and Statistics M230.) Lecture, three hours. Prerequisites: 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. Prerequisite: Biostatistics 115 or Statistics 100C. Statistical methods for analysis of survival data. S/U or letter grading.

**M282. Analysis of Repeated Measures Designs. (4)** (Same as Biostatistics M236.) Lecture, three hours; discussion, one hour. Prerequisites: Biostatistics 200A, 200B. Presentation of classical and modern theories for analysis of repeated measures designs, with focus on computation and robustness. S/U or letter grading.

**M284. Methodology of Clinical Trials. (4)** (Same as Biostatistics M238.) Lecture, three hours; discussion, two hours. Prerequisites: 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.

**596. Directed Individual Study or Research in Biomathematics. (2 to 12)** Individual study on topics not yet covered by offerings of department. May be repeated for credit with topic change.

**597. Preparation for M.S. or Ph.D. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8)** Individual study. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) S/U grading.

## BIOMEDICAL ENGINEERING

Interdepartmental Program  
Henry Samueli School of Engineering  
and Applied Science

UCLA  
7523 Boelter Hall  
Box 951600  
Los Angeles, CA 90095-1600  
(310) 794-5945  
fax: (310) 794-5956  
e-mail: bme@ea.ucla.edu  
http://www.bme.ucla.edu

Warren S. Grundfest M.D. FACS, *Chair*

### Faculty Advisory Committee

Jean B. deKernion, M.D.  
Linda Demer, M.D., Ph.D.  
Bruce S. Dunn, Ph.D.  
Chih-Ming Ho, Ph.D.  
John D. MacKenzie, Ph.D.  
Allan J. Tobin, Ph.D.

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Rajive Bagrodia, Ph.D. (*Computer Science*)  
Arnold J. Berk, M.D. (*Microbiology and Molecular Genetics*)  
Sally Blower, Ph.D. (*Biomathematics*)  
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Ming-C Wu, Ph.D. (*Electrical Engineering*)  
Jenn-Ming Yang, Ph.D. (*Materials Science and Engineering*)  
Kung Yao, Ph.D. (*Electrical Engineering*)  
Carlo Zaniolo, Ph.D. (*Computer Science*)

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Gregory Carman, Ph.D. (*Mechanical and Aerospace Engineering*)  
Gang Chen, Ph.D. (*Mechanical and Aerospace Engineering*)  
Simon R. Cherry, Ph.D. (*Molecular and Medical Pharmacology*)  
Mark Cohen, Ph.D. (*Neurology, Radiological Sciences, Psychiatry and Biobehavioral Sciences*)  
Michael Deem, Ph.D. (*Chemical Engineering*)  
Linda Demer, M.D., Ph.D. (*Cardiology, Physiology*)  
Gary Duckwiler, M.D. (*Radiological Sciences*)  
Alan Garfinkel, Ph.D. (*Physiological Science*)  
Robin L. Garrell, Ph.D. (*Chemistry and Biochemistry*)  
Harold G. Monbouquette, Ph.D. (*Chemical Engineering*)  
Valery I. Nenov, Ph.D. (*Neurosurgery*)

#### Assistant Professors

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Lee Goodglick, Ph.D. (*Pathology and Laboratory Medicine*)  
Marc Hedrick, M.D. (*Surgery*)  
George Huang, D.Sc., D.D.S. (*Dentistry*)  
Jack Judy, Ph.D. (*Electrical Engineering*)  
Sheila Nirenberg, Ph.D. (*Neurology*)  
Dario Ringach, Ph.D. (*Neurobiology, Psychology*)  
Felix Schweitzer, Ph.D. (*Neurobiology*)  
Daniel J. Valentino, Ph.D. (*Radiological Sciences*)  
Benjamin Wu, D.D.S., Ph.D. (*Biomedical Engineering and Materials Science*)

#### Adjunct Professors

Guido Germano, Ph.D. (*Radiological Sciences*)  
John J. Gilman, Ph.D. (*Materials Science and Engineering*)  
Boris Kogan, Ph.D. (*Computer Science*)

#### Adjunct Associate Professor

Vivek Dixit, Ph.D. (*Medicine*)

### Adjunct Assistant Professors

Robert Close, Ph.D. (*Radiological Sciences*)  
Robert J. Greenberg, M.D., Ph.D. (*Electrical Engineering*)  
Imke Schroeder, Ph.D. (*Microbiology and Molecular Genetics*)

## 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 seven 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 in biomedical engineering. Faculty members have principal appointments in departments across campus and have well-equipped laboratories for graduate student research projects.

New courses are currently being developed. In the interim, biomedical engineering students take selected courses in other departments. Students should contact the program office for the latest details.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Biomedical Engineering Program offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biomedical Engineering.

## Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. program are required to take the General Test of the Graduate Record Examination (GRE).

All applicants must submit a statement of purpose relating their reasons for seeking admission, in addition to three letters of reference detailing their academic preparation, industrial or research laboratory training, and potential for future professional development. To apply for the M.S. program, applicants should have a

B.S. degree in engineering, life sciences, or physical sciences, with a grade-point average of no less than 3.0 in the last two years of undergraduate study.

To apply for the Ph.D. program, applicants should meet the requirements for the M.S. with a grade-point average of no less than 3.25.

Meeting the minimum requirements does not guarantee admission; the actual standard for admission is set by the current pool of applicants and is generally much higher. Applicants are encouraged to apply online.

Application forms, including a departmental supplement to the application, may be found at <http://www.bme.ucla.edu> or by writing to Biomedical Engineering, Henry Samueli School of Engineering and Applied Science, 7523 Boelter Hall, UCLA, Box 951600, Los Angeles, CA 90095-1600 or to the Office of the Associate Dean for Academic and Student Affairs, Henry Samueli School of Engineering and Applied Science, 6426 Boelter Hall, UCLA, Box 951601, Los Angeles, CA 90095-1601.

**Neuroengineering.** Applicants who wish to enter the field of neuroengineering apply either to the Ph.D. program in Biomedical Engineering or to the Ph.D. program in Neuroscience (see Neuroscience). Applicants must have an undergraduate degree in engineering, physics, chemistry, or one of the life sciences (for example, biology, microbiology and molecular genetics, molecular, cell, and developmental biology, neuroscience, physiology, or psychology).

Engineering students must have taken at least one undergraduate course in biology, one course in chemistry, and a year of physics. Students from nonengineering backgrounds are required to have taken courses in undergraduate calculus, differential equations, and linear algebra, in addition to at least a year of undergraduate courses in each of the following: organic chemistry and biochemistry, physics, and biology. Students lacking one or more requisite courses may be admitted and provided with appropriate coursework or tutorials during the summer before matriculation.

## Master's Degree

For major fields, see Doctoral Degree.

The M.S. degree is offered through the comprehensive examination and thesis plans. Students specializing in molecular and cellular bioengineering are required to follow the thesis plan. The comprehensive examination is integrated with the comprehensive preliminary examination for the Ph.D. At least nine courses are required, five of which must be graduate courses. Core and elective courses are required for each field. Remedial courses also may be required in instances where the student's academic preparation is insufficient.

## Doctoral Degree

Major fields include bioacoustics, speech, and hearing; biocybernetics; biomechanics, biomaterials, and tissue engineering; biomedical instrumentation; biomedical signal and image processing and bioinformatics; molecular and cellular bioengineering; and neuroengineering (a joint endeavor between the interdepartmental programs in Neuroscience in the School of Medicine and Biomedical Engineering in the Henry Samueli School of Engineering and Applied Science, with the active involvement of scientists and technologists from the Jet Propulsion Laboratory).

Students must complete the coursework for two minor fields of study. At least one minor field of study should be one of the other major fields of the Biomedical Engineering Program. Coursework consists of core and elective courses and is specific to the field. For the written preliminary examination in the major field, Ph.D. students are responsible for the material covered in required courses specified by the field committee. Students should consult *Program Requirements for UCLA Graduate Degrees*, the school's *Announcement*, and the program for specific information on course requirements.

Written and oral qualifying examinations are required. The written qualifying examination is known as the Ph.D. preliminary examination. After mastering a body of knowledge in core courses, students take the examination in the major field, which typically consists of both a written part and an oral part.

After successful completion of the written qualifying examination, students take the University Oral Qualifying Examination. The nature and content of the examination are at the discretion of the doctoral committee, but ordinarily include a broad inquiry into the student's preparation for research, as well as a review of the dissertation prospectus.

## Biomedical Engineering

### Upper Division Courses

**C101. Introduction to Biomedical Engineering. (4)** (Formerly numbered 101.) 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. Human Anatomy for Biomedical Engineers. (4)** (Formerly numbered M102.) (Same as Physiological Science CM102.) Lecture, three hours; laboratory, two hours. Not open for credit to Physiological Science majors. Designed to provide foundation in human gross and microscopic anatomy for graduate biomedical engineering students. Broad overview of structural organization of human body and detailed examination of specific systems pertinent to biomedical research. Concurrently scheduled with course CM202. Letter grading.

**CM103. Human Physiology for Biomedical Engineers. (4)** (Formerly numbered M103.) (Same as Physiological Science CM103.) Lecture, three hours; laboratory, two hours. Not open for credit to Physiological Science majors. Designed to provide foundation in human physiology for graduate biomedical engineering students. Systematic approach to examination of major systems function, with emphasis on regulatory mechanisms controlling normal function. Detailed examination of specific systems pertinent to major areas of biomedical research. Concurrently scheduled with course CM203. Letter grading.

**CM140. Introduction to Biomechanics. (4)** (Formerly numbered M140.) (Same as Mechanical and Aerospace Engineering CM140.) Lecture, four hours; outside study, eight hours. Requisites: Mechanical and Aerospace Engineering 102 (or Civil Engineering 108), 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; 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.

**M150L. Introduction to Micromachining and Microelectromechanical Systems Laboratory. (4)** (Same as Electrical Engineering M150L and Mechanical and Aerospace Engineering M180L.) Lecture, three hours; laboratory, four hours; outside study, five hours. Requisites: Electrical Engineering 1 or Physics 1C, Chemistry 20A. Introduction to micromachining technologies and microelectromechanical systems (MEMS). Methods of micromachining and how these methods can be used to produce a variety of MEMS, including microstructures, microsensors, and microactuators. Students fabricate set of basic MEMS structures in hands-on microfabrication laboratory. Letter grading.

**C170. Laser-Tissue Interaction I. (4)** Lecture, three hours; laboratory, three hours; outside study, six hours. Requisites: Electrical Engineering 172, 175, Life Sciences 3, Physics 17. Introduction to different types of laser-tissue interaction, with emphasis on therapeutics and diagnostics applications. Concurrently scheduled with course C270. 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.

**CM180. Introduction to Biomaterials. (4)** (Formerly numbered M180.) (Same as Materials Science CM180.) Lecture, three hours; outside study, nine hours. Requisites: Chemistry 20A, 20B, and 20L, or Materials Science 14. 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.

**C185. Introduction to Tissue Engineering. (4)** Lecture, three hours; outside study, nine 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.

**M196A. Introduction to Cybernetics, Biomodeling, and Biomedical Computing. (2)** (Same as Computer Science M196A and Cybernetics M196A.) Lecture, two hours. Requisites: Mathematics 31A, 31B, Program in Computing 10A. Strongly recommended for students with potential interest in biomedical engineering/biocomputing fields or in Cybernetics as a major. Introduction and survey of topics in cybernetics, biomodeling, biocomputing, and related bioengineering disciplines. Lectures presented by faculty currently performing research in one of the areas; some sessions include laboratory tours. P/NP grading.

**M196B. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5)** (Same as Computer Science M196B, Cybernetics M196B, and Medicine M196B.) Lecture, four hours; discussion, one hour; laboratory, two hours. Requisite: Electrical Engineering 102 or Mathematics 115A. Introduction to dynamic system modeling, compartmental modeling, and computer simulation methods for studying biomedical systems. Basics of numerical simulation algorithms, translating biomodeling goals and data into mathematic models and implementing them for simulation and analysis. Modeling software exploited for class assignments in PC laboratory. Letter grading.

**CM196L. Biomedical Systems/Biocybernetics Research Laboratory. (2 to 4)** (Same as Computer Science CM196L and Cybernetics M196L.) Lecture, two hours; laboratory, two hours. Requisite: course M196B. Special laboratory techniques and experience in biocybernetics research. Laboratory instruments, their use, design, and/or modification for research in life sciences. Special research hardware, firmware, software. Use of simulation in experimental laboratory. Laboratory automation and safety. Comprehensive experiment design. Radioactive isotopes and kinetic studies. Experimental animals, controls. Concurrently scheduled with course CM296L. 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. Human Anatomy for Biomedical Engineers. (4)** (Same as Physiological Science CM204.) Lecture, three hours; laboratory, two hours. Not open for credit to Physiological Science majors. Designed to provide foundation in human gross and microscopic anatomy for graduate biomedical engineering students. Broad overview of structural organization of human body and detailed examination of specific systems pertinent to biomedical research. Concurrently scheduled with course CM102. Letter grading.

**CM203. Human Physiology for Biomedical Engineers. (4)** (Same as Physiological Science CM203.) Lecture, three hours; laboratory, two hours. Not open for credit to Physiological Science majors. Designed to provide foundation in human physiology for graduate biomedical engineering students. Systematic approach to examination of major systems function, with emphasis on regulatory mechanisms controlling normal function. Detailed examination of specific systems pertinent to major areas of biomedical research. Concurrently scheduled with course CM103. 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; outside study, eight hours. Requisites: Chemical Engineering 101C and 106, or Chemistry 156. 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; laboratory, two hours; outside study, seven hours. Requisite: Electrical Engineering 114D or 211A. Mathematical principles of medical imaging modalities: X-ray, computed tomography, positron emission tomography, single photon emission computed tomography, magnetic resonance imaging. Topics include basic principles of each imaging system, image reconstruction algorithms, system configurations and their effects on reconstruction algorithms, specialized imaging techniques for specific applications such as flow imaging. Letter grading.

**M225. Bioseparations and Bioprocess Engineering. (4)** (Same as Chemical Engineering CM225.) Lecture, four hours; outside study, eight hours. Requisites: Chemical Engineering 101C and 103, or Chemistry 156. 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.

**CM240. Introduction to Biomechanics. (4)** (Same as Mechanical and Aerospace Engineering CM240.) Lecture, four hours; outside study, eight hours. Requisites: Civil Engineering 108 or Mechanical and Aerospace Engineering 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; 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 a range of modalities. Practical experience provided through a series of imaging laboratories. Letter grading.

**M250A. Microelectromechanical Systems (MEMS) Fabrication. (4)** (Same as Electrical Engineering M250A and Mechanical and Aerospace Engineering M280.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course M150L. 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.

**M250B. Microelectromechanical Systems (MEMS) Device Physics and Design. (4)** (Same as Electrical Engineering M250B and Mechanical and Aerospace Engineering M282.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course M250A. 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.

**M259H. Biomechanics of Traumatic Injury. (4)** (Same as Environmental Health Sciences M259H.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to applied biomechanics of accidental injury causation and prevention; discussion of mechanisms of injury that result in bone and soft tissue trauma; discussion of mechanisms of healing for effective rehabilitation after traumatic injury. Letter grading.

**260. Neuroengineering. (4)** Lecture, three hours; outside study, nine hours. Requisites: Mathematics 32A, Molecular, Cell, and Developmental Biology 100. Recommended: Molecular, Cell, and Developmental Biology 171. Introduction to principles and technologies of neural recording and stimulation. Neurophysiology; clinical electrophysiology (EEG, evoked potentials, inverse problem, preoperative brain recording), extracellular microelectrodes and recording (field potentials and single units), chronic recording with extracellular electrodes; electrode biocompatibility, tissue damage, electrode and cable survival; intracellular recording and glass pipettes electrodes, iontophoresis; imaging neural activity (Ca imaging, voltage-sensitive dyes), intrinsic optical imaging; MRI, fMRI. Letter grading.

**C270. Laser-Tissue Interaction I. (4)** Lecture, three hours; laboratory, three hours; outside study, six hours. Requisites: Electrical Engineering 172, 175, Life Sciences 3, Physics 17. Introduction to different types of laser-tissue interaction, with emphasis on therapeutics and diagnostics applications. Concurrently scheduled with course C170. 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.

**CM280. Introduction to Biomaterials. (4)** (Same as Materials Science CM280.) Lecture, three hours; outside study, nine hours. Requisites: Chemistry 20A, 20B, and 20L, or Materials Science 14. 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. 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.

**C285. Introduction to Tissue Engineering. (4)** Lecture, three hours; outside study, nine 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.

**M296A. Advanced Modeling Methodology for Dynamic Biomedical Systems. (4)** (Same as Computer Science 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, Computer Science 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 Computer Science 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 Computer Science M296D.) Lecture, four hours; outside study, eight hours. Requisite: course M196B. Introduction to mathematical modeling and computer simulation of cardiac electrophysiological process. Ionic models of action potential (AP). Theory of AP propagation in 1D and 2D cardiac tissue. Simulation on sequential and parallel supercomputers, choice of numerical algorithms, to optimize accuracy and to provide computational stability. Letter grading.

**CM296L. Biomedical Systems/BioCybernetics Research Laboratory. (2 to 4)** (Same as Computer Science CM296L.) Lecture, two hours; laboratory, two hours. Requisite: course M196B. Special laboratory techniques and experience in bioCybernetics research. Laboratory instruments, their use, design, and/or modification for research in life sciences. Special research hardware, firmware, software. Use of simulation in experimental laboratory. Laboratory automation and safety. Comprehensive experiment design. Radioactive isotopes and kinetic studies. Experimental animals, controls. Concurrently scheduled with course CM196L. Letter 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.

Jorge R. Barrio, Ph.D. (*Molecular and Medical Pharmacology*)  
Edward J. Hoffman, Ph.D. (*Molecular and Medical Pharmacology, Radiological Sciences*)  
Sung-Cheng (Henry) Huang, D.Sc. (*Molecular and Medical Pharmacology*)  
Hooshang Kangarloo, M.D. (*Radiological Sciences, Pediatrics*)  
Robert B. Lufkin, M.D. (*Radiological Sciences*)  
John C. Mazziotta, M.D., Ph.D. (*Radiological Sciences*)  
William H. McBride, D.Sc. (*Radiation Oncology*)  
Michael E. Phelps, Ph.D. (*Molecular and Medical Pharmacology; Norton Simon Professor of Biophysics*)  
Osman Ratib, M.D., Ph.D., in Residence (*Molecular and Medical Pharmacology, Radiological Sciences*)  
Nagichettiar Satyamurthy, Ph.D., in Residence (*Molecular and Medical Pharmacology*)  
Heinrich R. Schelbert, M.D., Ph.D. (*Molecular and Medical Pharmacology*)  
H. Rodney Withers, M.D., D.Sc. (*Radiation Oncology*)

#### Professors Emeriti

Moses A. Greenfield, Ph.D., FACR (*Radiological Sciences*)  
F. Eugene Holly, Ph.D. (*Radiation Oncology*)  
Carolyn Kimme-Smith, Ph.D. (*Radiological Sciences*)  
Amos Norman, Ph.D. (*Radiation Oncology*)  
James B. Smathers, Ph.D. (*Radiation Oncology*)  
Richard J. Steckel, M.D. (*Radiological Sciences*)

#### Associate Professors

Mark S. Cohen, Ph.D., in Residence (*Psychiatry and Biobehavioral Sciences, Radiological Sciences*)  
Magnus Dahlbom, Ph.D., in Residence (*Molecular and Medical Pharmacology*)  
Graeme J. Dougherty, Ph.D. (*Radiation Oncology*)  
Sanjiv Gambhir, M.D., Ph.D. (*Molecular and Medical Pharmacology*)  
David A. Hovda, Ph.D. (*Surgery*)  
William P. Melega, Ph.D., in Residence (*Molecular and Medical Pharmacology*)  
Shantanu Sinha, Ph.D., in Residence (*Radiological Sciences*)  
Timothy D. Solberg, Ph.D., in Residence (*Radiation Oncology*)  
Phoebe L. Stewart, Ph.D. (*Molecular and Medical Pharmacology*)  
M. Albert Thomas, Ph.D., in Residence (*Radiological Sciences*)

#### Assistant Professors

John J. DeMarco, Ph.D., in Residence (*Radiation Oncology*)  
Keyvan Farahani, Ph.D., in Residence (*Radiological Sciences*)  
Judith M. Ford, M.D. Ph.D., in Residence (*Radiation Oncology*)  
Jonathan G. Goldin, MbChb, Ph.D., FRCR, in Residence (*Radiological Sciences*)  
Keisuke S. Iwamoto, Ph.D., in Residence (*Radiation Oncology*)  
Michael McNitt-Gray, Ph.D., in Residence (*Radiological Sciences*)

#### Associate Clinical Professor

Robert E. Wallace, Ph.D. (*Radiation Oncology*)

#### Assistant Clinical Professors

Shona T. Dougherty, M.D., Ph.D. (*Radiation Oncology*)  
Judith M. Ford, M.D., Ph.D. (*Radiation Oncology*)  
Usha Sinha, Ph.D. (*Radiological Sciences*)  
Daniel J. Valentino, Ph.D. (*Radiological Sciences*)

#### Lecturers

Lan H. Kobe, M.S. (*Radiation Oncology*)  
Marilyn C. Wexler, M.S.

#### Adjunct Professors

L. Stephen Graham, Ph.D. (*Radiological Sciences*)  
James W. Sayre, Dr.P.H.  
Lawrence E. Williams, Ph.D.

#### Adjunct Associate Professors

Guido Germano, Ph.D.  
James S. Whiting, Ph.D.

#### Adjunct Assistant Professors

Arion Chatziioannou, Ph.D. (*Molecular and Medical Pharmacology*)  
Robert Close, Ph.D. (*Radiation Oncology*)  
Virgil N. Cooper, III, Ph.D.  
Jeffrey H. Kleck, Ph.D. (*Radiation Oncology*)  
Min-Yuan Leu, Ph.D. (*Radiation Oncology*)  
Hazel L. Lewis, Ph.D. (*Radiation Oncology*)  
James C. Liu, Ph.D. (*Radiation Oncology*)  
David Metcalf, Ph.D. (*Radiation Oncology*)  
Craig Morioka, Ph.D.  
James A. Roseboro, Ph.D. (*Radiation Oncology, Radiological Sciences*)  
Peter J. Rosemark, Ph.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: biophysics, medical imaging, medical physics, and radiation biology. 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 health care delivery.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications

## BIOMEDICAL PHYSICS

Interdepartmental Program  
School of Medicine

UCLA  
1V-365 Center for the Health Sciences  
Box 951721  
Los Angeles, CA 90095-1721  
(310) 825-7811  
<http://www.nuc.ucla.edu/bmp/>

Edward J. Hoffman, Ph.D., *Director*

#### Professors

Jeffrey R. Alger, Ph.D., in Residence (*Radiological Sciences*)  
Zoran L. Barbaric, M.D. (*Radiological Sciences*)

available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Biomedical Physics Program offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biomedical Physics.

## Admission

In addition to the University's minimum requirements, applicants to the M.S. program are required to hold a bachelor's degree with a major in a science or engineering program. Also, it is expected that applicants have completed (1) one year of college physics (calculus-based), (2) two years of college mathematics through differential equations, including calculus equivalent to Mathematics 31A, 31B, 32A, 32B, 33A, 33B at UCLA, (3) one year of college chemistry, and (4) at least one course in computer science. Deficiencies in the above courses must be removed prior to advancement to candidacy.

In addition, applicants to the specialty fields of biophysics, medical imaging, and therapeutic medical physics must have a strong foundation in basic physics or a degree in engineering, mathematics, or other sciences with physics training equivalent to a minor in physics (upper division courses in electricity and magnetism, quantum mechanics, atomic structure, statistical mechanics, and mechanics). Applicants may be accepted with some deficiencies in entrance requirements which must be removed prior to advancement to candidacy.

Scores from the Graduate Record Examination (GRE) General Test, taken within the last three years, should be sent to the program. Three letters of recommendation are required. If applicants already have a master's degree, one of the letters should be from their thesis adviser.

Admission to the Ph.D. program requires a bachelor's degree with a major in a science or engineering program and (1) selection of a specialty, (2) passing either all of the core courses with grades of B or better or the M.S. comprehensive examination, and (3) passing a written specialty qualifying examination which may be repeated once. Biomedical Physics 221 is required of all students. Completion of a master's program is not required.

A brochure describing the program in biomedical physics may be obtained from the program office.

## Master's Degree

For areas of specialty, see Doctoral Degree.

The M.S. degree is offered through the comprehensive examination and thesis plans. Forty-four units of graduate-level coursework is required, including core and other required courses.

## Doctoral Degree

Areas of specialty include therapeutic medical physics, medical imaging, biological imaging, and radiation biology and experimental radiation therapy.

After selecting a specialty, students acquire sufficient knowledge by taking courses recommended for the specialty; these include the core and required courses. The courses form a basis for the Ph.D. written specialty examination. A more sharply focused curriculum may be advised for students with a medical physics background or with a career objective other than that of a practicing medical physicist.

Written and oral qualifying examinations are required. Each specialty structures its own written qualifying examination and may request its own students to pass a major topic(s) from other specialties. Once the written specialty examination is passed and students have selected a research area for the dissertation, they take the University Oral Qualifying Examination, which is based on the proposed dissertation topic.

## Biomedical Physics

### Lower Division Course

**88. Lower Division Seminar: Special Topics in Biomedical Physics. (4)** Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in biomedical physics approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

### Upper Division Courses

**CM133. Principles, Practices, and Policies in Biotechnology. (2)** (Same as Biological Chemistry CM133, Chemical Engineering CM133, Chemistry CM133, Microbiology CM133, Microbiology and Immunology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

**199. Directed Individual Studies or Research for Undergraduate Students. (2 to 4)** Preparation: submission of written proposal outlining course of study or research. Directed individual studies in biomedical physics for undergraduate students to be structured by faculty member and student at time of initial enrollment.

### 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, nuclear 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.

**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.

**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.

**202A-202B-202C. Applications of Medical Physics to Clinical Problems. (4-4-4)** Selected studies in clinical use of radioisotopes:

**202A. Nuclear Medicine. (4)** Requisite: course 200B.

**202B. Diagnostic Radiology. (4)** Requisites: courses 200A, 205.

**202C. Radiation Therapy. (4)** Requisites: courses 203, 204, 208B, 221.

**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)** Effect of ionizing radiation on chemical and biological systems.

**205. Physics of Diagnostic Radiology. (4)** Lecture, three hours; discussion, 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.

**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.

**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.

**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.

**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 a 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.

**210. Principles of Medical Imaging. (4)** Lecture, three hours; discussion, one hour. Requisite: course 209. Study of image representation, computational structures for imaging, linear systems theory, image enhancement and restoration, image compression, segmentation, and morphology. Special topics include visualization techniques, three-dimensional modeling, computer graphics, and neural net applications. Laboratory projects apply concepts developed in class.

**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.

**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.

**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.

**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).

**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.

**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.

**217. Statistics and Data Analysis in Biomedical Physics. (4)** Lecture, three hours; laboratory, two hours. 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 the radiological sciences.

**218. Radiologic Functional Anatomy. (4)** Lecture, three hours; discussion, two hours. Introduction to human anatomy as visualized through radiological and nuclear medicine imaging modalities such as X ray, CT, MRI, sonogram, PET, and SPECT.

**219. Principles and Applications of Magnetic Resonance Imaging. (4)** Lecture, three hours; laboratory, one hour. Basic principles of magnetic resonance (MR), imaging physics, and contrast mechanisms. Emphasis on hardware, Fourier transform imaging methods, structure of pulse sequences, various scanning parameters and reduction of artifacts. Introduction to MR spectroscopy, MR angiography, and fast imaging techniques.

**220A-220D. Laboratory Rotations in Biomedical Physics. (2-2)** Laboratory projects to provide students with introduction to the 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.

**222. Advances in Medical Magnetic Resonance: Clinical MR Spectroscopy and Fast MRI Techniques. (4)** Lecture, three hours; laboratory, one hour. Requisites: course 219, Physics 8E. Basic principles of NMR spectroscopy, localized spectroscopic sequences on a 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.

**223. Seminar: Radiation Biology. (1)** Requisite or corequisite: course 204. Topics of current interest in radiation biology presented by faculty members, postdoctoral fellows, and graduate students from various departments and other universities. Discussion of ongoing research, as well as relevant journal articles. Topics vary from term to term. One student oral presentation required. S/U grading.

**M230. Computed Tomography: Theory and Applications. (4)** (Same as Biomathematics M230.) Computed tomography is a three-dimensional imaging technique being widely used in radiology and is becoming an 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.

**CM233. Principles, Practices, and Policies in Biotechnology. (2)** (Formerly numbered M233.) (Same as Biological Chemistry CM233, Chemical Engineering CM233, Chemistry CM233, Microbiology CM233, Microbiology and Immunology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. 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 a range of modalities. Practical experience provided through a series of imaging laboratories. Letter grading.

**260A-260B-260C. Seminars: Biomedical Physics. (1-1-1)** 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.

**269. Seminar: Medical Imaging. (1)** Continuous registration required of students in medical imaging specialty. Topics of current interest in medical imaging, with lecturers from the department, other universities, and private industry.

**M285. Functional Neuroimaging: Techniques and Applications. (4)** (Same as Psychiatry M285.) In-depth examination of activation imaging, including PET and MRI 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 a functional MRI experiment. S/U or letter grading.

**M424. Functional Magnetic Resonance Imaging Journal Club. (1)** (Same as Psychiatry M424.) Discussion, 90 minutes. Directed reading and discussion of current topics and developments in functional magnetic resonance imaging. 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 a faculty member. S/U grading.

**596. Research in Biomedical Physics. (4 to 12)** Directed individual study or research. Only one 596 course may be applied toward M.S. degree requirements. May be repeated for credit.

**597. Preparation for Ph.D. Qualifying Examinations. (4)** 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)** 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)** Preparation: successful completion of screening examinations. Research for and preparation of Ph.D. dissertation. May be repeated. S/U grading.

## BIostatistics

*School of Public Health*

UCLA  
51-254 Center for the Health Sciences  
Box 951772  
Los Angeles, CA 90095-1772  
(310) 825-5250  
e-mail: [biostat@ucla.edu](mailto:biostat@ucla.edu)  
<http://www.ph.ucla.edu/biostat>

William G. Cumberland, Ph.D., *Chair*

### Professors

Abdelmonem A. Afifi, Ph.D.  
William G. Cumberland, Ph.D.  
Dorota M. Dabrowska, Ph.D.  
Naihua Duan, Ph.D., *in Residence*  
Robert M. Elashoff, Ph.D.  
Weng Kee Wong, Ph.D.

### Professors Emeriti

Potter C. Chang, Ph.D.  
Virginia A. Clark, Ph.D.  
Wilfrid J. Dixon, Ph.D.  
Olive Jean Dunn, Ph.D.  
Donald Guthrie, Ph.D., *in Residence*  
Robert I. Jennrich, Ph.D.  
Raymond J. Jensen, Ph.D.

### Associate Professors

Thomas R. Belin, Ph.D.  
Gang Li, Ph.D.  
Robert E. Weiss, Ph.D.

### Assistant Professors

David A. Elashoff, Ph.D.  
Steve Horvath, Ph.D., Sc.D.  
Janet Sinsheimer, Ph.D.

### Lecturers

Jeffrey Gornbein, Dr.P.H.  
Susanne J. May, Ph.D.  
Jean L. Mickey, Ph.D., *Emerita*

### Adjunct Professor

Frederick J. Dorey, Ph.D.  
Martin L. Lee, Ph.D.  
James W. Sayre, Dr.P.H.

### Adjunct and Visiting Associate Professors

Nancy G. Berman, Ph.D., *Adjunct*  
David W. Gjertson, Ph.D., *Adjunct*  
Karim F. Hirji, D.Sc., *Adjunct*

### Adjunct and Visiting Assistant Professors

W. John Boscardin, Ph.D., *Adjunct*  
Enrique Schisterman, Ph.D., *Visiting*

## 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, survey research, and computer science. 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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Biostatistics offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biostatistics.

## Admission

Applicants to the M.S. program must have completed a bachelor's degree. Majors in mathematics, computer science, or a field of application in biostatistics are preferred. Undergraduate preparation for the program should include Mathematics 31A, 31B, 32A, 32B, 33A, 33B (second-year calculus), or equivalent.

Applicants should see the Master of Public Health (M.P.H.) admission section under Public Health Schoolwide Programs. Admission requirements for the M.S. in Biostatistics are the same as for the M.P.H.

Qualifications for admission to the Ph.D. program are those currently specified by the Graduate Division. Consult the department for further information.

## Master's Degree

The M.S. degree is offered through the comprehensive examination plan. A minimum of nine courses are required, at least five of which must be at the graduate level. The five required graduate courses must be in biostatistics or mathematical statistics, including at least three courses in biostatistics. Other courses in biostatistics or mathematical statistics, or in related areas, are selected with the adviser's consent and approved by the chair.

## Doctoral Degree

In addition to required courses, the student's full program of study must include three areas of knowledge at the graduate level: biostatistics, mathematical statistics, and a third related field. Students must also enroll in a statistical consulting seminar for three consecutive quarters and an advanced research seminar every quarter.

Written and oral qualifying examinations are required. There are two written examinations. Following successful completion of the written examinations, students take the University Oral Qualifying Examination, which usually consists of a defense of the dissertation proposal.

## 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.

**M153A. Introduction to Regression Analysis. (4)** (Same as Biomathematics M153A and Statistics M120A.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, Statistics 100B. Linear regression, diagnostics and model building, general linear model theory, analysis of variance and covariance. Full integration of theory and software. P/NP or letter grading.

**M153B. Introduction to Generalized Linear Models. (4)** (Same as Biomathematics M153B and Statistics M120B.) Lecture, three hours; discussion, one hour. Requisite: course M153A. Nonlinear regression, exponential family, generalized linear models, categorical data analysis, statistical software. P/NP or letter grading.

**199. Special Studies. (2 to 4)** Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to seniors. Individual undergraduate guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Only 4 units may be taken each term. 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. Requisites: courses M153A, 200A. S/U or letter grading. **200B.** Multiple linear regression, including model validation, influence of observations, regression diagnostics; discriminant analysis; principal components; factor analysis and clinical trials. **200C.** 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.

**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)** (Formerly numbered 405.) (Same as 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.

**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 201A, 201B. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in Epidemiology 201A and 201B 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. Prerequisites: 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. Prerequisites: 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. Prerequisites: 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. Prerequisite: course 115 or Statistics 100C. Statistical methods for analysis of survival data. S/U or letter grading.

**216. Introduction to Statistical Methods for Biological Assays. (4)** Lecture, three hours. Prerequisite: course 110B. Topics include standard statistical procedures for estimation of relative potency, density of microorganisms, and density of radioactivity, models used for these procedures, and statistical considerations for designing such assays. S/U or letter grading.

**219. Special Topics: Supplemental Topics. (4)** Lecture, three hours; discussion, one hour. Prerequisite: course 115. Topics in biostatistics not covered in other courses. Letter grading.

**M220. Experimental Statistics. (4)** (Same as Physiological Science CM200.) 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. Prerequisites: 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.

**231. Simultaneous Statistical Inference. (4)** Lecture, three hours; discussion, one hour. Prerequisites: course 200C, Statistics 100B. Methods and theory of simultaneous statistical inference. Letter grading.

**M232. Statistical Analysis of Incomplete Data. (4)** (Same as Biomathematics M232.) Lecture, three hours; discussion, one hour. Prerequisite: 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. Prerequisites: courses 110A, 110B, M215. Coverage of methods necessary to address statistical problems in AIDS research, including projection methods for the 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. Prerequisites: 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. Prerequisite: 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. Analysis of Repeated Measures Designs. (4)** (Same as Biomathematics M282.) Lecture, three hours; discussion, one hour. Prerequisites: courses 200A, 200B. Presentation of classical and modern theories for analysis of repeated measures designs, with focus on computation and robustness. S/U or letter grading.

**M237A. Theoretical Genetic Modeling. (4)** (Same as Biomathematics M207A and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Preparation: coursework equivalent to Mathematics 115A, 131A. 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.

**M237B. Applied Genetic Modeling. (4)** (Same as Biomathematics M207B and Human Genetics M207B.) Lecture, three hours; laboratory, one hour. Preparation: coursework equivalent to courses 110A, 110B. Methods of computer-oriented genetic analysis. Topics may include segregation analysis, parametric and nonparametric linkage analysis, quantitative methods, and phylogenetics. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M237A; 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. Prerequisites: 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.

**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. Prerequisite: course 200C. Current research in biostatistics. May be repeated for credit. S/U grading.

**M250A-M250B. Linear Statistical Models. (4-4)** (Same as Statistics M215A-M215B.) 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. Prerequisite: course M250A. 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. Prerequisites: 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 estimation 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.

**271. Mathematical Epidemiology. (4)** Lecture, three hours. Preparation: upper division mathematics (including statistics and probability). Mathematical theory of epidemiology with deterministic and stochastic models and problems involved in applying the theory. Letter grading.

**272. Statistical Genetics. (4)** Lecture, three hours; discussion, one hour. Preparation: upper division probability and statistics; knowledge of basic genetics principles helpful but not required. Introduction to statistical analysis of genetic data from experimental crosses, populations, and human pedigrees. Topics include segregation analysis, recombination and linkage, genetic mapping, inbreeding systems, population genetics, pedigree analysis, quantitative trait analysis, and molecular phylogeny. Letter grading.

**275. Advanced Survival Analysis. (4)** Lecture, three hours; discussion, one hour. Prerequisites: 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. Prerequisites: 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. Prerequisite: 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.

**279. Optimal Design Theory and Application. (4)** Lecture, three hours. Preparation: basic programming skills. Prerequisite: 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. Prerequisites: 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. Prerequisite: 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 the literature. S/U grading.

**295. Application of Statistical Theories in Biomedical Research. (4)** Lecture, three hours; discussion, one hour. Prerequisite: 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. (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. Prerequisite: 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. Prerequisite: 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)** (Formerly numbered 403B.) (Same as Epidemiology M403B.) Lecture, two hours; laboratory, two hours. Requisites: courses 100A, 100B. 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.

**404. Principles of Sampling. (4)** Lecture, three hours; discussion, one hour. Requisites: course 100B, Epidemiology 100. Statistical aspects of design and implementation of a sample survey. Techniques for analysis of data, including estimates and standard errors. Avoiding improper use of survey data. 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)** (Formerly numbered 289.) 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 the 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. Statistical Methods for Longitudinal Data. (4)** Lecture, three hours. Requisite: course 200A. Design and analysis of longitudinal or panel studies. S/U (optional only for nonmajors) 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 the 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.

**419. Special Topics: Applied Statistics. (4)** Lecture, three hours; discussion, one hour. Requisite: course 100C. Special topics in applied statistics not covered in other courses in professional series. S/U or letter grading.

**420. Database Management Systems. (4)** Lecture, three hours; laboratory, two hours. Requisite: course 403A. Database and database models applied to medical and public health studies; design of databases for efficient data retrieval and statistical analysis using package database management and statistical package programs. 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 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.

**599. Doctoral Dissertation Research. (2 to 8)** Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

## CÉSAR E. CHÁVEZ CENTER FOR CHICANA AND CHICANO STUDIES

*Center for Interdisciplinary Instruction  
College of Letters and Science*

UCLA  
7349 Bunche Hall  
Box 951559  
Los Angeles, CA 90095-1559

(310) 206-7695  
fax: (310) 825-2449  
e-mail: chavez-info@csrc.ucla.edu  
<http://www.sscnet.ucla.edu/chavez/>

Reynaldo F. Macías, Ph.D., *Chair*

### Center Faculty Professors

Judith F. Baca, M.A.  
Reynaldo F. Macías, Ph.D.  
James Diego Vigil, Ph.D.

### Associate Professors

Alicia Gaspar de Alba, Ph.D.  
Otto Santa Ana, Ph.D.  
Abel Valenzuela Jr., Ph.D.

### Assistant Professors

Eric Avila, Ph.D.  
María Cristina Pons, Ph.D.

### Affiliated Faculty Professors

Rosina M. Becerra, Ph.D. (*Social Welfare*)  
Laura E. Gómez, M.A. J.D., Ph.D. (*Law, Sociology*)  
Juan Gómez-Quiñones, Ph.D. (*History*)  
Kris D. Gutiérrez, Ph.D. (*Education*)  
David Hayes-Bautista, Ph.D. (*Medicine*)  
Steven J. Loza, Ph.D. (*Ethnomusicology*)  
Susan J. Plann, Ph.D. (*Spanish and Portuguese*)  
Fernando M. Torres-Gil, Ph.D. (*Social Welfare*)  
José Luis Valenzuela, B.A. (*Theater*)

### Associate Professors

Héctor V. Calderón, Ph.D. (*Spanish and Portuguese*)  
Guillermo Hernández, Ph.D. (*Spanish and Portuguese*)  
Chon A. Noriega, Ph.D. (*Film, Television, and Digital Media*)  
Vilma Ortiz, Ph.D. (*Sociology*)  
Rafael Pérez-Torres, Ph.D. (*English*)  
Sonia Saldívar-Hull, Ph.D. (*English*)

Daniel G. Solórzano, Jr. Ph.D. (*Education*)

### Assistant Professor

Raúl A. Hinojosa-Ojeda, Ph.D. (*Urban Planning*)

### Lecturers

Max Benavidez, B.A.  
Adolfo Bermeo, Ph.D.  
Fernando Gapasín, Ph.D.

## Scope and Objectives

The strength of the undergraduate major in Chicana and Chicano Studies is the cross-disciplinary approach to teaching and the critical skills approach to learning. Interdisciplinarity is the mainstay of the Chávez Center's academic objectives, achieved through the strengths and expertise of a core faculty that represents the fields of art, cultural studies, history, Latin American literature, sociolinguistics, and urban planning, and an associated faculty from a variety of disciplines. The center's location in Los Angeles, home to the largest community of Mexican origin in the nation as well as to several other Latino groups, places it in a unique position to draw from this large and diverse population — social experiences, historical realities, cultural practices, linguistic attributes, and literary and artistic productions.

The interdisciplinary program is an effective environment for teaching fundamental academic skills such as critical thinking and writing, as well as for exposing students to the wide range of theories, methodologies, technologies, and pedagogies that intersect the discipline. The major prepares students for graduate education in professional and academic fields and for a variety of positions that involve community and social service in the U.S. and abroad. To that end, the bilingual curriculum is learner-centered, writing-intensive, and academically rigorous.

The Chávez Center 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 major focus of the center's curriculum. The center, in its teaching, research, and service, aims to strike a balance among the social sciences, humanities, and the arts.

## Undergraduate Study

### Chicana and Chicano Studies B.A.

The B.A. program in Chicana and Chicano Studies is designed to provide systematic instruction for students who wish concentrated study of the Chicana/Chicano experience. Viewed as developmental, the program subjects the Chicana/Chicano reality to critical investigation, including social, economic, educational, historical, and political analysis. The ma-

job is recommended for students preparing for graduate study as well as for public service careers.

### Preparation for the Major

*Required:* Chicana and Chicano Studies 10A, 10B, Spanish 5 or equivalent.

### Transfer Students

To be admitted as Chicana and Chicano Studies majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one Chicana/Chicano life and culture course, one Chicana/Chicano social structure and contemporary conditions course, and five quarter terms of Spanish.

### The Major

*Required:* A total of 15 upper division courses, including Chicana and Chicano Studies 101, nine courses from the approved list of Chicana and Chicano Studies courses (available in the department office each term), one term of field studies, and three related study courses and one advanced seminar from the approved list of courses or by petition to the department chair or undergraduate adviser. 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.

*Recommended:* English Composition 110; Information Studies 111C; the introductory course in two of the following: anthropology, economics, history, political science, sociology; one or more courses in Chicana/Chicano history, literature, feminism, social science.

### Optional Multidisciplinary Senior Thesis

Chicana and Chicano Studies majors have the option during their senior year to enroll in two 199 courses in their major concentration area, with the intention of producing an undergraduate thesis related to the major concentration. Enrollment in the two 199 courses is with the advice and consent of a faculty member. 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.

### Course Limitations

No more than two 199 courses may be applied toward the major concentration; 199 courses applied toward the multidisciplinary senior thesis option may not also be applied toward the major concentration area. Registration in 199 courses must be approved in writing by the department chair. No more than two CED courses may be applied toward the major concentration.

## 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 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):* Chicana and Chicano Studies 101 and four elective courses selected from the approved list (available in the center office each term).

All minor courses must be taken for a letter grade, with 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: Life and Culture. (5)** Lecture, three hours; discussion, one hour. Interdisciplinary survey of diverse historical experiences, cultural factors, and ethnic/racial paradigms, including indigenism, 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.

### Upper Division Courses

**101. Theoretical Concepts in Chicana and Chicano Studies. (4)** Lecture, three hours. Requisite: course 10A or 10B. Survey of different theoretical approaches to field of Chicana and Chicano studies. Letter grading.

**M102. The Mexican American and the Schools. (4)** (Same as Education M102.) Review of research and teaching strategies. Analysis of school policies and practices and their effect on development of Mexican American and Chicano youth and communities.

**M103C. Origins and Evolution of Chicano Theater. (4)** (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).

**M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement. (4)** (Same as Theater M103D.) Lecture, three hours. Analysis and discussion of historical and political events from 1965 to 1980, as well as theatrical traditions which led to emergence of Chicano theater. Letter grading.

**M103H. Contemporary Chicano Theater: Chicano Theater since 1980. (4)** (Same as Theater M103H.) 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.

**M105A. Early Chicana/Chicano Literature. (5)** (Same as English M105A.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Survey of Chicana/Chicano literature from the 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. 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.

**106. Health in Latino Population. (4)** (Formerly numbered 197E.) Lecture, three hours. Examination of 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 between the U.S. and Mexico, including issues from Aztec medicine to Chicano health movement. Letter grading.

**M108A. Music of Latin America: Mexico, Central America, and the Caribbean Isles. (4)** (Same as Ethnomusicology M108A.) Lecture, four hours; discussion, one hour. Survey of traditional and contemporary musical culture.

**109. Chicana/Chicano Folklore. (4)** Lecture, four hours. Examination of roots of Chicana/Chicano folklore in Mexican oral tradition in the mid-19th century and development of Chicana/Chicano folklore to the present day. P/NP or letter grading.

**M110. Chicana Feminism. (4)** (Same as Women's Studies M132A.) Lecture, three hours. Requisite: 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 the Chicana/Chicano community and the dominant society. Attention to Anglo-European and Third World women. P/NP or letter grading.

**111. Chicana/Chicano and Latina/Latino Intellectual Traditions. (5)** (Formerly numbered 197C.) Lecture, five hours. General view of philosophical, cultural, and social thought as well as intellectual traditions in the Americas. Roles of writers as intellectuals and cultural/political strategists, and as definers of (national) identity, social reality, and struggles of liberation. Letter grading.

**M114. Chicanos in Film/Video. (6)** (Same as Film and Television M117.) Lectures/screenings, eight hours; discussion, one hour. Examination of representation of Mexican Americans and Chicanos in four Hollywood genres — silent "greaser" films, social problem films, the Western, and the gang films — which 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*, *The Ballad of Gregorio Cortez*, and *Born in East L.A.* Consideration of shorter, more experimental work that critiques the Hollywood image of Chicanos.

**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 a cross-cultural basis of diverse musical contexts within the vast multicultural metropolis of Los Angeles, with focus on various musical networks and specific experiences of the Chicano/Latino, African American, American Indian, Asian, rock culture, Western art music tradition, and the commercial music industry.

**M116. Chicano/Latino Music in the U.S. (4)** (Same as Ethnomusicology M116.) Lecture, four hours; discussion, one hour. Historical and analytical examination of musical expression of Latino peoples that have inhabited present geographical boundaries of the U.S.

**120. Immigration and the Chicano Community. (4)** Lecture, three hours. Discussion on relationship between international immigration and development of the Chicana/Chicano community. Examination of U.S. immigration policy and relationship between Mexican-origin population and other Latin American immigrants.

**121. Issues in Latina/Latino Poverty. (4)** Lecture, three hours. Examination of nature and extent of urban and rural poverty confronting Latina/Latino population in the U.S. Special emphasis on antipoverty policies of government and nonprofit organizations and social planning and economic development strategies. Attention also to literature on the underclass.

- 122. Planning Issues in Latina/Latino Communities. (4)** Lecture, three 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.
- 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 methodologically rigorous studies on poor and/or Latino communities, including important data that can be used for critical analysis and policy recommendations.
- 124. From Latin America to the U.S.: Immigration and Latino Identity. (4)** (Formerly numbered 197F.) Lecture, three hours. Overview of 20th-century immigration to the U.S.; social, political, and economic contexts underlying immigration from Latin America; formation of Latina/Latino identities in the U.S.; and anti-immigrant backlash and its consequences. Letter grading.
- 125. U.S./Mexico Relations. (4)** Lecture, three hours. Examination of complex dynamics in relationship between Mexico and the U.S., using a political economy approach to study of asymmetrical integration between advanced industrial economies and developing countries.
- 126. Politics of Crisis: Migration, Identity, and Religion. (4)** (Formerly numbered 197W.) Lecture, three hours. Survey of individual and collective religious response of Latin Americans and Latinas/Latinos in the U.S. to dislocations, displacements, and fragmentation produced by conquest, colonization, underdevelopment, globalization, and migration. Special focus on Catholic theology of liberation and Evangelical Christianity. Letter grading.
- 127. Farmworker Movements, Social Justice, and AFL-CIO. (4)** (Formerly numbered 197A.) 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.
- 128. Race, Gender, and U.S. Labor. (4)** (Formerly numbered 197A.) Lecture, four hours. Designed for juniors/seniors. Introduction to history and organization of labor movement in the U.S. and North America. Discussion of race, class, and gender issues raised within the 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)** (Formerly numbered 197G.) Lecture, four hours; field studies, two hours. Designed for juniors/seniors. Discussion of roles of union and non-union 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.
- 131. Barrio Popular Culture. (4)** Lecture, three hours. Construction of a model by which to organize study of Chicano/Chicana popular culture by focusing on the barrio as a metaphor for community. Examination of beliefs, myths, and values of Chicano/Chicana culture and representations in icons, heroes, legends, stereotypes, and popular art forms through literature, film, video, music, mass media, and oral history.
- 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 the U.S. Special attention to border consciousness as site of conflict and resistance.
- 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.
- 134. Exhibiting Cultures. (4)** Lecture, three hours. Analysis, through a cultural studies perspective, of exhibitions of Chicana/Chicano and Latina/Latino art that have occupied space in mainstream museums across the U.S. since the mid-1980s. Examination of how these shows both serve and subvert a multicultural agenda in the art world and how political identities are packaged and produced in process of exhibition-making. Field trips to local museums.
- 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)** (Formerly numbered 197F.) 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.
- M145A-M145B. Introduction to Chicano Literature. (4-4)** (Same as Spanish M145A-M145B.) Lecture, three hours. Requisite: Spanish 25 or 25A. 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. **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.
- 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 the U.S., including issues on family, immigration, reproduction, employment conditions. Comparative analysis with other Latinas. P/ NP or letter grading.
- M155. Latinos in the U.S. (4)** (Same as Sociology M155.) Lecture, three hours; discussion, one hour. Requisite: Sociology 1. 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 the larger social structure and on comparisons with other minority groups. Topics include migration, family, education, and work issues. P/NP or letter grading.
- M159A. History of the Chicano Peoples. (4)** (Same as History M159A.) Designed for juniors/seniors. Survey lecture course on historical development of the Mexican (Chicano) community and people of Mexican descent (Indio-Mestizo-Mulato) north of the Rio through the 17th, 18th, and 19th centuries, with special focus on labor and politics. Provides integrated understanding of change over time in the Mexican community by inquiry into major formative historical forces affecting the 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 the U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and field research, and submission of a paper.
- M159B. History of the Chicano Peoples. (4)** (Same as History M159B.) Designed for juniors/seniors. Survey lecture course on historical development of the Mexican (Chicano) community and people of Mexican descent in the U.S. through the 20th century, with special focus on labor and politics. Provides integrated understanding of change over time in the Mexican community by inquiry into major formative historical and policy issues affecting the community. Within a 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 the U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of a paper.
- 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 multilingualism and monolingualism and (2) major social issues associated with language use by Chicanos and other urban ethnic populations.
- 161. Chicano Sociolinguistics. (4)** Lecture, three hours. Requisite: course 160. Exploration of various theories of sociolinguistics, social/cultural change, ethnicity, and power to develop a cohesive model of Chicano sociolinguistics. Topics include histories and typology of Chicano language varieties, language change and maintenance/loss, language attitude studies, and American social institutional (media, educational, legal) responses to Chicano presence.
- 162. Language Research in the Barrio. (4)** Lecture/practicum, three hours. Requisite: course 160. Group-oriented practicum to gather, record, and analyze languages spoken in the Chicano community, using scientific methods. Development of research agenda and research instrument, gathering of actual speech and its analysis, and writing of final report under guidance of instructor. Student-selected research topics have included language use in the barrio, media portrayals of Latinos, and societal and educational attitudes toward language use of Latinos. Introduction to oral history, sociolinguistic interviewing, and social science methodology.
- 163. Bilingual Advantage: Spanish Language Topics on Chicana/Chicano and Latin American Cultures. (5)** (Formerly numbered 197C.) Lecture, four hours; discussion, one hour. Requisite: Spanish 4. Review of Spanish language literature, newsprint, radio, and television in the U.S., providing for student development of academic skills in Spanish. Comparison with Spanish language mass media in other parts of the 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.
- 168. Representations of Latinos in Print Media. (4)** Lecture/research, three hours. Examination of systemic (mis)representations of Latinos by a 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.
- 169. Representations of Indigenous Peoples in the Americas. (4)** (Formerly numbered 197C.) Lecture, four hours. Strongly recommended prerequisite: course 101. Introduction to different forms of representation of indigenous peoples and their presence in the Americas, with emphasis on Mesoamerica and the Andes. How indigenous images are expressed, perceived, and constructed at point of contact with Europeans during development of indigenismo and in current period. Discussion of how these relate to Chicana/Chicano identity construction. Letter grading.
- M170. Latinos and Literacy. (5)** (Same as Honors Collegium M128.) Seminar, three hours; field project, three hours. Preparation: Spanish fluency or completion of two years of university-level Spanish. Study of theory and practice of teaching literacy, including field-based work in adult literacy centers in the city. P/NP or letter grading.



**M172V. Culture Change and the Mexican People. (4)** (Same as Anthropology M172V.) Lecture, three hours. Requisite: course 10A or 10B or Anthropology 9. 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 the 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.

**177. Latino Social Policy. (4)** (Formerly numbered 197B.) Lecture, three hours. Examination of social welfare of Latinos (Chicanos, Puerto Ricans, and Cubans) in the 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.

**180. City and Community: History of Chicana/Chicano Los Angeles, 1848 to 1945. (4)** Lecture, three hours. Examination of history of Los Angeles from 1848 to 1945, with emphasis on formation of disparate and adverse communities within larger urban region of Southern California.

**181. City and Community: History of Chicana/Chicano Los Angeles, 20th Century. (4)** Lecture, three hours. History of Mexican American people in 20th-century Los Angeles. Readings and lectures emphasize formation of a regional identity among Mexican Americans in Los Angeles and their significance to emergence of a multicultural metropolis.

**182. Understanding Whiteness in American History and Culture. (4)** Seminar, three hours. History, construction, and representation of whiteness in American society. Readings and discussions trace evolution of a "white" identity and explore its significance to historical construction of race class in American history.

**184. Identities in Space and Time: Regional 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 the U.S. national context. Letter grading.

**M186A. Beyond the Mexican Mural: Beginning Muralism and Community Development. (4)** (Formerly numbered M166.) (Same as Art M186A and World Arts and Cultures M125A.) Studio/lecture, six hours. Corequisite: course M186AL. Investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a community. Students research, design, and work with community participants. P/NP or letter grading.

**M186AL-M186BL-M186CL. Beyond the Mexican Mural: Muralism and Community Laboratory. (2-2-2)** (Same as Art M186AL-M186BL-M186CL and World Arts and Cultures M125AL-M125BL-M125CL.) Laboratory, two hours. Course M186AL is requisite to M186BL, which is requisite to M186CL. Mural and Digital Laboratory is an art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in a 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 a community setting. P/NP or letter grading. **M186AL.** Beginning; **M186BL.** Intermediate; **M186CL.** Advanced.

**M186B. Beyond the Mexican Mural: Intermediate Muralism and Community Development. (4)** (Same as Art M186B and World Arts and Cultures M125B.) Studio/lecture, six hours. Requisites: courses M186A, M186AL. Corequisite: course M186BL. Continuation of investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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 the 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 a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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.

**M188. Whose Monument Where: Course on Public Art. (4)** (Formerly numbered M167.) (Same as Art M188 and World Arts and Cultures M126.) Lecture, four hours. Recommended corequisite: course M186A, M186B, or M186C. Examination of public monuments in the U.S. as a basis for cultural insight and critique of American values from perspective of an artist. Use of urban Los Angeles as textbook in urban space issues such as who is the "public," what is "public space" at the end of the 20th century, what defines a neighborhood, and do different ethnic populations use public space differently. P/NP or letter grading.

**M190. Bilingual Writing Workshop. (4)** (Same as Women's Studies M190.) Seminar, four hours. Requisite: course 10A or 10B. Writing sample required; access to course webpage mandatory. 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.

**197A-197Z. Special Topics in Chicana and Chicano Studies. (4 each)** Lecture, three hours. Some sections may require prior coursework. Lecture or seminar format on selected topics in Chicana and Chicano studies. May be repeated for credit:

**M197B.** Topics in Chicana/Chicano Literature. (5) (Same as English M197B.) 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.

**199. Independent Studies. (2 to 4)** Requisites: courses 10A, 10B. Limited to juniors/seniors. Intensive directed research program. May be repeated for a maximum of 8 units.

Ken Nobe, Ph.D.  
Selim M. Senkan, Ph.D.  
A.R. Frank Wazzan, Ph.D., *Dean*

#### Professors Emeriti

Traugott H.K. Frederking, Ph.D.  
Eldon L. Knuth, Ph.D.  
Lawrence B. Robinson, Ph.D.  
William D. Van Vorst, Ph.D.

#### Associate Professor

Michael W. Deem, Ph.D.

#### Assistant Professors

Jane P. Chang, Ph.D.  
Panagiotis Christofides, Ph.D.

## Scope and Objectives

The Department of Chemical Engineering conducts undergraduate and graduate programs of teaching and research in the areas of thermodynamics, statistical mechanics, mass transfer, catalysis, semiconductor materials processing, plasma processing, electrochemistry and corrosion, high-temperature chemical kinetics, reaction engineering, combustion science, environmental reaction engineering, cryogenics and low-temperature processes, biochemical engineering, process systems engineering, process integration, computer-aided process design and control, particle technology, pollution control, pollution prevention, and polymer engineering. Students are trained in the fundamental principles of these fields while learning a sensitivity to society's needs — a crucial combination in addressing the question of how industry can grow and innovate 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 bioengineering, biomedical engineering, environmental, and semiconductor manufacturing 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

### Chemical Engineering B.S.

The goal of the ABET-accredited chemical engineering curriculum is to provide a high quality, professionally oriented education in modern chemical engineering. The bioengineering, biomedical engineering, environmental, and semiconductor manufacturing options exist as subsets of courses within the accredited curriculum. Balance is sought between science and engineering practice.

### The Major

Course requirements are as follows (195 minimum units required):

1. Three general engineering courses: Chemical Engineering M105A, Civil and Environmental Engineering 108, Electrical Engineering 100

## CHEMICAL ENGINEERING

*Henry Samueli School of Engineering and Applied Science*

UCLA  
5531 Boelter Hall  
Box 951592  
Los Angeles, CA 90095-1592  
(310) 825-2046  
fax: (310) 206-4107  
<http://www.chemeng.ucla.edu/>

Selim M. Senkan, Ph.D., *Chair*  
Vasilios Manousiouthakis, Ph.D., *Vice Chair*

#### Professors

Yoram Cohen, Ph.D.  
James F. Davis, Ph.D.  
Sheldon K. Friedlander, Ph.D. (*Ralph M. Parsons Professor of Chemical Engineering*)  
Robert F. Hicks, Ph.D.  
James C. Liao, Ph.D.  
Vasilios Manousiouthakis, Ph.D.  
Harold G. Monbouquette, Ph.D.

2. Chemical Engineering 100, 101A, 101B, 101C, 102, 103, 104A, 104B, 106, 107, 108A, 108B, 109; Chemistry and Biochemistry 30A, 30B, 30BL, 113A, 171
  3. Two elective courses from Chemical Engineering 110, C111, 112, 113, C114, C115, C116, C118, C119, C125, C140, CM165, and three upper division chemistry elective courses (except Chemistry and Biochemistry 110A). An upper division life or physical sciences course may be substituted for one chemistry elective with the approval of the faculty adviser
  4. Chemistry and Biochemistry 20A, 20B, 20L, 30AL; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20; Mathematics 31A, 31B, 32A, 32B, 33A 33B; Physics 1A, 1B, 1C, 4AL, 4BL
  5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details
3. Sciences 4 or Microbiology and Molecular Genetics 101
  3. Two elective courses from Chemical Engineering C115, C125, CM145, CM165 (another chemical engineering elective may be substituted for one of these with approval of the faculty adviser); one upper division microbiology and molecular genetics or molecular, cell, and developmental biology or organismic biology, ecology, and evolution elective that requires one year of chemistry as a requisite and contains a laboratory component (laboratory component may be taken from a separate course)
  4. Chemistry and Biochemistry 20A, 20B, 20L, 30AL; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20; Life Sciences 1, 2, 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL
  5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details

### Bioengineering Option

Course requirements are as follows (202 minimum units required):

1. Three general engineering courses: Chemical Engineering M105A, Civil and Environmental Engineering 108, Electrical Engineering 100
2. Chemical Engineering 100, 101A, 101B, 101C, 102, 103, 104A, 104B, 106, 107, 108A, 108B, 109; Chemistry and Biochemistry 30A, 30B, 30BL, 153A, 156; Life Sciences 4 or Microbiology and Molecular Genetics 101
3. Two elective courses from Chemical Engineering C115, C125, CM145, CM165 (another chemical engineering elective may be substituted for one of these with approval of the faculty adviser); one upper division microbiology and molecular genetics or molecular, cell, and developmental biology or organismic biology, ecology, and evolution elective that requires one year of chemistry as a requisite
4. Chemistry and Biochemistry 20A, 20B, 20L, 30AL; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20; Life Sciences 2, 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL
5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details

### Biomedical Engineering Option

Course requirements are as follows (200 minimum units required):

1. One general engineering course: Chemical Engineering M105A
2. Chemical Engineering 100, 101A, 101B, 101C, 102, 103, 104A, 104B, 106, 107, 108A, 108B, 109; Chemistry and Biochemistry 30A, 30B, 30BL, 153A, 156; Life

### Environmental Option

Course requirements are as follows (199 minimum units required):

1. Three general engineering courses: Chemical Engineering M105A, Civil and Environmental Engineering 108, Electrical Engineering 100
2. Chemical Engineering 100, 101A, 101B, 101C, 102, 103, 104A, 104B, 106, 107, 108A, 108B, 109; Atmospheric Sciences 104; Chemistry and Biochemistry 30A, 30B, 30BL, 113A, 171
3. Two elective courses from Chemical Engineering 113, C118, C119, C140, CM165 (another chemical engineering elective may be substituted for one of these with approval of the faculty adviser) and three advanced chemistry electives in the environmental field from Atmospheric Sciences M203A, Chemistry and Biochemistry 103, 110B, Environmental Health Sciences 240, 241, 261, Organismic Biology, Ecology, and Evolution M127 (other advanced chemistry courses may be selected in consultation with the faculty adviser)
4. Chemistry and Biochemistry 20A, 20B, 20L, 30AL; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL
5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details

### Semiconductor Manufacturing Option

Course requirements are as follows (199 minimum units required):

1. Three general engineering courses: Chemical Engineering M105A, Electrical Engineering 100, Materials Science and Engineering 14
2. Chemical Engineering 100, 101A, 101B, 101C, 102, 103, 104A, 104C, 106, 107, 108A, 108B, 109; Chemistry and Biochemistry 30A, 30B, 30BL, 113A, 171; Electrical Engineering 2; Materials Science and Engineering 120
3. Two elective courses from Chemical Engineering 112, 113, C114, C116, C118, C119, C140 (another chemical engineering elective may be substituted for one of these with approval of the faculty adviser) and two chemistry elective courses (except Chemistry and Biochemistry 110A and 140)
4. Chemistry and Biochemistry 20A, 20B, 20L, 30AL; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL
5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details

### Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Chemical Engineering offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Chemical Engineering.

### Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. and Ph.D. programs are required to take the General Test of the Graduate Record Examination (GRE).

Applicants not having adequate preparation may be admitted provisionally and may be required to undertake certain remedial coursework which would not be applicable toward the degree. On arrival at UCLA, an adviser helps the student plan a program which can remedy any deficiencies.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs in *Program Requirements for UCLA Graduate Degrees*.

Applicants are encouraged to apply online. Application forms, including a departmental supplement to the application, may be found at <http://www.chemeng.ucla.edu> or by writing to the Chemical Engineering Department, 5531 Boelter Hall, UCLA, Box 951592, Los Angeles, CA 90095-1592 or to the Office of the Associate Dean for Academic and Student Affairs, Henry Samueli School of Engineering and Applied Science, 6426 Boelter Hall, UCLA, Box 951601, Los Angeles, CA 90095-1601.

## Master's Degree

The M.S. degree is offered through the thesis plan. Nine courses are required, six at the graduate level. Course requirements include specific courses in chemical engineering, other departmental courses, and thesis research courses and may include courses in life sciences, physical sciences, mathematics, or engineering.

The nonthesis based M.S. program in the field of semiconductor manufacturing is offered through the comprehensive examination plan and requires 44 units, an additional 8 units of coursework.

## Doctoral Degree

Students should consult *Program Requirements for UCLA Graduate Degrees*, the school's *Announcement*, and the department for information on fields of study.

All Ph.D students are required to take six 200-level courses. Course requirements include specific courses in chemical engineering and other departmental courses and may include courses in life sciences, physical sciences, mathematics, or engineering. Students are encouraged to take more courses in their field of specialization.

Written and oral qualifying examinations are required. A preliminary oral examination tests understanding of chemical engineering fundamentals in the areas of thermodynamics, transport phenomena, chemical kinetics, and reactor design. The written qualifying examination consists of a dissertation research proposal.

Following successful completion of the written examination, student take the University Oral Qualifying Examination, which consists of an oral defense of the dissertation research proposal.

## Chemical Engineering

### Lower Division Course

**2. Technology and the 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 (CO<sub>2</sub> 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 life-cycle methods for evaluating environmental impact of processes and products. P/NP or letter grading.

## Upper Division Courses

**100. Introduction to Chemical 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. Letter grading.

**101A. Momentum Transfer. (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course M105A, Mathematics 33A, 33B. Corequisite: course 109. Introduction to analysis of fluid flow in systems of interest to chemical engineering practice. Fundamentals of momentum transport, Newton law of viscosity, Navier/Stokes equations, interphase momentum transport and friction factors, flows in conduits and around submerged objects. Letter grading.

**101B. Heat Transfer. (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 101A. Introduction to analysis of heat transfer in systems of interest to chemical engineering practice. Fundamentals of thermal energy transport, Fourier law of heat conduction, forced and free convection, radiation, interphase heat transfer, heat exchanger analysis. Letter grading.

**101C. Mass Transfer. (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 100, 101B, 102. 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.

**102. Chemical Engineering Thermodynamics. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 100, M105A. Thermodynamic properties of pure substances and solutions. Phase equilibrium. Chemical reaction equilibrium. Letter grading.

**103. Separation Processes. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 100, 101B, 102. 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.

**104A. Chemical Engineering Laboratory I. (6)** Lecture, two hours; laboratory, eight hours; outside study, four hours; other, four hours. Requisites: courses 100, 101B, 102. Measurements of temperature, pressure, flow rate, viscosity, and fluid composition in chemical processes. Methods of data acquisition, equipment selection and fabrication, and laboratory safety. Development of written and oral communication skills. Letter grading.

**104B. Chemical Engineering Laboratory II. (6)** Lecture, two hours; laboratory, eight hours; outside study, four hours; other, four hours. Requisites: courses 101C, 103, 104A. 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 Laboratory. (6)** Lecture, two hours; laboratory, eight hours; outside study, eight hours. Requisites: course 104A, Electrical Engineering 121A. 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. Presentation of student results in both written and oral form. Statistical design of experiments and error analysis. Letter grading.

**M105A. Introduction to Engineering Thermodynamics. (4)** (Same as Mechanical and Aerospace Engineering M105A.) Lecture, four hours; discussion, one hour; outside study, seven 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.

**106. Chemical Reaction Engineering. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 100, 101C, 102. 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; outside study, eight hours. Requisites: courses 101C, 103, 106. Fundamentals 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; outside study, eight hours. Requisites: courses 103, 104B, 106. 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; outside study, eight hours. Requisites: courses 103, 106, 108A, Computer Science 10F. Introduction to application of some mathematical and computing methods to chemical engineering design problems; use of simulation programs as an automated method of performing steady state material and energy balance calculations. Letter grading.

**109. Mathematical Methods in Chemical Engineering. (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Preparation: working knowledge of FORTRAN programming. Discussion of theory and applications of mathematics to chemical engineering problems, with focus on numerical and analytical techniques encompassing linear and nonlinear algebraic equations, finite difference methods, and ordinary and partial differential equations. Letter grading.

**110. Intermediate Engineering Thermodynamics. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 102. 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; outside study, eight hours. Requisites: courses 102 (or Materials Science 130), M105A. 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 cryo-systems and other special conditions. Concurrently scheduled with course C211. Letter grading.

**112. Polymer Processes. (4)** Lecture, four hours; outside study, eight hours. Requisites: course 101A, Chemistry 30. Formation of polymers, criteria for selecting a reaction scheme, polymerization techniques. Polymer characterization. Mechanical properties. Rheology of macromolecules, modeling and experimental methods to characterize non-Newtonian fluids. Polymer process engineering. Letter grading.

**113. Air Pollution Engineering. (4)** Lecture, four hours; preparation, two hours; outside study, six hours. Requisites: courses 101C, 102. 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; outside study, eight hours. Requisites: courses 102 (or Materials Science 130), M105A. 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, electrodeless 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; outside study, eight hours. Requisites: courses 101C and 106, or Chemistry 156. 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; outside study, eight hours. Requisite: Chemistry 113A. Introduction to engineering materials, particularly thin films used to make microelectronic devices. Topics include classification of crystals and surfaces, structures adopted by crystalline materials, analysis of structure and composition of crystals and their surfaces, and processing of thin films for microelectronic devices. May be concurrently scheduled with course C216. Letter grading.

**C118. Multimedia Environmental Assessment. (4)** Lecture, four hours; preparation, two hours; outside study, six hours. Requisites: courses 101C, 102. 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)** (Formerly numbered 119.) Lecture, four hours; outside study, eight hours. Requisite: course 108A. Systematic methods for design of environment-friendly processes. Development of the methods at molecular, unit-operation, and network levels. Synthesis of mass exchange, heat exchange, and reactor networks. Concurrently scheduled with course C219. Letter grading.

**C125. Bioseparations and Bioprocess Engineering. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 101C and 103, or Chemistry 156. 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.

**CM133. Principles, Practices, and Policies in Biotechnology. (2)** (Same as Biological Chemistry CM133, Biomedical Physics CM133, Chemistry CM133, Microbiology CM133, Microbiology and Immunology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or 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; 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.

**CM165. Bioprocess Technology. (4)** (Same as Microbiology CM165.) Lecture, two hours; laboratory, eight hours. Requisites: course C115, Chemistry 156, Microbiology 101. Current bioprocess technologies involving microorganisms, especially extremophiles and animal cells, as vehicles for macromolecular and biomaterial production. Applications to processes including mineral leaching, remediation, and bioconversion. Emphasis on exploiting properties of diverse microorganisms. Exercises may vary yearly. Concurrently scheduled with course CM265. Letter grading.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Limited to seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Occasional field trips may be arranged. May be repeated for credit. Letter grading.

## Graduate Courses

**200. Advanced Engineering Thermodynamics. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 102. 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; outside study, eight hours. Requisites: courses 102 (or Materials Science 130), M105A. 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.

**C214. Electrochemical Processes and Corrosion. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 102 (or Materials Science 130), M105A. 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, electrodeless deposition, batteries and fuel cells, electrosynthesis and bioelectrochemical processes. May be concurrently scheduled with course C114. Letter grading.

**CM215. Biochemical Reaction Engineering. (4)** (Formerly numbered C215.) (Same as Biomedical Engineering M215.) Lecture, four hours; outside study, eight hours. Requisites: courses 101C and 106, or Chemistry 156. 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; outside study, eight hours. Requisite: Chemistry 113A. Introduction to engineering materials, particularly thin films used to make microelectronic devices. Topics include classification of crystals and surfaces, structures adopted by crystalline materials, analysis of structure and composition of crystals and their surfaces, and processing of thin films for microelectronic devices. 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. Requisites: courses 101C, 102. 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; outside study, eight hours. Requisite: course 108A. Systematic methods for design of environment-friendly processes. Development of the 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.

**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 objectives; life-cycle inventories; life-cycle impact assessment; design for energy efficiency; design for waste minimization, computer-aided design tools, materials selection methods. Letter grading.

**CM225. Bioseparations and Bioprocess Engineering. (4)** (Formerly numbered C225.) (Same as Biomedical Engineering M225.) Lecture, four hours; outside study, eight hours. Requisites: courses 101C and 103, or Chemistry 156. 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.

**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 132A. 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. Principles, Practices, and Policies in Biotechnology. (2)** (Formerly numbered M233.) (Same as Biological Chemistry CM233, Biomedical Physics CM233, Chemistry CM233, Microbiology CM233, Microbiology and Immunology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. 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.

**CM240. 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; 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.

**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 M105A. Principles of non-Newtonian fluid mechanics. Stress constitutive equations. Rheology of polymeric liquids and dispersed systems. Applications in viscometry, polymer processing, biorheology, oil recovery, and drag reduction. Letter grading.

**CM265. Bioprocess Technology. (4)** (Same as Microbiology CM265.) Lecture, two hours; laboratory, eight hours. Requisites: course C115, Chemistry 156, Microbiology 101. Current bioprocess technologies involving microorganisms, especially extremophiles and animal cells, as vehicles for macromolecular and biomaterial production. Applications to processes including mineral leaching, remediation, and bioconversion. Emphasis on exploiting properties of diverse microorganisms. Exercises may vary yearly. Concurrently scheduled with course CM165. Letter grading.

**270. Chemical Engineering Principles of Semiconductor Manufacturing. (4)** Lecture, four hours; outside study, eight hours. Limited to graduate chemical engineering students in M.S. semiconductor manufacturing option. Fundamentals of unit operations, transport phenomena, chemical kinetics, thermodynamics, and control in context of semiconductor materials processing. 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. Liapunov 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, semigroup 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.

**M290A. Toxics Reduction: Science, Engineering, and Policy Issues. (4)** (Same as Environmental Health Sciences M249 and Urban Planning M262A.) Lecture, three hours. Requisites: Urban Planning 260A, 260B. Public health experts, industrial engineers, and planners are being asked to assess risks biologically active chemicals present and to take such risks into account in planning process. Examination of potential for toxics reduction and current state of government and industry activities in this area. Letter 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 the 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curricular and instruction at the University. 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.

## CHEMISTRY AND BIOCHEMISTRY

*College of Letters and Science*

UCLA  
3010 Young Hall  
Box 951569  
Los Angeles, CA 90095-1569  
(310) 825-3958  
<http://www.chem.ucla.edu>

William M. Gelbart, Ph.D., Chair

### Professors

Mario E. Baur, Ph.D.  
Emily A. Carter, Ph.D.  
Orville L. Chapman, Ph.D.  
Steven G. Clarke, Ph.D.  
Albert J. Courey, Ph.D.  
Richard E. Dickerson, Ph.D.  
David S. Eisenberg, D.Phil.  
Juli F. Feigon, Ph.D.  
Peter M. Felker, Ph.D.  
Christopher S. Foote, Ph.D.  
William M. Gelbart, Ph.D.  
James K. Gimzewski, Ph.D.

Jay D. Gralla, Ph.D.  
 M. Frederick Hawthorne, Ph.D.  
 James R. Heath, Ph.D.  
 Kendall N. Houk, Ph.D.  
 Wayne L. Hubbell, Ph.D. (*Jules Stein Professor of Ophthalmology*)  
 Michael E. Jung, Ph.D.  
 Herbert D. Kaesz, Ph.D.  
 Richard B. Kaner, Ph.D.  
 Charles M. Knobler, Ph.D.  
 Raphael D. Levine, Ph.D.  
 Harold G. Martinson, Ph.D.  
 Sabeeha Merchant, Ph.D.  
 Emil Reisler, Ph.D.  
 David S. Sigman, Ph.D.  
 J. Fraser Stoddart, Ph.D. (*Saul Winstein Professor of Organic Chemistry*)  
 Joan S. Valentine, Ph.D.  
 John T. Wasson, Ph.D.  
 Richard L. Weiss, Ph.D.  
 Fred Wudl, Ph.D. (*Courtauld Professor of Chemistry*)  
 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.  
 Donald J. Cram, Ph.D. (*Saul Winstein Professor Emeritus of Organic Chemistry, University Professor Emeritus*)  
 Mostafa A. El-Sayed, Ph.D.  
 Paul S. Farrington, Ph.D.  
 Clifford S. Garner, Ph.D., D.Sc.  
 E. Russell Hardwick, Ph.D.  
 Daniel Kivelson, Ph.D.  
 William G. McMillan, Jr., Ph.D.  
 Malcolm F. Nicol, Ph.D.  
 Howard Reiss, Ph.D.  
 Verne N. Schumaker, Ph.D.  
 Robert L. Scott, Ph.D.  
 Roberts A. Smith, Ph.D.  
 Charles E. Strouse, Ph.D.  
 Charles A. West, Ph.D.

#### Associate Professors

Delroy A. Baugh, Ph.D.  
 James U. Bowie, Ph.D., *in Residence*  
 Catherine F. Clarke, Ph.D.  
 Miguel Garcia-Garibay, Ph.D.  
 Robin L. Garrell, Ph.D.  
 James W. Gober, Ph.D.  
 Andrea J. Liu, Ph.D.  
 Craig A. Merlic, Ph.D.  
 Daniel Neuhauser, Ph.D.  
 Yves Rubin, Ph.D.

#### Assistant Professors

Mahdi M. Abu-Omar, Ph.D.  
 Guillaume F. Chanfreau, Ph.D.  
 Robert T. Clubb, Ph.D.  
 Carla M. Koehler, Ph.D.  
 Christopher J. Lee, Ph.D.  
 Benjamin J. Schwartz, Ph.D.  
 Sarah H. Tolbert, Ph.D.

#### Senior Lecturer S.O.E.

Arlene A. Russell, Ph.D.

#### Lecturers

Marjorie A. Bates, Ph.D.  
 Max Kopelevich, Ph.D.  
 Betty A. Luceigh, Ph.D.  
 John K.M. Mouser, Ph.D.

#### Adjunct Professor

R. Stanley Williams, Ph.D.

#### Adjunct Associate Professor

Robert W. Armstrong, 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

To be admitted to the departmental majors, transfer students 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 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.

### Chemistry Diagnostic Examination for First-Quarter General Chemistry

Students planning to enroll in Chemistry and Biochemistry 14A, 17, 20A, or 20AH are required to pass the Chemistry Diagnostic Examination, which is administered at all first-year sessions of the summer Orientation Program and prior to the beginning of each term. For the dates and times of future examinations and a list of topics to be covered on the examination, refer to <http://www.chem.ucla.edu/dept/Ugrad/chemexam.html>. Scores are only valid for two academic years.

Students who do not pass the examination may enroll in Chemistry 17, offered only in Fall Quarter on a Passed/Not Passed basis. Chemistry 17 carries no graduation credit but does

displace 4 units on the UCLA Study List. Students who pass the course are not required to retake the Chemistry Diagnostic Examination.

### 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. Everyone planning to take Chemistry and Biochemistry 14A or 20A or 20AH must take the Chemistry Diagnostic Examination. 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.

Courses 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., 190, 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 B.S. degree program 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, 33A; 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, C172, and two other upper division or graduate courses in

the department, including at least one additional laboratory course from 136, 144, 154, C174, 184.

### 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, C172; 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.chem.ucla.edu/dept/Ugrad/> 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 B.S. degree program 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 (Microbiology and Molecular Genetics 101 and 101L highly recommended). Refer to the Undergraduate Advising Office website at <http://www.chem.ucla.edu/dept/Ugrad/> for a list of approved electives.

### General Chemistry B.S.

The B.S. degree program 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, 33A; 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.

### 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, C160. 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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

#### Graduate Degrees

The Department of Chemistry and Biochemistry offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Chemistry and Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biochemistry and Molecular Biology.

### Admission

Applicants planning to work toward the Ph.D. degree should not seek an M.S. degree first but should apply directly to the Ph.D. program. Application materials may be obtained by contacting the department directly.

In addition to the University minimum requirements, an excellent undergraduate record is required of all applicants. Graduate Record Examination (GRE) General and Subject Tests are recommended. The GRE and the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination are required for international students. A departmental application and statement of purpose are required.

Students admitted to the Ph.D. program in Chemistry are given orientation examinations at the beginning of the first quarter. This is designed to help the student and adviser plan a course of study. The examinations include material covered in upper division courses in physical, organic, and inorganic chemistry. Chemistry students are encouraged to become familiar with research activities of all faculty in their area of interest and to join a research group as soon as possible. Evening or afternoon seminars are given in which faculty members present their research programs. Students should go to each talk in their area and any talks that interest them in other areas.

There are no orientation examinations in biochemistry and molecular biology; students plan a course program in consultation with the biochemistry area adviser. Biochemistry and molecular biology students rotate through three research groups during the Fall, Winter, and Spring Quarters, with a final selection made at the end of Spring Quarter.

### Master's Degrees

For areas of specialization, see Doctoral Degrees.

#### Chemistry

The M.S. degree is offered through the comprehensive examination and thesis plans; the examination plan is available only in exceptional cases. Thirty-six units of coursework are required, of which at least 20 units must be at the graduate level. Students must take a minimum of two courses in their major area and one course in an outside area. Up to 24 units of individual study coursework may be applied toward the total course requirement; up to 20 units may be applied toward the graduate course requirement.

#### Biochemistry and Molecular Biology

The M.S. degree is offered through the comprehensive examination and thesis plans; the examination plan is available only in exceptional cases. Thirty-six units of coursework are required, of which at least 20 units must be at the graduate level. Up to 24 units of individual study coursework may be applied toward the

total course requirement; up to 8 units may be applied toward the graduate course requirement. Up to 6 units of graduate-level seminar courses may be applied toward the graduate course requirement.

## Doctoral Degrees

Areas of specialization include biochemistry and molecular biology; inorganic, organic, and physical chemistry.

## Chemistry

Students should normally complete a required minimum of coursework in each area of specialization (inorganic, organic, and physical). This coursework includes required background material, orientation examinations in the specialization, and required and elective courses. Some of the requirements can be met on the basis of orientation examinations and courses taken prior to entry into the graduate program.

Students in organic chemistry must write a first-year report for their adviser and one other organic chemist covering their progress and accomplishments in the laboratory.

One year of teaching experience is generally required.

Written and oral qualifying examinations are required. Students take a series of written tests called cumulative examinations that are designed to encourage and evaluate the continued growth of professional competency through coursework, study of the literature, departmental seminars, and informal discussions with colleagues.

Following successful completion of the written examinations, students take the University Oral Qualifying Examination, which consists of the oral presentation of an original research proposal in an area distinct from their research and includes questions on the proposal, general knowledge of the area, and research progress.

## Biochemistry and Molecular Biology

Students should normally complete a required minimum of coursework. This coursework includes required background material (e.g., organic and physical chemistry, biochemistry laboratory experience), required courses in macromolecular structure, safety in chemical and biochemical research, and other research seminars, lecture courses in three specific categories (e.g., cell biology and metabolism), and three laboratory rotations. Some of the requirements can be met on the basis of courses taken prior to entry into the graduate program, with consent of the faculty graduate adviser.

One year of teaching experience is generally required.

Written and oral qualifying examinations are required. The written examination requirement is coupled to the graduate student seminars over three quarters and involves submission of three different types of reports.

Following successful completion of the written examination, students take the University Oral Qualifying Examination, which consists of the oral presentation of an original research proposal in an area distinct from their research and includes questions on the proposal, general knowledge of the area, and research progress.

## 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 or former course 10A or 11A. Concept of submicroscopic world of chemistry, ranging from protons to proteins in subject matter. P/NP or letter grading.

**14A. Chemical Structures and Equilibria. (4)** (Formerly numbered 10A.) Lecture, three hours; discussion, one hour. Preparation: high school chemistry or equivalent background and three and one-half years of high school mathematics, successful completion of Chemistry Diagnostic Examination. Not open to students with credit for course 20A or former course 11A. Introduction to physical and general chemistry needed for the life sciences. Quantum chemistry, atoms, atomic properties, and chemical bonding in molecules, phase changes, equilibria, and acids and bases. P/NP or letter grading.

**14B. Thermodynamics, Kinetics, Organic Structures, and Spectroscopy. (4)** Lecture, three hours; discussion, one hour. Enforced prerequisite: course 14A or former course 10A with a grade of C- or better. Not open to students with credit for course 20B or 30A or former course 10B, 10C, 10D, 10E, or 30. Introduction to physical and organic chemistry for life sciences students. First and second laws of thermodynamics, thermochemistry, free energy, electrochemistry, kinetics, mechanisms, and catalysis. General classes of organic molecules and functional groups, stereoisomers, spectroscopy. P/NP or letter grading.

**14BL. General and Organic Chemistry Laboratory I. (2)** (Formerly numbered 10BL.) Lecture, one hour; laboratory, three hours. Enforced prerequisite: course 14A or former course 10A with a 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. Organic Molecular Structures and Interactions. (4)** Lecture, three hours; discussion, one hour. Enforced prerequisites: course 14B or former courses 10B and 10C with grades of C- or better. Not open to students with credit for course 30A or 30B or former course 10D, 10E, 30, or 130A. NMR and mass spectrometry, conformational analysis, aromatics, oxygen- and nitrogen-containing organic molecules, transition metals and organometallics, supramolecular chemistry and molecular interactions. P/NP or letter grading.

**14CL. General and Organic Chemistry Laboratory II. (3)** (Formerly numbered 10DL.) Lecture, one hour; laboratory, six hours. Enforced prerequisites: courses 14B (or former courses 10B and 10C) and 14BL (or former course 10BL) 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, Pharmaceutical Structures, and Activities. (4)** (Formerly numbered 140.) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 14C with a grade of C- or better. Not open to students with credit for former course 10D or 10E. 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.

**15. Survey of Organic Chemistry and Biochemistry. (4)** Enforced prerequisite: former course 11A with a grade of C- or better. Not open to students with credit for former course 132A. Recommended for students in prenursing, prephysical therapy, and pre dental hygiene. Does not satisfy requirements for admission to medical and dental schools. Introduction to structures and reactions of organic compounds, particularly with respect to their roles and transformations in living systems.

**15L. Laboratory in Elementary Organic Chemistry and Biochemistry. (1)** Laboratory, four hours. Enforced corequisite: course 15 with a grade of C- or better. Does not satisfy requirements for admission to medical and dental schools. Introduction to quantitative work with aqueous solutions and to preparation, isolation, and characterization of organic compounds, particularly some of those important in living systems.

**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 a 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. P/NP 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. Enforced prerequisite: successful completion of Chemistry Diagnostic Examination. 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. Enforced prerequisite: successful completion of Chemistry Diagnostic Examination. Honors course parallel to course 20A. P/NP or letter grading.

**20B. Chemical Energetics and Change. (4)** Lecture, three hours; discussion, one hour. Enforced prerequisite: course 20A with a grade 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 prerequisite: course 20A with a grade of B+ or better or 20AH with a grade of B or better. Honors course parallel to course 20B. P/NP or letter grading.

**20L. General Chemistry Laboratory. (2)** Lecture, one hour; laboratory, three hours. Enforced prerequisite: course 20A with a grade of C- or better. Enforced corequisite: course 20B. Use of the balance, volumetric techniques, volumetric and potentiometric analysis; Beer's law, applications for environmental analysis and materials science. P/NP or letter grading.

**30A. Chemical Dynamics and Reactivity: Introduction to Organic Chemistry. (4)** (Formerly numbered 30.) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 20B with a grade of C- or better. First term of organic chemistry. Mechanisms of organic and inorganic reactions, including redox, elimination, addition, substitution, and radical processes. P/NP or letter grading.

**30AH. Chemical Dynamics and Reactivity: Introduction to Organic Chemistry (Honors). (4)** (Formerly numbered 30H.) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 20B or 20BH with a grade of B+ or better. Honors course parallel to course 30A. P/NP or letter grading.

**30AL. General Chemistry Laboratory. (3)** (Formerly numbered 30L.) Lecture, one hour; laboratory, six hours. Enforced prerequisites: 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: Reactivity and Synthesis, Part I. (4)** (Formerly numbered 130A.) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 30A or 30AH with a grade of C– or better. Second term of organic chemistry. Synthesis, properties, and reactions of organic functional groups, including alcohols, alkenes, alkynes, aromatic compounds, aldehydes, ketones, carboxyl derivatives, and amines. P/NP or letter grading.

**30BL. Organic Chemistry Laboratory. (2)** (Formerly numbered 130AL.) Lecture, one hour; laboratory, four hours. Enforced prerequisites: 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: Reactivity and Synthesis, Part II. (4)** (Formerly numbered 130B.) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 30B with a grade of C– or better. Third term of organic chemistry. Organic spectroscopy, including proton and carbon NMR, infrared mass and UV/Vis; pericyclic reactions and molecular orbital theory; dicarbonyl compounds; polyfunctional aromatic chemistry; heterocyclic compounds; and carbohydrates. P/NP or letter grading.

**30CL. Organic Chemistry Laboratory. (2)** (Formerly numbered 130BL.) Lecture, one hour; laboratory, four hours. Enforced prerequisites: courses 30B and 30BL with grades of C– or better. Enforced corequisite: course 30C. Modern techniques in synthetic organic and analytical organic chemistry. Micro-preparative and semi-preparative scale multistep synthesis of known organic molecules. 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 a particular theme or topic. Consult *Schedule of Classes* for topics and instructors. P/NP or letter grading.

**88A. Serendipity in Science. (2)** Limited to 20 freshmen. Inquiry into unexpected discoveries in science that have had significant impact on society and analysis of circumstances which brought these about, beginning with discovery of helium in the sun by Janssen in 1868 (using the 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.

**96. Special Courses in Chemistry. (1 to 4)** To be arranged. May be repeated for a maximum of 8 units.

## 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 the environment and effect of chemical processes on the environment. P/NP or letter grading.

**M104. Environmental Chemistry Laboratory. (4)** (Same as Atmospheric Sciences M140.) Lecture, two hours; laboratory, three hours. Requisite: course 20B. Laboratory experience for students who wish to pursue a 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.

**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, 33A, Physics 1A, 1B, and 1C, or 1AH, 1BH, and 1CH, or 6A, 6B, and 6C. Departure from classical mechanics: Schrödinger vs. Newton equations; model systems: particle-in-a-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. (4)** Lecture, two hours; laboratory, eight hours. Requisites: courses 30L (or former course 11CL), 110A, 110B or C113B, 113A. 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). (4)** Lecture, two hours; laboratory, eight hours. Requisites: courses 30L (or former course 11CL), 110A, 110B or C113B, 113A, with grades of B or better. 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. Recommended: knowledge of differential equations equivalent to Mathematics 135A or Physics 131 and of analytic mechanics equivalent to Physics 105A. Course C115A or Physics 115B is requisite to C115B. Students entering course C115A are normally expected to take course C115B the 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.

**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 the 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, the imperfect gas, nonelectrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation. May be concurrently scheduled with courses C223A-C223B.

**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.

**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 33A. 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.

**CM133. Principles, Practices, and Policies in Biotechnology. (2)** (Same as Biological Chemistry CM133, Biomedical Physics CM133, Chemical Engineering CM133, Microbiology CM133, Microbiology and Immunology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

**136. Organic Structural Methods. (4)** Lecture, two hours; laboratory, eight hours. Requisites: courses 130B/130BL or former courses 132C/132CL with grades of C– or better. Laboratory course in organic structure determination by chemical and spectroscopic methods; micro-techniques. 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, 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 a grade of C– or better. Mechanisms of organic reactions; structure and detection of reactive intermediates. May be concurrently scheduled with course C243B.

**144. Practical and Theoretical Introductory Organic Synthesis. (5)** Lecture, two hours; laboratory, eight hours. Enforced prerequisites: 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 113A, 130B. 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 a 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 a 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.

**CM153G. Macromolecular Structure. (6)** (Same as Biological Chemistry CM153G and Human Genetics CM153G.) Lecture, five hours. Requisites: courses 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM253. 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 an 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. (4)** Lecture, two hours; laboratory, eight hours. Requisites: courses 153A or 153AH, 153B or 153BH, 153L. 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.

**CM155. Biological Catalysis. (4)** (Same as Molecular, Cell, and Developmental Biology CM160.) Requisites: courses 110A, 153A, 153B, Life Sciences 3, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level. Concurrently scheduled with course CM255.

**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.

**CM159A. Mechanisms in Regulation of Transcription I. (2)** (Same as Biological Chemistry CM159A.) First five weeks. Lecture, four hours. Requisites: courses 153B, 154. Not open to graduate students. 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 CM259A. P/NP or letter grading.

**CM159B. Mechanisms in Regulation of Transcription II. (2)** (Same as Biological Chemistry CM159B.) Second five weeks. Lecture, four hours. Requisite: course CM159A. Not open to graduate students. 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 CM259B. P/NP or letter grading.

**C160. Bioinformatics and Genomics. (4)** Lecture, three hours; discussion, one hour. Genomics and bioinformatics results and methodologies, with emphasis on concepts behind rapid development of these fields. Focus on how to think genomically via case studies showing how genomics questions map to computational problems and their solutions. Concurrently scheduled with course CM260. P/NP or letter grading.

**C161A. Plant Biochemistry. (4)** Lecture, three hours; discussion, one hour. 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.

**C165. Metabolic Control by Protein Modification. (2)** First five weeks. 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.

**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 a grade of C– or better. Chemical bonding; structure and bonding in the solid state; main group, transition metal, lanthanide and actinide compounds and reactions; catalysis, spectroscopy, special topics. P/NP or letter grading.

**C172. Advanced Inorganic Chemistry. (4)** (Formerly numbered 172.) Lecture, three hours; discussion, one hour. Requisite: course 171 with a 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. Concurrently scheduled with course C273. P/NP or letter grading.

**C174. Inorganic and Metalorganic Laboratory Methods. (4)** (Formerly numbered 174.) Lecture, two hours; laboratory, eight hours. Requisites: courses 130A/130AL or former courses 132B/132BL, and C172 or former course 173. Synthesis of inorganic compounds, including air-sensitive materials; Schlenck techniques; chromatographic and ion exchange 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, and C172 or former course 173. 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, and C172 or former course 173. 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.

**C180. Solid-State Chemistry. (4)** Lecture, three hours. Requisite: course C172 or former course 173. 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 a 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. (4)** Lecture/quiz, two hours; laboratory, eight hours. Requisite: course 110A. 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.

**190. Undergraduate Thesis Research. (4)** Requisites: two terms of course 199 on related material. Final term of integrated one-year research project. May consist of experimental and/or theoretical research or, in some cases, comprehensive review of a given area. Thesis embodying totality of year's work to be submitted and oral presentation made. Course suggested, but not required, for those seeking departmental honors at graduation.

**191. Advanced Undergraduate Research. (1)** Requisite: course 199B (4 units). To be arranged with faculty member who directs the research. Additional information may be obtained from undergraduate office. May be repeated for a maximum of 4 units.

**196A-196F. Special Courses in Chemistry. (1 to 4 each)** Hours to be arranged.

**199A. Directed Individual Studies or Research for Undergraduate Students. (2 to 8)** Designed for departmental juniors with at least 3.0 grade-point average in major and departmental seniors. To be arranged with faculty member who directs the research. Additional information on requirements, enrollment petitions, and written proposal deadlines may be obtained from undergraduate office. May be taken for a maximum of 8 units. P/NP grading.

**199B. Directed Individual Studies or Research for Undergraduate Students. (2 to 4)** Requisite: course 199A (8 units). Designed for departmental juniors with at least 3.0 grade-point average in major and departmental seniors. To be arranged with faculty member who directs the research. Additional information on requirements, enrollment petitions, and written proposal deadlines may be obtained from undergraduate office. May be taken for a maximum of 4 units. P/NP or letter grading.

## Graduate Courses

**202. Bioinformatics Interdisciplinary Research Seminar. (2)** Seminar, one hour. 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 grading.

**203. Research Ethics Seminar. (2)** Seminar, 90 minutes. Limited to students supported by UCLA program in Cellular and Molecular Biology Predoctoral Training. Required of all first- and second-year students in program. Informal discussions on case histories for responsible conduct of research. 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. Required of all third-year students. Research seminar presented by students in their third year of support in program. S/U grading.

- 205. Introduction to Chemistry of Biology. (4)** Lecture, three hours. Overview of biochemistry, pharmacology, and physiology, with emphasis on chemical interactions at molecular level.
- 206. Chemistry of Biology Seminar. (2)** Discussion, 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 a 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.
- 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. Recommended: knowledge of differential equations equivalent to Mathematics 135A or Physics 131 and of analytic mechanics equivalent to Physics 105A. Course C215A or Physics 115B is requisite to C215B. Students entering course C215A are normally expected to take course C215B the 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.
- 215C. Advanced Quantum Chemistry: Applications. (4)** Lecture, three hours; discussion, one hour. Requisites: course C215B, Physics 131. Topics in quantum chemistry selected from molecular structure, collision processes, theory of solids, symmetry and its applications, and theory of electromagnetic radiation. 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)** 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)** Discussion, 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:
- 219B.** Chemistry and Physics of Surfaces.
- 219C.** Physical Chemistry of Complex Fluids.
- 219D.** Computer Simulation in Chemistry.
- 219E.** Dynamics of Molecule-Molecule and Molecule-Surface Reactions.
- 219F.** Environmental Chemistry and Global Cycling.
- 219G.** Gas Phase Kinetics and Photochemistry.
- 219H.** Spectroscopy and Dynamics of Molecules, Clusters, and Biological Systems.
- 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.
- 219M.** Chemistry of Materials at High Pressures.
- 219N.** Cosmochemistry.
- 219O.** Chemistry and Physics of Nanostructures.
- 219P.** Statistical Mechanics of Complex Fluids.
- 219Q.** Ultrafast Studies of Chemical Reaction Dynamics in Condensed Phase.
- 219R.** Kinetic, Thermodynamic, and Interfacial Effects in Materials.
- 221A-221Z. Advanced Topics in Physical Chemistry. (2 to 4 each)** Each course encompasses a recognized specialty in physical chemistry, generally taught by a staff member 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 the 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, the imperfect gas, nonelectrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation. May be concurrently scheduled with courses C123A-C123B.
- 223C. Statistical Mechanics. (4)** Lecture, three hours; discussion, one hour. Requisites: courses C215B, C223B, Physics 131. Fundamentals of statistical mechanics; classical equations of state; Coulomb systems; phase transitions; quantum statistical mechanics; quantum corrections to the equation of state; density matrix; second quantization. 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 33A. 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.
- M227. Molecular Genetics of Bacteria and Phage. (4)** (Same as Microbiology M227, Microbiology and Immunology M227, and Molecular, Cell, and Developmental Biology CM207.) Lecture, three hours; discussion, one hour. Requisite: course CM253 or Biological Chemistry CM253. Molecular and cellular biology of bacteria and bacteriophages.
- 228. Chemical Physics Seminar. (2)** 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.
- CM233. Principles, Practices, and Policies in Biotechnology. (2)** (Formerly numbered M233.) (Same as Biological Chemistry CM233, Biomedical Physics CM233, Chemical Engineering CM233, Microbiology CM233, Microbiology and Immunology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. S/U or letter grading.
- 235A-235Z. Seminars: Research in Organic Chemistry. (2 each)** Discussion, 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:
- 235A.** Synthesis of Natural Products and Biopolymers.
- 235B.** Design, Preparation, and Characterization of New Organic Materials.
- 235C.** Supramolecular Chemistry.
- 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.
- 235H.** Reaction Mechanisms in Molecular Biology.
- 235I.** Fullerene Chemistry and Materials Science.
- 235J.** Organic and Bioorganic Chemistry.
- 235K.** Organic Chemistry in Organized and Restricted Media.
- 235L.** Supramolecular and Macromolecular Chemistry.
- 235M.** Organic Solid-State Chemistry.
- 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.
- 241A-241Z. Special Topics in Organic Chemistry. (2 to 4 each)** Requisite or corequisite: course C243A. Each course encompasses a recognized specialty in organic chemistry, generally taught by a staff member whose research interests embrace that specialty.
- 242. Organic Photochemistry. (4)** Lecture/discussion, three hours. Requisite or corequisite: course C243A. Interactions of light with organic molecules; mechanistic and preparative photochemistry.
- C243A. Structure and Mechanism in Organic Chemistry. (4)** Lecture, three hours; discussion, one hour. Requisites: courses 30C and 30CL (may be taken concurrently), 110B, 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.
- 244A. Organic Synthesis: Methodology and Stereochemistry. (4)** Modern synthetic reactions and transformations involving organic substrates. Special emphasis on reagents useful in asymmetric induction and stereoselective synthesis of structurally complex target molecules.

**244B. Strategy and Design in Organic Synthesis.**

(4) Lecture, three hours. Requisite or corequisite: course C243A. Theory behind the planning of syntheses of complex molecules from simpler ones. Organic reactions and their use in the synthetic process. Reasoning and art involved in organic synthesis.

**C245. Theoretical and Computational Organic Chemistry.** (4) (Formerly numbered 245.) Lecture, two hours; discussion, one hour; computer laboratory, one hour. Requisites: courses 113A, 130B. 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) 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) 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) 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) 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.

**250. Topics in Biochemistry and Molecular Biology of Animal Cells.** (4) Lecture, three hours. Preparation: courses in genetic and molecular biology. Requisites: courses 30C, 30CL, 153A or 153AH, 153B or 153BH, 153C or 153CH. Structure and organization of animal cells, cell-cell contact, motility of cell and mobility of cellular components, chromosome structure, interactions between cytoplasm and nucleus, genetic analysis in higher eukaryotic cells, biochemistry of tissue development and organization. S/U or letter grading.

**251A-251Z. Advanced Topics in Biochemistry.** (2 each) Each course encompasses a recognized specialty in biochemistry, generally taught by a staff member whose research interests embrace that specialty.

**CM253. Macromolecular Structure.** (6) (Same as Biological Chemistry CM253 and Human Genetics CM253.) Lecture, five hours. Requisites: courses 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM153G. Letter grading.

**254. Advanced Biochemical Methods.** (4) Lecture, two hours; laboratory, eight hours. Requisite: course 156. Recommended: courses 153B, 153C. Theoretical and practical basis of metabolic, chromatographic, kinetic, electrophoretic, ultracentrifugal, isotopic, and other techniques as applied to biochemical systems.

**CM255. Biological Catalysis.** (4) (Same as Biological Chemistry M255, Molecular, Cell, and Developmental Biology CM252, and Pharmacology M255.) Requisites: courses 110A, 153A, 153B, Life Sciences 3, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level. Concurrently scheduled with course CM155. Graduate students required to write research paper and present oral report on it.

**256A-256Z. Seminars: Research in Biochemistry.** (2 each) Discussion, 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.

**256E.** Secondary Metabolites in Higher Plants: Biosynthesis, Regulation, and Physiological Functions.

**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.

**M257. Physical Chemistry of Biological Macromolecules.** (2) (Same as Biological Chemistry M257.) Requisites: courses 110A, 153A. Theory of hydrodynamic, thermodynamic, and optical techniques used to study structure and function of biological macromolecules.

**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.

**CM259A. Mechanisms in Regulation of Transcription I.** (2) (Same as Biological Chemistry CM259A.) First five weeks. Lecture, four hours. Requisite: course CM253 or M267. 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 CM159A. S/U or letter grading.

**CM259B. Mechanisms in Regulation of Transcription II.** (2) (Same as Biological Chemistry CM259B.) Second five weeks. Lecture, four hours. Requisite: course CM259A. 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 CM159B. S/U or letter grading.

**CM260. Bioinformatics and Genomics.** (4) (Same as Human Genetics M260.) Lecture, three hours; discussion, one hour. Genomics and bioinformatics results and methodologies, with emphasis on concepts behind rapid development of these fields. Focus on how to think genomically via case studies showing how genomics questions map to computational problems and their solutions. Concurrently scheduled with course C160. S/U or letter grading.

**C261A. Plant Biochemistry.** (4) Lecture, three hours; discussion, one hour. 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.

**262. Biological Energy Transductions.** (4) Lecture, three hours. Requisites: courses 153B, 153C. Molecular basis of energy-transducing processes, including oxidative and photosynthetic phosphorylation, other energy-linked oxidative functions, membrane active transport, muscle contraction, and special sensory functions.

**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.

**M264A-M264B-M264C. Molecular Basis of Atherosclerosis: Selected Topics.** (2-2-2) (Same as Biological Chemistry M264A-M264B-M264C and Microbiology M264A-M264B-M264C.) Biochemistry, morphology, and physiology of atherosclerosis. Emphasis on chemistry of lipoproteins and role of plasma lipoproteins in regulation of tissue lipid metabolism and development of atherosclerosis. Each course may be taken independently for credit.

**C265. Metabolic Control by Protein Modification.** (2) First five weeks. 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.

**266. Seminar: Techniques for Study of Gene Regulation.** (2) Requisites: courses CM259A, CM259B. Seminar to discuss specific experimental approaches being taken in study of gene regulation. Emphasis on specific biochemical techniques being used to study regulatory protein-DNA interactions in diverse biological model systems.

**M267. Cell Structure, Signaling, and Differentiation.** (6) (Same as Biological Chemistry CM267, Human Genetics CM267, and Molecular, Cell, and Developmental Biology CM223.) Lecture, five hours. Requisites: courses 153A, 153B, 153C. Recommended: course CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Letter grading.

**268. Biochemistry Research Seminar.** (2) 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.

**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.

**271A-271Z. Advanced Topics in Inorganic Chemistry.** (2 to 4 each) Each course encompasses a recognized specialty in inorganic chemistry, generally taught by a staff member whose research interests embrace that specialty.

**272A-272Z. Seminars: Research in Inorganic Chemistry.** (2 each) Discussion, 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.

**272F.** Porphyrin-Based Lattice Clathrates.

**272G.** Issues in Chemical Education.

**272H.** Catalysis and Small Molecule-Activation Mediated by Transition-Metal Complexes.

**C273. Advanced Inorganic Chemistry.** (4) Lecture, three hours; discussion, one hour. Requisite: course 171 with a 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. Concurrently scheduled with course C172. S/U or letter grading.

**C274. Inorganic and Metalorganic Laboratory Methods. (4)** Lecture, two hours; laboratory, eight hours. Requisites: courses 130A/130AL or former courses 132B/132BL, and C172 or former course 173. 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, and C172 or former course 173. 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, and C172 or former course 173. 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)** Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

**279. Bioinorganic Chemistry. (4)** Lecture, three hours. Requisites: courses 110A, and 156 or C172 or former course 173. Role of metal ions in biology; introduction to metalloenzymes and metalloproteins; metal ion interactions with nucleic acids; metal ion metabolism. S/U or letter grading.

**C280. Solid-State Chemistry. (4)** Lecture, three hours. Requisite: course C172 or former course 173. 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 a 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.

**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 (or former course 370). 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**400. Safety in Chemical and Biochemical Research. (2)** 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)** To be arranged with faculty member who directs the 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)** S/U grading.

**598. Research for and Preparation of M.S. Thesis. (2 to 16)** Each faculty member supervises research of M.S. students and holds research group meetings, seminars, and discussions with the students.

**599. Research for and Preparation of Ph.D. Dissertation. (2 to 16)** Each faculty member supervises research of Ph.D. students and holds research group meetings, seminars, and discussions with the students.

## CHEMISTRY/ MATERIALS SCIENCE

*Interdepartmental Program  
College of Letters and Science*

UCLA  
6532 Boelter Hall  
Box 951595  
Los Angeles, CA 90095-1595  
(310) 825-5534  
<http://www.seas.ucla.edu/chem-mat/>

Bruce S. Dunn, Ph.D., *Chair*

### Faculty Advisory Committee

Bruce S. Dunn, Ph.D., *Co-Chair*  
Robin L. Garrell, Ph.D., *Co-Chair*  
Mark S. Goorsky, Ph.D.  
M. Frederick Hawthorne, Ph.D.  
James R. Heath, Ph.D.  
Richard B. Kaner, Ph.D.  
Sarah H. Tolbert, Ph.D.  
King-Ning Tu, Ph.D.  
Fred Wudl, Ph.D.  
Yang Yang, Ph.D.  
Jeffrey I. Zink, Ph.D.

### Affiliated Faculty

#### Professors

Bruce S. Dunn, Ph.D. (*Materials Science and Engineering*)  
M. Frederick Hawthorne, Ph.D. (*Chemistry and Biochemistry*)  
James R. Heath, Ph.D. (*Chemistry and Biochemistry*)

Richard B. Kaner, Ph.D. (*Chemistry and Biochemistry*)  
King-Ning Tu, Ph.D. (*Materials Science and Engineering*)

Fred Wudl, Ph.D. (*Chemistry and Biochemistry*)

Jeffrey I. Zink, Ph.D. (*Chemistry and Biochemistry*)

### Associate Professors

Robin L. Garrell, Ph.D. (*Chemistry and Biochemistry*)

Mark S. Goorsky, Ph.D. (*Materials Science and Engineering*)

Yang Yang, Ph.D. (*Materials Science and Engineering*)

### Assistant Professor

Sarah H. Tolbert, Ph.D. (*Chemistry and Biochemistry*)

## Scope and Objectives

The Chemistry/Materials Science major is designed for students who are interested in solid-state chemistry, the preparation of engineering materials such as semiconductors, glasses, ceramics, metals, and polymers, the reactivity of such materials in different environments, and how chemical compositions affect properties. It provides appropriate preparation for graduate studies in many fields emphasizing interdisciplinary research involving chemistry, engineering, and applied science.

## Undergraduate Study

### Chemistry/Materials Science B.S.

#### Preparation for the Major

*Required:* Chemistry and Biochemistry 20A, 20B, 20L, 30, 30L, English Composition 3, Materials Science and Engineering 14, Mathematics 31A, 31B, 32A, 32B, 33A, Physics 1A, 1B, 1C, 4BL, Program in Computing 10A.

#### Transfer Students

To be admitted as Chemistry/Materials Science majors, transfer students 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.

#### The Major

*Required:* Chemistry and Biochemistry 110A, 110B, 113A, C113B or C115A and C115B, 114, 132A, 171, C172, 8 units from C123A, C123B, 130A, 130AL, 130B, 130BL, C174, C175, C176; Materials Science and Engineering 120, 131L or 161L, 131, 150, 160, 8 units from 110, 111, 121, 122, 130, 132, 143A, 162.

For further information, contact Leslie Hinman, Materials Science and Engineering, 6531 Boelter Hall, (310) 825-8916.

# CIVIL AND ENVIRONMENTAL ENGINEERING

Henry Samueli School of Engineering and Applied Science

UCLA  
5731 Boelter Hall  
Box 951593  
Los Angeles, CA 90095-1593  
(310) 825-1346  
<http://www.cee.ucla.edu/>

Jiann-Wen Ju, Ph.D., *Chair*  
Keith D. Stolzenbach, Ph.D., *Vice Chair*  
William W-G. Yeh, Ph.D., *Vice Chair*

## Professors

Birgitte K. Ahring, Ph.D.  
Lewis P. Felton, Ph.D.  
Gary C. Hart, Ph.D.  
Jiann-Wen Ju, Ph.D.  
Lawrence G. Selna, Ph.D.  
Michael K. Stenstrom, Ph.D.  
Keith D. Stolzenbach, Ph.D.  
William W-G. Yeh, Ph.D.

## Professors Emeriti

Stanley B. Dong, Ph.D.  
Michael E. Fournay, Ph.D.  
Poul V. Lade, Ph.D.  
Tung Hua Lin, D.Sc.  
Chung Yen Liu, Ph.D.  
Rokuro Muki, Ph.D.  
Richard L. Perrine, Ph.D.  
Moshe F. Rubinstein, Ph.D.  
Lucien A. Schmit, Jr., M.S.

## Associate Professors

Joel P. Conte, Ph.D.  
Patrick J. Fox, Ph.D.  
Thomas C. Harmon, Ph.D.  
Mladen Vucetic, Ph.D.  
John W. Wallace, Ph.D.

## Assistant Professor

Jonathan P. Stewart, Ph.D.

## Senior Lecturer

George J. Tauxe, M.S., *Emeritus*

## Adjunct Professors

John A. Dracup, Ph.D.  
Ne-Zheng Sun, Ph.D.

## Adjunct Associate Professor

Daniel E. Pradel, Ph.D.

## Scope and Objectives

The civil and environmental engineering programs at UCLA include structural engineering, structural mechanics, geotechnical engineering, earthquake engineering, 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, 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.

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, 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

### Civil Engineering B.S.

The objective of the civil engineering curriculum is to give graduating seniors an academically sound and practical background in civil engineering. A balanced program, including engineering science, design, and laboratory courses in civil engineering, is stressed. The ongoing goal of the program is to produce well-qualified graduates for the engineering profession or for graduate civil engineering schools in the U.S.

### The Major

Course requirements are as follows (180 minimum units required):

1. Eight core courses: Chemical Engineering M105A or Mechanical and Aerospace Engineering M105A, Civil and Environmental Engineering 1, 108, Electrical Engineering 100, 103, Materials Science and Engineering 14, Mechanical and Aerospace Engineering 102, 103
2. Civil and Environmental Engineering 120, 121, 130, 135A, 151, 153; one course involving a major design project from Civil and Environmental Engineering 135L, 144, 147, 157A, 157B, 157C; one mathematics course from Mechanical and Aerospace Engineering 174, 191A, 192A, 192B, 192C
3. Twenty-eight elective units, to be selected from the courses listed below, which must include 8 units of laboratory:

*Engineering Mechanics:* Civil and Environmental Engineering 130F, 130L, Mechanical and Aerospace Engineering 166C, 168

*Geotechnical Engineering:* Civil and Environmental Engineering 125, 128L, Earth and Space Sciences 100, 139

*Structures:* Civil and Environmental Engineering 135B, 135C, 135L, 137, 137L, 141, 142, 142L, 143, 144, 147

*Systems Analysis:* Civil and Environmental Engineering 106A

*Transportation Engineering:* Civil and Environmental Engineering 180

*Water Resources and Environmental Engineering:* Civil and Environmental Engineering 150, 154, 155, 156A, 156B, 157A, 157B, 157C, 160, 163, 164, 166

4. Chemistry and Biochemistry 20A, 20B, 20L; Civil and Environmental Engineering

15; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL

5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Civil and Environmental Engineering offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Civil Engineering.

### Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. and Ph.D. programs are required to take the General Test of the Graduate Record Examination (GRE).

Applicants to the Ph.D. program normally should have completed the requirements for the M.S. degree with at least a 3.25 grade-point average and 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 the M.S. degree.

Students not having adequate preparation may be admitted provisionally and may be required to undertake certain remedial coursework that cannot be applied toward the degree. On arrival at UCLA, an adviser helps the student plan a program which can remedy any such deficiencies.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs in *Program Requirements for UCLA Graduate Degrees*.

Applicants are encouraged to apply online. Application forms, including a departmental supplement to the application, may be found at <http://www.cee.ucla.edu> or by writing to the Student Affairs Office, Civil and Environmental Engineering Department, 5732 Boelter Hall, UCLA, Box 951593, Los Angeles, CA 90095-1593.

### Master's Degree

For major fields, see Doctoral Degree.

The M.S. degree is offered through the comprehensive examination and thesis plans. At least nine courses are required, a majority of

which must be in the Civil and Environmental Engineering Department. At least five of the courses must be at the 200 level. Each major field has a set of required preparatory courses which are normally completed during undergraduate studies. Students should consult *Program Requirements for UCLA Graduate Degrees*, the school's *Announcement*, and the department for specific information on course requirements.

## Doctoral Degree

Major fields include environmental engineering, geotechnical engineering, structural mechanics, structural/earthquake engineering, and water resources engineering.

There is no formal course requirement for the Ph.D. degree, and students may theoretically substitute coursework by examinations. However, students normally take courses to acquire the knowledge needed for the written and oral preliminary examinations. The basic program of study for the Ph.D. degree is built around one major field and two minor fields. The minor fields are chosen to support the major field and are usually subsets of other major fields.

For information on completing the Engineer degree, see Engineering Schoolwide Programs in *Program Requirements for UCLA Graduate Degrees*.

Written and oral qualifying examinations are required. Students take a written preliminary examination in the major field. When the examination is passed and all coursework is completed, students take an oral preliminary examination that encompasses the major and minor fields.

After successful completion of both preliminary examinations, students take the University Oral Qualifying Examination. The nature and content of the examination are at the discretion of the doctoral committee, but ordinarily include a broad inquiry into the student's preparation for research, as well as a review of the dissertation prospectus.

## Civil and Environmental Engineering

### Lower Division Courses

**1. Introduction to Civil Engineering. (2)** Lecture, two hours. Introduction to scope of civil engineering profession, including earthquake, environmental, geotechnical, structural, transportation, and water resources engineering. P/NP grading.

**3. Fundamentals of Environmental Engineering Science. (4)** Lecture, four hours; outside study, eight hours. Quantitative analysis of sources, transformations, and effects of pollutants in water, air, and soil. Topics include drinking water, wastewater, hazardous wastes, radioactive wastes, and atmospheric emissions. P/NP or letter grading.

**11. Patterns of Problem Solving. (4)** Lecture, four hours; outside study, eight hours. Introduction to creative patterns of problem solving and decision making. Discussion of attitudes and techniques productive in problem solving. Heuristic guides for knowledge acquisition, problem presentation, and problem solution. Tools and concepts for decision making that include technology and human values. Letter grading.

**15. Introduction to Computing for Civil Engineers. (4)** Lecture, four hours; laboratory, four hours; outside study, four hours. Introduction to programming using structured FORTRAN. Selected topics in programming, with emphasis on numerical techniques as applied to engineering programs. Letter grading.

### Upper Division Courses

**101. Statics. (2)** Lecture, two hours; outside study, four hours. Requisites: Mathematics 31B, Physics 1B. Introduction to equilibrium principles for engineered systems. Study of internal forces and moments in beams, including relationships for shear, axial load, and moment diagrams. Introduction to support conditions and geometric properties of structural members. 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, Mechanical and Aerospace Engineering 102. Review of equilibrium principles; forces and moments transmitted by slender members. Concepts of stress and strain. Material constitution (stress-strain relations). Yield criteria. Structural applications to trusses, beams, shafts, columns, and pressure vessels. Letter grading.

**120. Principles of Soil Mechanics. (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 108. Soil as a foundation for structures and as a 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.

**125. Fundamentals of Earthquake Engineering. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 121, 137. Designed for seniors. Representations of earthquake ground motion, including response and Fourier spectra. Response of simple soil deposits and structures to ground motion. Hazard analysis by deterministic and probabilistic methods. Seismic design codes. 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.

**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.

**130F. Experimental Fracture Mechanics. (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Requisite: course 108. Elementary introduction to fracture mechanics and experimental techniques used in fracture, crack tip stress fields, strain energy release rate, fracture characterization, compliance calibration, surface flaws, fatigue crack growth and fatigue life of structural components, mixed mode fracture, and individual projects. Letter grading.

**130L. Experimental Structural Mechanics. (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Requisite or corequisite: course 130. Lecture and experiments in limit analysis of various aspects of structures. Elastic and plastic analysis of structural elements in multiaxial stress states. Buckling of columns, plates, and shells. Effects of actual boundary conditions on structural performance. Evaluation of structural fasteners. Letter grading.

**135A. Elementary Structural Analysis. (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 11, 15, 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; outside study, eight 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.

**135C. Computer Analysis of Structures. (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 135A, 135B. Direct stiffness method of structural analysis, with emphasis on its application in computer analysis. Development of approximate analysis techniques for estimation/verification of computer results. Discussion of structural principles, including symmetry/antisymmetry, superposition, Mueller/Breslau principle for influence lines, and deflected shapes. Numerical procedure for linear algebraic equations. 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 a 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; outside study, eight 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; outside study, eight hours. Requisite: course 135B. 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. Letter grading.

**142. Design of Reinforced Concrete Structures. (4)** Lecture, three hours; discussion, three 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. Requisite: course 142. Limited enrollment. Design considerations used for reinforced concrete beams, columns, slabs, and joints evaluated using analysis and experiments. Links between technical theory, building codes, and experimental results. Letter grading.

**143. Design of Prestressed Concrete Structures.**

(4) Lecture, four hours; outside study, eight hours. Requisite: course 135A. Prestressing and post-tensioning techniques. Properties of concrete and prestressing steels. Loss of prestress. Analysis of sections for flexural stresses and ultimate strength. Design of beams by allowable stress and strength methods. Load balancing design of continuous beams and slabs. 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. Requisite: course 141. Limited enrollment. Introduction to total design process and professional participants. Systematic presentation of advantages and limitations of different structural forms and systems. Identification of critical design factors influenced by tallness. Foundation systems. Construction site visits, costing, and scheduling. Letter grading.

**150. Engineering Hydrology. (4)** Lecture, four hours; outside study, eight hours. Requisite: Mechanical and Aerospace Engineering 103. Recommended: elementary probability. Precipitation, climatology, stream flow analysis, flood frequency analysis, groundwater, snow hydrology, hydrologic simulation. Possible field trips. Letter grading.

**151. Introduction to Water Resources Engineering. (4)**

Lecture, four hours; outside study, eight hours. Requisite: 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. Requisite: 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. Introduction to Environmental Aquatic Chemistry. (4)**

Lecture, four hours; outside study, eight hours. Requisites: course 153, Chemistry 20A, 20B, Mathematics 31A, 31B, Physics 1A, 1B. Description of chemical behavior of metals and anthropogenic/natural inorganic/organic compounds in natural fresh/marine surface waters and water treatment; acid-base chemistry, alkalinity, complexation, precipitation, sorption, redox, photochemistry, disinfection by-products, ozonation. Selected global chemical cycle(s). 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, redox systems, pH and electrical conductivity. Concepts to be applied to analysis of "real" water samples in course 156B. Letter grading.

**156B. Water Quality Control Laboratory. (4)**

Lecture, four hours; laboratory, four hours; outside study, four hours. Requisites: course 156A, Chemistry 20A, 20B. Characterization and analysis of typical natural waters and wastewaters for inorganic and organic constituents. Selected experiments include solids, nitrogen species, oxygen demand, chlorine, alkalinity, hardness, and trace analysis. Discussion of relevance of these measurements to water resource engineering. Letter grading.

**157A. Design of Water Resource Structures. (4)**

Lecture, four hours; outside study, eight hours. Requisites: course 151, Mechanical and Aerospace Engineering 103. Review design of hydraulic structures, pertinent fluid mechanics, and hydraulic theory and applications. Examples of failures and successes of hydraulic structures. Class project and field trip required. Letter grading.

**157B. Design of Water Treatment Plants. (4)**

Lecture, two hours; discussion, two hours; laboratory, four hours; other, 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.

**160. Environmental Monitoring and Data Analysis. (4)**

Lecture, four hours; outside study, eight hours. Requisites: courses 11, 15, 153, Mathematics 32A, 33A. Random and multistage sampling of environmental systems, empirical models and curve fitting, estimation of trends and statistical parameters, regression and correlation, factor analysis of multivariate data, kriging, monitoring network design and field experimental design, visual representation and computational mapping of environmental data. 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 the subsurface. Design project illustrating a remedial investigation and feasibility study. Letter grading.

**166. Environmental Microbiology. (4)**

Lecture, four hours; discussion, two hours; outside study, six hours. 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.

**166L. Environmental Microbiology and Biotechnology Laboratory. (4)**

Lecture, two hours; discussion, two hours; laboratory, four hours; outside study, four hours. Requisite: course 166. 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.

**199. Special Studies. (2 to 8)**

Tutorial, to be arranged. Limited to seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Occasional field trips may be arranged. May be repeated for credit. 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. Soil Dynamics. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 120. In-depth study of stress-strain behavior of soils under cyclic and dynamic loads caused by earthquakes, ocean waves, machine foundations, and similar items. Analysis of laboratory and field tests for determination of cyclic and dynamic soil properties. Effects of type of soil, degree of saturation, and loading conditions on cyclic properties. Letter grading.

**223. Earth Retaining Structures. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 120, 121. Basic concepts of theory of earth pressures behind retaining structures, with special application to design of retaining walls, bulkheads, sheet piles, and excavation bracing. Effects of flexibility, creep in soils, and construction techniques on stability of bulkheads and sheet piles. Mechanical stabilization of soils, such as with soil nails and geosynthetics. Letter grading.

**225. Geotechnical Earthquake Engineering. (4)**

Lecture, four hours; outside study, eight hours. Requisites: courses 120, 137. Analysis of earthquake ground motions, including seismic source modeling, travel path effects, and site response effects. Probabilistic seismic hazard analysis. Soil liquefaction. Seismic slope stability. 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.

**229. Seminar: Advanced Topics in Soil Mechanics. (4)**

Seminar, four hours; outside study, eight hours. Topics may vary each term to cover subjects such as earth dam design, seepage through soils, consolidation, constitutive laws, finite difference and finite element methods with special application in soil mechanics, theories of elasticity and plasticity, and case histories. Letter grading.

**M230. Elasticity. (4)**

(Same as Mechanical and Aerospace Engineering M256B.) Lecture, four hours; outside study, eight hours. Requisite: Mechanical and Aerospace Engineering 256A. Equations of linear elasticity; uniqueness of solution; Betti/Rayleigh reciprocity; Saint-Venant's principle; simple problems involving spheres and cylinders; special techniques for plane problems. Airy's stress function, complex variable method, transform method; three-dimensional problems, torsion, entire space and half-space problems; boundary integral equations. Letter grading.



**231. Inelastic Effects in Structures and Materials.**

(4) Lecture, four hours; outside study, eight hours. Requisite: course 130. Analogy between inelastic strain and applied force in stress analysis. Mathematical and physical theories of plasticity and creep and their basic assumptions. Static and dynamic analysis of inelastic beams, columns, frames, and plates. Localized plastic deformation in materials. Letter grading.

**232. Theory of Plates and Shells.** (4) Lecture, four hours; outside study, eight hours. Requisite: course 130 or Mechanical and Aerospace Engineering 156B. 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 M230, 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. Structural Reliability Analysis.** (4) Lecture, four hours; outside study, eight hours. Requisites: course 244, Electrical Engineering 131A, Mechanical and Aerospace Engineering 174. Review of probability theory and random processes. Fundamentals of structural reliability theory. First- and second-order, and simulation methods of reliability analysis. Structural component and system reliability. Reliability sensitivity measures. Bayesian reliability and analysis methods. Bases for probabilistic design codes. Time-variant reliability analysis. Finite element reliability methods. Letter grading.

**M239. Plasticity.** (4) (Same as Mechanical and Aerospace Engineering M256C.) Lecture, four hours; outside study, eight hours. Requisites: Mechanical and Aerospace Engineering 256A, 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.

**M240. Optimum Structural Design.** (4) (Same as Mechanical and Aerospace Engineering M267A.) Lecture, four hours; outside study, eight hours. Requisite: course 235A or Mechanical and Aerospace Engineering 261A. Synthesis of structural systems; analysis and design as optimization problems; techniques for synthesis and optimization; application to aerospace and civil structures. 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) (Formerly numbered 243.) 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.

**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. Advanced Structural Dynamics for Civil Engineering.** (4) Lecture, four hours; outside study, eight hours. Requisites: courses 137, 235A, 235B, M237A or 246. Dynamic response of linear structures with proportional and nonproportional damping using modal superposition methods. Dynamic response of inelastic systems using numerical integration. Introduction to base isolation and active structural control. Earthquake engineering applications. 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 and Mechanics.** (2) Lecture, two hours; outside study, six hours. Review of recent research and developments in structural engineering and mechanics. Structural analysis, finite elements, structural stability, dynamics of structures, structural design, earthquake engineering, ground motion, elasticity, plasticity, structural mechanics, mechanics of composites, and constitutive modeling. 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 components of hydrologic cycle. Hydrologic mass balance analysis, hydrologic error analysis using systems investigation and physical hydrology. Stochastic hydrology: time-series analysis, Markovian streamflow generating models, and generation of multivariate synthetic streamflows. Applications. 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. Mathematical Modeling of Contaminant Transport in Groundwater.** (4) Lecture, four hours; laboratory, 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 laboratory and field experiments, coupled and multiphase pollution problems, computer programs and applications. Letter grading.

**251. 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.

**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.

**254B. Environmental Aquatic Organic Chemistry.** (4) Lecture, four hours; outside study, eight hours. Requisites: Chemistry 11A, 11B, Mathematics 31A, 31B, Physics 8A, 8B. Equilibrium and kinetic descriptions of anthropogenic and natural organic compounds in natural fresh/marine surface waters and in water treatment. Processes include sorption, air/water exchange, hydrolysis, photolysis, photooxidation, oxidation/reduction, disinfection, by-products, and ozonation. Letter grading.

**254C. Aerosol, Fog, and Cloud Chemistry of Air Pollution. (4)** Lecture, four hours; outside study, eight hours. Requisite: Chemistry 11A, 11B, Mathematics 31A, 31B, Physics 8A, 8B. Chemical/physical properties of aerosols (inorganic, metals, organic). Ionic composition. Equilibrium/dynamic gas-to-drop partitioning of water and semivolatile inorganic/organic compounds. Aqueous/condensed-phase transformations of inorganic/organic compounds and metals. Condensed-phase oxidant cycles. 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 a 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, 251. 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.

**M262A. Introduction to Atmospheric Chemistry. (4)** (Same as Atmospheric 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 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

**263A. Physics of Environmental Transport. (4)** (Formerly numbered 263.) 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 non-aqueous 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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

*College of Letters and Science*

UCLA  
100 Dodd Hall  
Box 951417  
Los Angeles, CA 90095-1417

(310) 825-4171  
<http://www.humnet.ucla.edu/humnet/classics/home.html>

Robert A. Gurval, Ph.D., *Chair*

### Professors

Ann L.T. Bergren, Ph.D.  
David L. Blank, Ph.D.  
Andrew R. Dyck, Ph.D.  
Bernard D. Frischer, Ph.D.  
Sander M. Goldberg, Ph.D.  
Michael W. Haslam, Ph.D.  
Katherine C. King, Ph.D.  
Steven Lattimore, Ph.D.  
Sarah P. Morris, Ph.D.  
Brent H. Vine, Ph.D.

### Professors Emeriti

Philip Levine, Ph.D.  
Bengt T.M. Löfstedt, Ph.D.  
Jaan Puhvel, Ph.D.  
Albert H. Travis, Ph.D.

### Associate Professors

Robert A. Gurval, Ph.D.  
Kathryn A. Morgan, Ph.D.  
Carole E. Newlands, Ph.D.

## Scope and Objectives

The general objective of the Classics Department is to provide a thorough knowledge of the Greek and Roman languages and culture. To this end, it offers elementary and advanced courses in the languages, the reading and analysis of Greek and Roman authors, the history of Greek and Roman literature, classical art, archaeology, linguistics, mythology, philosophy, and religion.

Bachelor of Arts degrees are offered in Classical Civilization, in Greek, in Latin, and in Greek and Latin. Other undergraduate degrees include the B.A. in English/Greek and in English/Latin, offered jointly with the English Department. Graduate degrees include the Master of Arts in Classics (Greek and Latin), Greek, and Latin, and the Ph.D. in Classics.

## 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.

## Classical Civilization B.A.

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, and one course from 30, 40, 41, 42, 51A, 51B.

### Transfer Students

To be admitted as Classical Civilization majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one classical Greek culture course, one Roman civilization course, and one course in Greek or Latin literature in translation, classical mythology, or classical archaeology.

### The Major

*Required:* (1) Greek 3 or Latin 3; (2) two courses in Greek or Roman history (History 115B, 115C, 116A, 116B, 117A, 117B, 118); (3) two courses in classical art or archaeology (Classics M153A through M153K); (4) seven 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 195 may be applied as only one course toward the major; (5) one senior seminar (Classics 197); with approval of the undergraduate adviser, a senior paper (Classics 195 or 199) may be substituted for the senior seminar.

## Greek B.A.

### Preparation for the Major

*Required:* Classics 10, 20; Greek 1, 2, 3, or equivalent.

### Transfer Students

To be admitted as Greek majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of Greek and related courses in civilization, culture, history, linguistics, literature, and closely related languages.

### The Major

*Required:* Eight upper division Greek courses, including course 110, and four courses in classical civilization (Classics 140 through 197) and/or ancient history (History 115A, 115B, 115C, 116A, 116B, 117A, 117B, 117C). Courses in related fields not offered by the department may be substituted by petition and with approval of the undergraduate adviser.

## Greek and Latin B.A.

### Preparation for the Major

*Required:* Classics 10, 20; Greek 1, 2, 3 and Latin 1, 2, 3, or equivalent.

### Transfer Students

To be admitted as Greek and Latin majors, transfer students with 90 or more units must complete the following introductory courses 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.

### The Major

*Required:* Ten upper division Greek and/or Latin courses (of which at least four must be in each language), including Greek 110 or Latin 110, and three courses in classical civilization (Classics 140 through 197) and/or ancient history (History 115A, 115B, 115C, 116A, 116B, 117A, 117B, 117C). Courses in related fields not offered by the department may be substituted by petition and with approval of the undergraduate adviser.

## Latin B.A.

### Preparation for the Major

*Required:* Classics 10, 20; Latin 1, 2, 3, or equivalent.

### Transfer Students

To be admitted as Latin majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of Latin and related courses in civilization, culture, history, linguistics, literature, and closely related languages.

### The Major

*Required:* Eight upper division Latin courses, including course 110, and four courses in classical civilization (Classics 140 through 197) and/or ancient history (History 115A, 115B, 115C, 116A, 116B, 117A, 117B, 117C). Courses in related fields not offered by the department may be substituted by petition and with approval of the undergraduate adviser.

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.

## English/Greek B.A.

### Preparation for the Major

*Required:* English 4W, 10A, 10B, 10C, Greek 1, 2, 3.

### Transfer Students

To be admitted as English/Greek majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one English critical reading and writing course, one year of English literature survey courses, and one year of Greek.

### The Major

*Required:* (1) Seven courses from English 140A through 190 selected in consultation with an adviser in the Department of English; (2) seven upper division or graduate courses in Greek, including courses 100 and either 101A or 101B, selected in consultation with an adviser in the Department of Classics (of these seven courses, at least two must be in poetry and two in prose). Total courses required: 14.

## English/Latin B.A.

### Preparation for the Major

*Required:* English 4W, 10A, 10B, 10C, Latin 1, 2, 3.

### Transfer Students

To be admitted as English/Latin majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one English critical reading and writing course, one year of English literature survey courses, and one year of Latin.

### The Major

*Required:* (1) Seven courses from English 140A through 190 selected in consultation with an adviser in the Department of English; (2) seven upper division or graduate courses in Latin, including courses 105A and 113, selected in consultation with an adviser in the Department of Classics (of these seven courses, at least two must be in poetry and two in prose). Total courses required: 14.

## Honors Program

The honors program is open to students in each of the departmental majors. 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 in the department and an overall GPA of 3.0 or better, and (3) complete Classics 195 with a grade of A– or better.

To qualify for graduation with departmental 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 Classics 195 with a grade 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 (12 units):* Classics 10, 20, and one course from 30, 40, 41, 42.

*Required Upper Division Courses (20 units):* Five courses selected from Classics 140 through 197. One course in a related field may be substituted with approval of the faculty undergraduate adviser.

All minor courses must be taken for a letter grade, with 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 which 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 (15 units):* Greek 1, 2, 3, or equivalent.

*Required Upper Division Courses (20 units):* Five courses selected from Greek 100 through 133.

All minor courses must be taken for a letter grade, with 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

**W**hen he was an undergraduate student at Brown University in Rhode Island, Professor Robert Gurval studied American history and pursued ambitions of law. But a funny thing happened on the way to his B.A. "I took a course on ancient Greece and Rome as an elective, and the rest, as they say, is history."

Ancient Rome seems like a far away place from the small coal-mining town in northeastern Pennsylvania where Gurval was born. But twenty years after taking that fateful elective, he teaches his own course on Roman Civilization and hopes to inspire students in a similar way. "Issues of politics, religion, race, ethnicity, gender, and sexuality provide an overall framework of analysis in almost all my courses. To understand the past, we must understand our own cultural values, traditions, and practices."

Gurval regularly teaches courses in Latin literature, ancient biography, and epic and cultural constructions

classical (and/or late antique and medieval) Latin prose and poetry which 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 (15 units):* Latin 1, 2, 3, or equivalent.

*Required Upper Division Courses (20 units):* Five courses selected from Latin 100 through 133.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the

of gender in the Roman world. In addition, he has developed two Honors Collegium seminars: The Hollywood Myth of Ancient Rome and Male Identity and Sexuality in Ancient Rome.

Such topics keep the classics relevant and interesting for Gurval's students and so does his trademark approach of examining ancient historical events from the viewpoints of contemporaries and connecting their ideas to immediate political and social issues. "I believe that students should take courses that challenge them to think and to inquire about their own lives and society," he says. "Not everyone has to major or minor in classics, but if they do, that isn't such a bad thing either."

In addition to a book and numerous publications on the politics and literature of the early Roman Empire, Gurval has been a recipient of the Rome Prize awarded by the American Academy in Rome.



**Robert Gurval,**  
Classics Department

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*Issues of politics, religion, race, ethnicity, gender, and sexuality provide an overall framework of analysis in almost all my courses. To understand the past, we must understand our own cultural values, traditions, and practices*

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graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## 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.) and Doctor of Philosophy (Ph.D.) degrees in Classics.

## Admission

The department does not admit students whose final degree objective is the M.A. degree. The program that leads to an M.A. in Classics is considered the first step toward the Ph.D. in Classics. The M.A. in Greek or in Latin

may be awarded to students whose academic goals shift during the course of graduate study.

Requirements for admission to the M.A. programs are a UCLA B.A. degree or the equivalent degree from another university, preferably with a major in Classics, Greek, or Latin; a grade-point average of at least 3.0 in the major; a statement of purpose; three letters of recommendation, normally from previous instructors in the classics; a writing sample (research paper); and Graduate Record Examination (GRE) scores.

For the Ph.D., a UCLA M.A. degree in Classics with a comprehensive examination grade of B+ or better or an equivalent degree from another university is required. In addition to an M.A. degree, the department requires a statement of purpose. If applicants do not have a UCLA M.A., they must also submit three letters of recommendation, normally from previous instructors in the classics, a writing sample (research paper), and Graduate Record Examination (GRE) scores. While there is no minimum required score, the GRE may be used as a criterion in uncertain cases, and to assess applications for teaching assistantships and other financial assistance from the department. An application for admission may be obtained by writing to the department.

## Master's Degrees

Areas of study include the M.A. degree in Classics (Greek and Latin) as a preliminary to the Ph.D. Students entering with or earning a single-language M.A. (Greek or Latin) must complete requirements in the other language before proceeding to the Ph.D. track.

The M.A. degree is offered through the comprehensive examination plan. Thirty-eight units of graduate coursework are required, including courses that test for the appropriate part of the departmental reading lists and specific courses designated for the M.A. in Greek and in Latin. The remaining courses are selected in consultation with the graduate adviser.

There is a language requirement for this degree.

## Doctoral Degree

The department offers the Ph.D. in Classics with opportunities to specialize in ancient history, ancient philosophy, archaeology, classical linguistics, and post-classical Latin, as well as in classical literature and philology.

Students who hold the M.A. in Greek or in Latin only must complete the Classics M.A. course requirement by taking a specific course sequence in the history of literature in the other language. A minimum of 32 units of 200-series courses (exclusive of this course) is required.

Written and oral qualifying examinations are required. Written qualifying examinations consist of two translation examinations, a research paper, and a special field examination.

Following successful completion of the written examinations, students take the University Oral

Qualifying Examination, which tests knowledge of the major field and possible stipulated areas outside the specialization and includes a discussion of a formal dissertation proposal.

There is a language requirement for this degree.

## Classics

### Lower Division Courses

**10. Survey of Classical Greek Culture. (4)** Lecture, three hours; discussion, 60 to 90 minutes. Knowledge of Greek not required. Lectures, many illustrated, on Greek life and culture from age of Homer to Roman Conquest. Discussion of art, literature, philosophy, and mythology. P/NP or letter grading.

**20. Survey of Roman Civilization. (4)** Lecture, three hours; discussion, one hour. Knowledge of Latin not required. Study of life and culture of Rome from time of its foundation to end of antiquity. Survey of art, literature, and political thought of the Romans. Selections from Latin authors read in translation. P/NP or letter grading.

**30. Introduction to Classical Mythology. (4)** Lecture, three hours; discussion, one hour. Introduction to myths and legends of ancient Greece and Rome, role of those stories in their societies, and modern approaches to studying them. P/NP or letter grading.

**40. Survey of Greek Literature in Translation. (4)** Lecture, three hours; discussion, one hour. Readings in English of Greek literature from the beginning to Roman times to demonstrate the sweep of Greek literary achievement and the foundations it laid for subsequent literary developments. P/NP or letter grading.

**41. Survey of Latin Literature in Translation. (4)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 41W. Readings in English to emphasize unique achievements of Latin literature, particularly in such areas as drama, epic, satire, oratory, and history. P/NP or letter grading.

**41W. Discovering Roman Literature. (5)** Lecture, two hours; discussion, two hours. Enforced prerequisite: English Composition 3 or 3H. Not open for credit to students with credit for course 41. Exploration in detail and from variety of critical perspectives a carefully selected set of literary texts characteristic of ancient Rome and significant in Western literary tradition. Satisfies Letters and Science Writing II requirement. Letter grading.

**42. Cinema and the Ancient World. (4)** Lecture, three hours; discussion, 90 minutes. Use of popular cinema to introduce students to ancient Greek and Roman culture; limits of investigation set by individual instructor. P/NP or letter grading.

**50F. Power and Imagination in Ancient Rome. (4)** Lecture, 90 minutes; discussion, 90 minutes. Freshman seminar designed to survey major aspects of Roman civilization, including art, religion, literature, and politics. P/NP or letter grading.

**51A. Art and Archaeology of Classical World: Greece. (4)** Lecture, three hours; discussion, one hour. Survey of a major period, theme, or medium of Greek art and archaeology at discretion of instructor. P/NP or letter grading.

**51B. Art and Archaeology of Classical World: Rome. (4)** Lecture, three hours; discussion, one hour. Survey of a major period, theme, or medium of Roman art and archaeology at discretion of instructor. P/NP or letter grading.

**55. Origins and Nature of English Vocabulary. (4)** Lecture, three hours. Origins and nature of English vocabulary, from Proto-Indo-European prehistory to current slang. Topics include the Greek and Latin component in English (including technical terminology), the alphabet and English spelling, semantic change and word formation, vocabulary in literature and film.

**M70. Survey of Medieval Greek Culture. (4)** (Same as History M70.) Lecture, three to four hours. Classical roots and medieval manifestation of Byzantine civilization: political theory, Roman law, pagan critique of Christianity, literature, theology, and contribution to the Renaissance (including discovery of America).

**88A-88Z. Lower Division Seminars. (4 each)** Seminar, three hours. Variable topics; consult *Schedule of Classes* or department for topics to be offered in a specific term. P/NP or letter grading.

## Upper Division Courses

**140. Topics in History of Greek Literature. (4)** Lecture, three hours. Prerequisite: course 10 or 40. Investigation of a specific issue in the understanding of Greek literature, such as definition of a genre or evaluation of a 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. Prerequisite: course 20 or 41. Investigation of a specific issue in the interpretation of Latin literature, such as definition of a genre or evaluation of a particular author. May be repeated for credit with topic change. P/NP or letter grading.

**142. Ancient Epic. (4)** Lecture, three hours. Prerequisite: one course from 10, 20, 30, 40, or 41. Homer's *Iliad* and *Odyssey*; Vergil's *Aeneid*, and Ovid's *Metamorphoses*, studied in translation. P/NP or letter grading.

**143. Ancient Drama. (4)** Lecture, three hours. Prerequisite: one course from 10, 20, 40, or 41. Study of Greek and/or Latin drama in translation. P/NP or letter grading.

**144. Topical Studies in Ancient Culture. (4)** Lecture, three hours. Prerequisite: one course from 10, 20, 30, 40, or 41. Investigation of a 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 the texts, their literary form, interrelations, and contribution to discussion of basic philosophical issues.

**M145B. Later Ancient Greek Philosophy. (4)** (Same as Philosophy M103B.) Lecture, three hours. Prerequisite: one course from M145A, Philosophy 1, 100A, M101B, M102. Study of some major texts in Greek philosophy of the 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.

**M146B. Plato — Later Dialogues. (4)** (Same as Philosophy M101B.) Lecture, three hours; discussion, one hour. Prerequisite: course M146A. Study of selected topics in middle and later dialogues of Plato.

**M147. Aristotle. (4)** (Same as Philosophy M102.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected works of Aristotle.

**150A. Origins of the Western View of Women: The Female in Greek Thought. (4)** Lecture, three hours. Prerequisite: course 10. Interdisciplinary study of concept of the female in various forms of thought developed by the Greeks (e.g., epic, tragedy, comedy, history, political philosophy, gynecology). Special emphasis on how these texts lay the foundation for the Western view of women.

**150B. Origins of the Western View of Women: The Female in Roman and Early Christian Thought. (4)** Lecture, three hours. Prerequisite: course 20. Interdisciplinary study of concept of the female in Roman and early Christian thought. Special emphasis on status of the female with regard to sexuality, procreation, and the sacred.

**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 the 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.

**152. The Ancient City. (4)** Lecture, three to four hours. Prerequisite: course 10 or 20 or History 1A. Study of urban planning in the ancient world, with particular attention to cities of classical Greece and Rome, but with consideration also to comparable developments in the ancient Near and Far East. Examination of questions of architectural space and organization, of form, design, and function of major municipal areas and buildings, and of provision of public amenities by detailed reference to significant archaeological sites and contemporary sources. P/NP or letter grading.

**M153A. Minoan Art and Archaeology. (4)** (Same as Art History M102A.) Lecture, three hours. Requisite: course 10 or Art History 50. Study of development of art and architecture in Minoan Crete from ca. 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 Art History 50. Study of development of art and architecture in Mycenaean Greece from 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 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 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 Art History 50. Study of development of art and architecture of Greek world from middle of the 4th century B.C., including transmittal of Greek art forms to the Romans. P/NP or letter grading.

**M153F. Etruscan Art. (4)** (Same as Art History M102F.) Lecture, three hours. Requisite: course 20 or Art History 50. Arts of Italic peninsula from ca. 1000 B.C. to end of the 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 Art History 50. Art and architecture of Rome and its Empire from ca. 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 the 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: course 10 or 20 or 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.

**160. Legal Advocacy in Ancient World. (4)** Lecture, three hours. Requisite: course 10 or 20. Study of theory and practice of legal advocacy in classical Greece and Rome, with emphasis on speeches of Cicero. Letter grading.

**162. Classical Myth in Literature. (4)** Use of myth in principal authors and genres of Greek and Roman literature, with examples of its influence in later literatures.

**165. Ancient Athletics. (4)** Requisite: course 10 or History 1A. Study of ancient Greek and Roman athletics and their connections with religion, politics, literature, and art.

**166A. Greek Religion. (4)** Requisite: course 10. Study of the religion of the ancient Greeks.

**166B. Roman Religion. (4)** Requisite: course 20. Study of the religion of the ancient Romans.

**167. Greek and Roman Magic. (4)** Lecture, three hours. Requisite: course 10 or 20. Study of beliefs about supernatural phenomena in the ancient world, including witches, ghosts, vampires, and magic spells, attested in both literary and archaeological sources. P/NP or letter grading.

**168. Comparative Mythology. (4)** Lecture, three hours. Requisite: course 30. Religious, mythical, and historical traditions of Greece and Rome compared with each other and with those of other ancient Near Eastern and European societies.

**M170. Power and Imagination in Byzantium. (4)** (Same as History M122.) Lecture, three hours. Requisites: course M70, or History 123A and 123B. Designed for juniors/seniors. Study of relations of authority and the intelligentsia in the highly centralized Byzantine Empire. Topics include criticism of the emperor, iconoclasm, intellectual freedom, attempts at reform.

**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.

**190. The Medieval Book. (4)** Seminar, three hours. Requisites: courses 10, 20, and 40 or 41. Limited to senior Greek and Latin, Greek, Latin, and Classical Civilization majors. History of the book from manuscript to printing, with attention to construction, layout, decoration, and script, as well as changing cultural and historical contexts, medieval methods of information retrieval, and transition from script to print culture.

**195. Senior Honors Paper. (4)** Supervised through individual consultation with an appropriate faculty member, students revise paper written in a prior upper division course into substantial piece of academic writing.

**197. Senior Seminar. (4)** Seminar, three hours. Limited to seniors. Seminar on important themes, periods, genres of ancient Greek and Roman world that take an innovative interdisciplinary approach to questions old and new. Class presentations and papers.

**199. Special Studies in Classics. (2 to 8)** Limited to seniors.

## 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.

**M220A. Interfaces: Transmission of Roman Literature. (4)** (Formerly numbered M223.) (Same as History CM220A.) Discussion, 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)** Course 230A is requisite to 230B. Survey of the 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.

**244. Textual Criticism: Studies in Preparation of a Critical Edition of Greek and/or Latin Texts. (4)** Seminar, three hours. Different steps required in preparation of a critical edition of an ancient text: localizing manuscripts; collation; establishing the stemma; selecting the right reading on basis of knowledge of the context, of the language of the author, and of the sources; emendations; formulation of *apparatus criticus* and *apparatus fontium*.

**245. Computing and Classics. (4)** Introduction to processing and analysis of digitized texts of classical authors for purposes of literary history and criticism.

**246. Greek and Latin Meter. (4)** Comprehensive study of meter as it functions in classical poetry.

**250. Topics in Greek and Latin Literature. (2 or 4)** Lecture, three hours. Investigation of specific literary genres or historical issues in history of classical 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 the 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. (4)** Detailed studies in topography and monuments of ancient Rome, combining evidence of literature, inscriptions, and actual remains.

**260. Topics in Ancient Religion. (4)** Seminar, three hours.

**268. Seminar: Comparative Mythology. (4)** Requisite: course 168. Advanced study of selected topics in comparing Greek and Roman traditions with other ancient Near Eastern and European societies.

**287. Graduate Colloquium in Classical Literature. (4)** 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**495. Teaching Classics. (2 to 4)** Seminar, three 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, five hours.

**2. Elementary Greek. (5)** Lecture, five hours. Enforced requisite: course 1.

**3. Elementary Greek. (5)** Lecture, five hours. Enforced requisite: course 2.

**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, 15 hours. Ten-week intensive introduction to Greek language equivalent to courses 1, 2, and 3. Offered in summer only. Letter grading.

### Upper Division Courses

**100. Readings in Greek Prose. (4)** Lecture, three to four hours. Requisite: course 3. Selections from Plato and other classical Greek texts, along with grammar review. P/NP or letter grading.

**101A. Homer: *Odyseey*. (4)** Requisite: course 100.

**101B. Homer: *Iliad*. (4)** Requisite: course 100.

**102. Lyric Poets. (4)** Requisite: course 100. Selections from Archilochus to Bacchylides.

**103. Aeschylus. (4)** Requisite: course 100.

**104. Sophocles. (4)** Requisite: course 100.

**105. Euripides. (4)** Requisite: course 100.

**106. Aristophanes. (4)** Requisite: course 100.

- 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.
- 110. Study of Greek Prose. (4)** Requisite: course 100. Work in sight reading and grammatical analysis of Attic prose texts; writing Attic prose.
- 111. Herodotus. (4)** Requisite: course 100.
- 112. Thucydides. (4)** Requisite: course 100.
- 113. Attic Orators. (4)** Requisite: course 100.
- 115. Xenophon. (4)** Lecture, three hours. Requisite: course 100. Reading of one major work of Xenophon — the *Memorabilia*, *Cyropaedia*, *Anabasis*, *Hellenica*, or *Oeconomicus* — in Greek. P/NP or letter grading.
- 121. Plato. (4)** Requisite: course 100.
- 122. Plato: Republic. (4)** Requisite: course 100.
- 123. Aristotle: Poetics and Rhetoric. (4)** Requisite: course 100.
- 124. Aristotle: Ethics. (4)** Requisite: course 100.
- 130. Readings in the New Testament. (4)** Requisite: course 3.
- 131. Readings in Later Greek. (4)** Requisite: course 100. Topics vary from year to year and include "Longinus," On the Sublime; Marcus Aurelius; Arrian; the Second Sophistic; Plutarch; later epic; epigram; epistolographi Graeci.
- 132. Survey of Byzantine Literature. (4)** 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 bizantini*, ed. R. Cantarella. In addition, necessary historical and cultural background provided by readings and lectures.
- 133. Readings in Byzantine Literature. (4)** Requisite: course 132. Topics vary from year to year and include Procopius, Agathias, Michael Psellus, the Alexiad of Anna Comnena, and Digenis Akritas.
- 199. Special Studies in Greek. (2 to 8)** Limited to seniors.

## Graduate Courses

- 200A-200B-200C. History of Greek Literature. (6-6-6)** 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)** Seminar, three hours. Course 201A is requisite to 201B. S/U (2-unit course) or letter (4-unit course) grading.
- 202A-202B. Homer: Odyssey and the Epic Cycle. (2 or 4 each)** Seminar, three hours. Course 202A is requisite to 202B. S/U (2-unit course) or letter (4-unit course) grading.
- 203. Hesiod. (2 or 4)** S/U (2-unit course) or letter (4-unit course) grading.
- 204. Homeric Hymns. (2 or 4)** 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)** Seminar, 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)** Seminar, 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)** Seminar, 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. Course 209A is requisite to 209B. S/U (2-unit course) or letter (4-unit course) grading.
- 210. Advanced Greek Prose Composition. (4)** Requisite: course 110.
- 211A-211B. Herodotus. (2 or 4 each)** Seminar, 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)** Seminar, 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)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.
- 215. Early Greek Orators. (2 or 4)** Studies in works of Antiphon, Andocides, and Lysias. S/U (2-unit course) or letter (4-unit course) grading.
- 216. Menander. (2 or 4)** Preparation: reading knowledge of classical Greek. S/U (2-unit course) or letter (4-unit course) grading.
- 217A-217B. Greek Lyric Poetry. (2 or 4 each)** 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 the epinician.
- 220. Greek Novel. (2 or 4)** Seminar, three hours. Study of the Greek romance and its place in Greek literature. Two texts (Chariton: *Chaereas and Callirhoe* and Longus: *Daphnis and Chloë*) 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)** Seminar, 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)** Seminar, 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 or 4)** Discussion, three hours. Designed for graduate students. Practice in translation of previously unseen texts from a variety of authors and genres. Topics include peculiarities of style and vocabulary of the distinct genres, literary vs. scholarly translation, semantic properties of particular words and constructions. S/U or letter 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)** 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 the Greek Language. (4-4)** Seminar, three 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)** Survey of Greek historical inscriptions, chiefly Attic.
- 242. Greek Dialects and Historical Grammar. (4)** Linguistic situation in early Greece. Readings in classical Greek dialectal texts. Greek grammar in context of common Greek and Indo-European linguistics.
- 243. Mycenaean Greek. (2 or 4)** Seminar, three hours. Script, language, and grammar of the Linear B inscriptions; their relevance to ancient Greek linguistic and cultural history. S/U or letter grading.
- 244. Greek Papyrology. (4)** Preparation: reading knowledge of Greek. Introduction to Greek papyri, considered both as historical documents and as carriers of literature.
- 245. Greek Paleography. (4)** Studies in development of book hand in Greek manuscripts earlier than the invention of printing.
- 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, five hours.
- 1G. Elementary Latin for Graduate Students. (No credit)** Concurrently scheduled with course 14.
- 2. Elementary Latin. (5)** Lecture, five hours. Enforced requisite: course 1.
- 3. Elementary Latin. (5)** Lecture, five hours. Enforced requisite: course 2 or 14.
- 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, 15 hours. Ten-week intensive introduction to Latin language equivalent to courses 1, 2, and 3. Offered in summer only. Letter grading.

### Upper Division Courses

- 100. Readings in Latin Prose and Poetry. (4)** Lecture, three hours. Requisite: course 3. Close study of a prose text supplemented with related readings in poetry. Attention to historical and cultural context. Course is normally requisite to other courses in the Latin 100 series.
- 101. Plautus. (4)** Requisite: course 100.
- 102. Terence. (4)** Requisite: course 100.
- 103. Lucretius. (4)** Requisite: course 100.
- 104. Ovid. (4)** Requisite: course 100.
- 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 the *Aeneid*, designed especially for students with only limited experience in reading Latin poetry.
- 105B. Advanced Vergil. (4)** Lecture, three hours. Requisite: course 105A. Reading and discussion of Vergil's *Eclogues*, *Georgics*, and/or second half of the *Aeneid*. May be repeated for credit with change in readings. P/NP or letter grading.
- 106. Catullus. (4)** Requisite: course 100.
- 107. Horace. (4)** Requisite: course 100.
- 108. Roman Elegy. (4)** Requisite: course 100. Selections from Catullus, Tibullus, and Propertius.
- 109. Roman Satire. (4)** Requisite: course 100. Selections from *Epistles* of Horace, *Satires* of Juvenal, and *Epigrams* of Martial.
- 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.
- 111. Livy. (4)** Requisite: course 100.
- 112. Tacitus. (4)** Requisite: course 100.
- 113. Cicero: The Orations. (4)** Requisite: course 100.
- 114. Roman Epistolography: Cicero and Pliny. (4)** Requisite: course 100.
- 115. Caesar. (4)** Requisite: course 100.
- 116. Roman Novel. (4)** Lecture, three hours. Requisite: course 100. Reading and discussion of either Petronius' *Satyricon* or Apuleius' *Metamorphoses* and development of the genre of prose novel in antiquity. May be repeated for credit with change in author and text.
- 117. Sallust. (4)** Requisite: course 100.
- 118. Seneca. (4)** Requisite: course 100. Selection of Seneca's works read in Latin.
- 120. The Vulgate. (4)** Lecture, three hours. Requisite: course 3. Reading of selected chapters of St. Jerome's translation of the Bible, with emphasis on unclassical features of the Latin.
- 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.
- 130. Introduction to Medieval Latin. (4)** Requisite: course 3. Reading of easy prose texts, with emphasis on basic language training.
- 131. Medieval Latin Prose. (4)** Lecture, three to four hours. Requisite: course 100. Extensive reading of selected texts in prose, with emphasis on idiosyncrasies of medieval Latin. P/NP or letter grading.

- 133. Medieval Latin Poetry. (4)** Preparation: one upper division Latin language course.
- 199. Special Studies in Latin. (2 to 8)** Limited to seniors.

## Graduate Courses

- 200A-200B-200C. History of Latin Literature (6-6-6).** Lectures on history of Latin literature, supplemented on the part of the student by independent reading of Latin texts in the original. Each course may be taken independently for credit.
- 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 Italicus), with attention to the 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)** Detailed consideration of entire Catullan corpus. S/U (2-unit course) or letter (4-unit course) grading.
- 203A. Elegiac Poetry. (2 or 4)** S/U (2-unit course) or letter (4-unit course) grading.
- 203B. Propertius. (2 or 4)** 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)** 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)** S/U (2-unit course) or letter (4-unit course) grading.
- 205B. Seminar: Vergil's *Georgics*. (2 or 4)** Course 205A is not requisite to 205B. Close reading of Vergil's text; careful evaluation of influential criticism on the poem, much of it recent; examination of the work's place within the tradition of rural poetry. S/U (2-unit course) or letter (4-unit course) grading.
- 206. Horace. (2 or 4)** S/U (2-unit course) or letter (4-unit course) grading.
- 207. Roman Comedy. (2 or 4)** Survey of history of Roman comedy. Reading of one comedy by Plautus or Terence, with emphasis on language and meter. S/U (2-unit course) or letter (4-unit course) grading.
- 208. Ovid. (2 or 4)** Preparation: reading knowledge of classical Latin. Detailed study of poetic works of Ovid. Readings in the original with discussion of secondary literature and scholarship. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.
- 209. Seminar: Roman Satire. (2 or 4)** Detailed study of an individual satirist, with attention to his position in development of the satirical genre in Roman literature. Choice of author varies from year to year. Close study of the text, of characteristics of the writer as a 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)** Requisite: course 110.
- 211A-211B-211C. Seminars: Roman Historians. (2 or 4 each)** Study of considerable portions of writings of the following. 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.
- 215. Seminar: Roman Novel. (2 or 4)** 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 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)** S/U (2-unit course) or letter (4-unit course) grading.
- 221B. Cicero: De Natura Deorum. (2 or 4)** 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)** Preparation: reading knowledge of Greek and Latin. S/U (2-unit course) or letter (4-unit course) grading.

- 223. Lucretius. (2 or 4)** 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 the younger Seneca. Emphasis on literary and philological problems, with some attention to philosophical and historical matters as well. May be repeated with topic change. S/U (2-unit course) or letter (4-unit course) grading.
- 229. Sight Translation. (2 or 4)** Discussion, three hours. Designed for graduate students. Practice in translation of previously unseen texts from a variety of authors and genres. Topics include peculiarities of style and vocabulary of the distinct genres, literary vs. scholarly translation, semantic properties of particular words and constructions. S/U (2-unit course) or letter (4-unit course) grading.
- 231A-231B. Seminars: Medieval Latin. (2 or 4 each)** Preparation: at least one upper division Latin course. Course 231A is not requisite to 231B. Studies in various areas of the 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. (4)** History and characteristics of popular Latin; its development into early forms of the Romance languages.
- 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 the death of Ovid and fall of the Roman Empire. May be repeated with change in author.
- 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 the death of Tacitus and fall of the Roman Empire. May be repeated with change in author.
- 240. History of the Latin Language. (4)** Development of Latin from the earliest monuments until its emergence in the Romance languages.
- 242. Italic Dialects and Latin Historical Grammar. (4)** Linguistic situation in early Italy. Readings in Oscan, Umbrian, and early Latin texts. Latin grammar in context of Italic and Indo-European linguistics.
- 243. Seminar: Latin Paleography. (4)** Studies in development of book hand in Latin manuscripts earlier than the invention of printing.
- 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 the present, written on related topics. S/U or letter grading.
- 495. College Teaching of Latin. (2)** Seminar, to be arranged. Preparation: appointment as a 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.

## Related Courses

### Ancient Near East (Near Eastern Languages)

170. Introduction to Biblical Studies  
 272. Semitic Background of the New Testament

### Art History

223. Classical Art

### History

- 115A-115B-115C. History of Ancient Mediterranean World  
 116A-116B. History of Ancient Greece  
 117A-117B-117C. History of Rome  
 121A-121B. Medieval Europe  
 123A-123B. Byzantine History  
 215A-215B. Seminars: Ancient History  
 216A-216B. Seminars: Byzantine History  
 222A-222B. Seminars: Medieval Intellectual History and History of Science

### Indo-European Studies

132. European Archaeology: Bronze Age

- M150. Introduction to Indo-European Linguistics  
 210. Indo-European Linguistics: Advanced Course  
 280A-280B. Seminars: Indo-European Linguistics

## COMMUNICATION STUDIES

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Neil M. Malamuth, Ph.D., *Chair*

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 Joan B. Silk, Ph.D.  
 Jeffrey B. Valle, J.D.  
 Eugene Volokh, Ph.D.

### Affiliated Faculty

#### Professors

Christine L. Borgman, Ph.D. (*Information Studies*)  
 Thomas N. Bradbury, Ph.D. (*Psychology*)  
 Andrew Christensen, Ph.D. (*Psychology*)  
 Michael R. Curry, Ph.D. (*Geography*)  
 Patricia M. Greenfield, Ph.D. (*Psychology*)  
 John C. Heritage, Ph.D. (*Sociology*)  
 Neil M. Malamuth, Ph.D. (*Psychology, Speech*)  
 Melvin Pollner, Ph.D. (*Sociology*)  
 Emanuel A. Schegloff, Ph.D. (*Sociology*)

#### Professors Emeriti

Gordon L. Berry, Ed.D. (*Education*)  
 Nancy M. Henley, Ph.D. (*Psychology*)

#### Associate Professors

Philip E. Agre, Ph.D. (*Information Studies*)  
 Steven E. Clayman, Ph.D. (*Sociology*)  
 Patrice L. French, Ph.D. (*Speech*)  
 Jody E. Kreiman, Ph.D., *in Residence (Surgery)*  
 Leah Lievrouw, Ph.D. (*Information Studies*)  
 Sara E. Melzer, Ph.D. (*French and Francophone Studies*)  
 Paul I. Rosenthal, Ph.D. (*Speech*)

#### Assistant Professors

Matthew A. Baum, Ph.D. (*Political Science*)  
 Martie G. Haselton, Ph.D. (*Psychology, Speech*)

#### Senior Lecturers

Stuart Biegel, J.D. (*Education*)  
 Marde S. Gregory, M.A.

#### Lecturers

Timothy V. Ketelaar, Ph.D.  
 Dawn R. Ross, J.D.



Michael W. Suman, Ph.D.  
 Jeffrey B. Valle, J.D.  
 Paul Von Blum, J.D.

**Adjunct Professors**  
 Thomas G. Plate, M.A.

## Scope and Objectives

The major in Communication Studies is an interdisciplinary program 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 selecting the major in Communication Studies must complete the required lower division requisites and a minimum of seven upper division courses as set forth below. Enrollment in the major is limited. Admission to the major is by application to the committee in charge. Applications are available during Spring Quarter in the program office.

#### Preparation for the Major

*Required Lower Division Courses:* Communication Studies 10, Anthropology 33 or Linguistics 1 or Sociology 24, Speech 1, one statistics course from Economics M40 or Sociology M18 or Statistics 10. 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.

Students are encouraged but not required to complete as many lower division preparation for the major courses as possible before admission to the program.

#### Transfer Students

To be admitted as Communication Studies majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one mass and interpersonal communication studies course, one principles of public speaking course, one linguistics course, one statistics course, and three courses from psychology, American government, sociology, microeconomics, macroeconomics, and political economy.

#### Writing Requirement

*Required:* English Composition 131D.

### The Major

*Required Core Courses:* Communication Studies 100, 101, 150.

#### Interpersonal Communication Concentration

*Required:* Eleven courses as follows:

- Seven courses, three of which must be in communication studies and one of which must be Communication Studies 115 or 120, from Anthropology 141, Communication Studies 115, M116, 120, M123, M125, M127, 130, M144A, M144B, 197G, 197J, Psychology 137C, M165, 174, 177, 178, Sociology 132 or Psychology 135, Sociology 135 or Psychology 137I, and Sociology 156 or 160
- Two mass communication elective courses from Communication Studies M135, 140, 146, M147, M148, 152, M153, M155, 156, M157, M159, 165, 170, 177, 180, 187, 197A, 197B, 197K, 197N, 197R, 197T
- Two general interpersonal communication elective courses from one of the following groups: (a) *language theory* — Anthropology M140, M145 (by petition), Communication Studies M123, M124, 197E, Linguistics 103, 170, Philosophy 172, Psychology 122 or 123, (b) *media content/criticism/history* — Communication Studies 160, M161, 171, 175 (or Film and Television 116), 189, 197C, 197R, Film and Television 106A, 108, 110A, (c) *theories of social interaction* — Anthropology 133R, 135A, 135B, 142A, 142B, Communication Studies M125, M144A, M144B, 197F, Sociology 134

#### Mass Communication Concentration

*Required:* Eleven courses as follows:

- Seven courses, three of which must be in communication studies, from Anthropology M140, Communication Studies M135, 140, 146, M147, M148, 152, M153, M155, 156, M157, M159, 160, M161, 165, 170, 171, 175 (or Film and Television 116), 177, 180, 187, 189, 197A, 197B, 197C, 197K, 197N, 197R, 197T, Film and Television 106A, 108, 110A, and Political Science 141B or Psychology 137B or Sociology 133
- Two interpersonal communication elective courses from Communication Studies 115, M116, 120, M123, M124, M125, M127, 130, M144A, M144B, 197G, 197J, Psychology 135 or Sociology 132, Psychology 137I or Sociology 135, Sociology 156 or 160
- Two general mass communication elective courses from one of the following groups: (a) *American studies* — Communication Studies 197D, English 115A, History 148A, 148B, 148C, 150A, 150B, 156A, 156B, Political Science 114A, 114B, (b) *language theory* — Anthropology M140, M145 (by petition), Communication Studies M123, M124, 197E, Linguistics 103,

170, Philosophy 172, Psychology 122 or 123, (c) *theories of social interaction* — Anthropology 133R, 135A, 135B, 142A, 142B, Communication Studies M125, M127, M144A, M144B, 197F, Sociology 134

## Communication Studies

### Lower Division Courses

**10. Introduction to Communication Studies. (4)** Introduction to fields of mass communication and interpersonal communication. Study of modes, media, and effects of mass communication, interpersonal processes, and communication theory.

**15A. Production of Multimedia Software. (4)** Description of what goes into a 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.

**M40. Language and Gender: Introduction to Gender and Stereotypes in English, Japanese, and Russian. (5)** (Same as Japanese M40 and Russian M40.) Lecture, three hours; discussion, one hour. Introduction to language from sociological perspective of gender. Use of research and examples in English, Japanese, and Russian to explore nature of male and female "genderlects" and gendered language, as reflected in lexicon, language behavior, phonetics and intonation, language acquisition. Letter grading.

**88A-88Z. Lower Division Seminars: Special Topics in Communication Studies. (4 each)** Seminar, three hours. Variable topics courses; consult *Schedule of Classes* for topics to be offered in a specific term. P/NP or letter grading. **88A.** Mass Communication Theory; **88B.** Systems, Institutions, and Policies; **88C.** Media Content/Criticism and History; **88D.** American Studies; **88E.** Language/Interaction Structures; **88F.** Social Systematics; **88G.** Interpersonal Communication Theory; **88J.** Heterogeneous Groups Communication:

### Upper Division Courses

**100. Communication Theory. (4)** Requisite: 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 the process and constituents of the communicative act.

**101. Freedom of Communication. (4)** Analysis of legal, political, and philosophical issues entailed in rights of free expression, access to an audience, and access to information. Study of court decisions governing freedom of communication in the U.S.

**115. Dyadic Communication and Interpersonal Relationships. (4)** Requisite: course 100. Developmental approach to study of communication in dyadic relationships. Analysis of differences in the stages of relationships in terms of communication rules and verbal and nonverbal messages.

**M116. Communication and Conflict in Couples and Families. (4)** (Same as Psychology M176.) Lecture, 90 minutes; discussion, 90 minutes. Requisites: Psychology 10, 100A, 127. 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. Rhetoric of Rule. (4)** (Same as French M143.) Lecture, three hours. Exploration of how and why power is symbolically constructed by comparing Louis XIV's and President Clinton's attempts to manipulate their image in the "media" of their respective cultures.

**120. Principles and Types of Group Communication. (4)** Requisite: course 100. Analysis of purposes, principles, and types of small group communication. Particular emphasis on organization of and participation in problem-solving discussion.

**M123. Talk and the Body. (4)** (Same as Anthropology M148 and Applied Linguistics and TESL M161.) Seminar, four hours. Relationship between language and human body raises a host of interesting topics. New approaches to phenomena such as embodiment become possible when the body is analyzed, not as an isolated entity, but as a 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. Letter grading.

**M124. Psychology of Language and Gender. (4)** (Same as Psychology M137J and Women's Studies M137J.) Lecture, three hours. Requisite: Psychology 10. Designed for juniors/seniors. 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. P/NP or 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 a 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.

**M127. Animal Communication. (5)** (Same as Anthropology M127 and Applied Linguistics and TESL 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.

**130. Cultural Factors in Interpersonal Communication. (4)** Requisite: course 100. Study of cultural factors as they affect the quality and processes of interpersonal communication; exercises in participation, analysis, and criticism of interethnic and interracial communications in the small group configuration.

**M135. Narrative in Mass Communication. (6)** (Same as Honors Collegium M135.) Seminar, four hours. Examination of narrative as a 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.

**140. Theory of Persuasive Communication. (4)** Requisite: course 100. 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.

**142. Rhetorical Theory. (4)** Requisite: course 100. Survey of major classical and neoclassical treatises on rhetoric. Analysis of theories of Plato, Aristotle, Cicero, Quintilian, St. Augustine, Blair, Whately, Campbell, and other leading works in theory of rhetoric.

**M144A-M144B. Conversational Structures I, II. (4-4)** (Same as Sociology CM124A-CM124B.) Lecture, three hours; discussion, one hour. P/NP or letter grading.

**M144A.** Introduction to some structures which 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)** (Formerly numbered 197K.) 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.) Requisite: course 100. 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.

**M148. Marketing, Advertising, and Human Nature. (5)** (Same as Economics M188M.) Seminar, four hours. Limited to Communication Studies and Economics majors. 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.

**150. Methodologies in Communication Research. (5)** Lecture, three hours; discussion, one hour. Limited to Communication Studies majors. Critical studies of quantitative and qualitative methodologies in communication research. Letter grading.

**152. Analysis of Communication Effects. (4)** Requisite: course 100. Survey of experimental and field research on effects of communications. Study of source, message, and environmental factors affecting audience response.

**M153. The Media and Aggression against Women. (4)** (Formerly numbered 153.) (Same as Women's Studies M153.) Lecture, two hours; discussion, two hours. Requisite: course 152. Study of the growing body of literature on relationship between mass media and aggression against women. Consideration of both role of the media as reflecting cultural values and scripts and its potentially powerful role as a socializing agent of the culture. Analysis of research on role of individual differences among members of a culture as mediators of the impact of the media. Letter grading.

**M155. Information Superhighway. (4)** (Same as Policy Studies CM110.) Lecture, three hours. Information Superhighway seen from a non-American viewpoint, considering its meanings, potentials, structures, applications, policy implications, economic, social, and cultural impacts, and public perceptions in a number of countries. Special emphasis on Western Europe, Canada, and Australia, with a look at Japan and China also. Opportunities for Africa and Latin America suggested, especially education, health, and other public services.

**156. Human/Computer Communication. (4)** Preparation: completion of the seven preparation for the major courses. Limited to Communication Studies majors. Survey of behavioral, design, and evaluation issues in human/computer communication. Readings from disciplines of psychology, sociology, computer science, communication, and library and information science. Students perform several on-line assignments in learning to use different technologies. Term paper required.

**M157. Culture, Identity, and Media. (4)** (Same as Policy Studies M111.) Discussion, three hours. Interplay of national culture and identity with electronic media, both "old" and "new." Examination of how national mythologies, constructive or pernicious, are reinforced through the media in several countries: U.K., France, Germany, Canada; analysis of how media manipulation, especially of radio and television, increasingly paves the way to war: Bosnia, Rwanda, Somalia.

**M159. Pornography and Evolution. (4)** (Formerly numbered 197K.) (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)** Requisites: courses 100, 101. Study of nature and function of communication in the political sphere; analysis of contemporary and historical communications within established political institutions; state papers; deliberative discourses; electoral campaigns.

**M161. Electoral Politics: Mass Media and Elections. (4)** (Same as Political Science M141D.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 160. 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.

**165. Agitational Communication. (4)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 100, 101. Theory of agitation; agitation as a force for change in existing institutions and policies in a democratic society. Intensive study of selected agitational movements and the technique and content of their communications. P/NP or letter grading.

**170. Legal Communication. (4)** Requisites: courses 100, 101. Study of trial and appellate processes as systems of communication. Analysis of elements of the juridical process as they affect the quality of communication content. Study of rules of evidence, jury behavior, and structure of legal discourse.

**171. Seminar: Theories of Freedom of Speech and Press. (4)** Requisite: course 101. 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 the significance of these values examined in connection with issues such as obscenity, defamation, access to media, and control of commercial, corporate, and government speech.

**175. Criticism and the Public Arts. (4)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 10. Introduction to methods and problems of criticism in the 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. P/NP or letter grading.

**177. Libel and Freedom of Expression. (4)** Lecture, two hours; discussion, two hours. Requisite: course 101. Intensive study of law of defamation and its relationship to the free flow of information in a 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.

**180. Politics of Censorship. (4)** Discussion, two hours; simulation teaching, three hours. Requisite: course 101. Examination of the process and substance of debates over government and private censorship by having students become active participants in a term-long simulated battle over a current issue such as book censorship, pornography, or UNESCO's proposed "New World Information Order."

**185. Field Studies in Communication. (2 to 4)** Requisite: course 10. 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 a maximum of 4 units per term. P/NP grading.

**187. Ethical and Policy Issues in Institutions of Mass Communication. (4)** Requisites: courses 10, 101. Intensive examination of ethical and policy issues arising from interaction of media institutions (print, film, broadcasting, and new technologies) and societal institutions (Congress, federal agencies, courts, the Presidency, schools, churches, political action groups, advertisers, and audiences).

**189. Multicultural Television and Society. (4)** Study and evaluation of cross-cultural, social, and psychological characteristics of selected national and international television programs and their implications for social learning in children. Designed to systematically study multicultural attributes related to sociocultural images and portrayals of television programs using various evaluation models and techniques.

**191HA-191HB-191HC. Departmental Honors Research. (4-4-4)** (Formerly numbered 191H.) Discussion, three hours. Letter grading. **191HA.** Requisites: courses 10, 150. Limited to junior/senior majors. Preparation of research proposal. Detailed bibliography from review of relevant literature and plan for implementation of research study. **191HB.** Requisite: course 191HA. Continuation of work initiated in course 191HA. Presentation of summary of data gathered and report on relevant progress. **191HC.** Requisite: course 191HB. Continuation of work initiated in course 191HB. Completion of research project; oral and written presentation of honors thesis.

**196H. Undergraduate Honors Proseminar. (4)** Preparation: 3.5 grade-point average in communication studies major, 3.3 grade-point average overall. Limited to seniors. Limited enrollment. Variable topics course involving specialized study of selected aspects of the field of human communication.

**197A-197Z. Special Topics in Communication Studies. (4 each)** Lecture, three hours. Preparation: completion of preparation for the major courses. Variable topics courses; consult *Schedule of Classes* for topics to be offered in a specific term. **197A.** Mass Communication Theory; **197B.** Systems, Institutions, and Policies; **197C.** Media Content/Criticism and History; **197D.** American Studies; **197E.** Language/Interaction Structures; **197F.** Social Systematics; **197G.** Interpersonal Communication Theory; **197J.** Heterogeneous Groups Communication; **197K.** Communication Policy; **197N.** Humanistic Approaches to Mass Communication; **197R.** Political Factors in Mass Communication; **197T.** Technology in Communication.

**199. Special Studies. (2 to 8)** To be arranged with faculty member who directs the study. Limited to seniors. Independent studies for seniors who desire intensive or specialized investigation of selected research topics.

**199H. Special Studies for Honors Candidates. (2 to 8)** To be arranged with faculty member who directs the study. Limited to senior honors program students. Independent studies for honors undergraduates who desire intensive or specialized investigation of selected research topics.

## COMMUNITY HEALTH SCIENCES

*School of Public Health*

UCLA  
36-071 Center for the Health Sciences  
Box 951772  
Los Angeles, CA 90095-1772

(310) 825-5308  
<http://www.ph.ucla.edu/chs/>

Gail G. Harrison, Ph.D., *Chair*  
Donald E. Morisky, Sc.D., M.S.P.H., *Vice Chair*

### Professors

Carol S. Aneshensel, Ph.D.  
Emil Berkanovic, Ph.D.  
Linda B. Bourque, Ph.D.  
E. Richard Brown, Ph.D.  
Osman M. Galal, M.D., Ph.D.  
Deborah C. Glik, Sc.D.  
Michael S. Goldstein, Ph.D., *Associate Dean for Student Affairs*  
Neal Halfon, M.D., M.P.H.  
Gail G. Harrison, Ph.D.  
David Heber, M.D., Ph.D.  
Dean T. Jamison, Ph.D.  
Snehendu B. Kar, Dr.P.H., M.Sc.  
Joel D. Kopple, M.D., *in Residence*  
Virginia C. Li, Ph.D., M.P.H.  
Donald E. Morisky, Sc.D., M.S.P.H.  
Charlotte G. Neumann, M.D., M.P.H.  
Anne Pebley, Ph.D.  
Michael G. Ross, M.D., M.P.H.  
John F. Schnelle, Ph.D., *in Residence*  
Judith M. Siegel, Ph.D., M.S.Hyg., *Associate Dean for Academic Programs*  
Susan B. Sorenson, Ph.D.  
Steven P. Wallace, Ph.D.

### Professors Emeriti

Roslyn B. Alfin-Slater, Ph.D.  
Isabelle F. Hunt, Dr.P.H., R.D.  
Alfred H. Katz, D.S.W., M.S.  
Alfred K. Neumann, M.D., M.A., M.P.H., F.A.B.P.M.  
Edward L. Rada, Ph.D.  
Marian E. Swendseid, Ph.D.  
Daniel M. Wilner, Ph.D.

### Associate Professor

Dawn M. Upchurch, Ph.D.

### Assistant Professors

Kim Gregory, M.D., M.P.H., *in Residence*  
Marjorie Kagawa-Singer, Ph.D.

Michael Lu, M.D., M.P.H.

### Lecturers

Marianne Parker Brown, M.P.H.  
Susan Edelstein, M.S.W., L.C.S.W.  
Jonathan Freedman, M.P.H.  
Lynn Kersey, M.A., M.P.H.  
Wendy Lazarus, M.S.

### Adjunct Professors

Daniel H. Ershoff, Dr.P.H.  
Neal Kaufman, M.D., M.P.H.  
Steve Rottman, M.D.

### Adjunct Associate Professors

Martin Anderson, Ph.D.  
Carol Archie, M.D.  
Diana Bonta, Dr.P.H.  
Marion Taylor Baer, Ph.D., R.D.  
Daniel H. Ershoff, Dr.P.H.  
Joanne Leslie, Sc.D.  
C. Kevin Malotte, Ph.D.  
Michael Regaldo, M.D.  
Antronette K. Yancey, M.D., M.P.H.

### Adjunct Assistant Professors

Helen DuPlessis, M.D., M.P.H.  
Vicki Ebin, Ph.D.  
Janet Frank, Ph.D.  
Ronald Halbert, M.D.  
Moirra Inkelas, Ph.D.  
Michael Prelip, D.P.A., M.P.H., C.H.E.S.  
Kimberley Shoaf, Dr.P.H.  
Wendelin Slusser, M.D.  
Bonnie Taub, Ph.D.  
Valentine Villa, Ph.D.

## Scope and Objectives

The Department of Community Health Sciences focuses on the determinants of health within the context of the social structure, community, health care 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. Students specializing in maternal and child health complete additional coursework.

The department offers both 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, which have as their objective the maintenance and improvement of the health of individuals, families, communities, and populations. Graduates of the doctoral programs assume teaching and research positions in a wide variety of settings, including universities, government agencies, nongovernmental organizations, international health agencies, and research centers.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Community Health Sciences offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Public Health.

## Admission

Applicants to the M.S. program should see the Master of Public Health (M.P.H.) admission section under Public Health Schoolwide Programs. Admission requirements for the M.S. in Public Health are the same as for the M.P.H.

For the Ph.D. program, in addition to the University minimum requirements, the department requires (1) a master's degree in public health (either an M.P.H. or M.S.) or other appropriate degree in a related field with a grade-point average of at least 3.5 for graduate studies, (2) satisfactory performance on the Graduate Record Examination (GRE) verbal and quantitative sections; equivalent performance on the Medical College Admission Test (MCAT) or the Law School Admission Test (LSAT) may be substituted at the discretion of the department, (3) a score of at least 600 (paper and pencil test) or 250 (computer-based test) on the Test of English as a Foreign Language (TOEFL) or an overall band score of 7.0 on the International English Language Testing System (IELTS) examination for students whose undergraduate degree is from an institution whose primary language of instruction is not English, (4) an example of published or other written work, and (5) a statement of purpose that includes a description of research experience, discussion of current substantive interests, a brief description of potential research project that might serve as a dissertation, and a statement of career goals, and (6) approval by the doctoral admissions committee and the department chair. Screening examinations may be required by the department.

It is recommended that applicants contact one or more members of the faculty whom they are considering as advisers in order to ensure acceptance by a faculty mentor as the initial adviser. The applicant should have favorable recommendations from teachers and employers concerning past performance and potential as a doctoral student in public health. The statement of purpose must be clear, outlining goals and career objectives as they relate to the focus of the Ph.D. program.

## Master's Degree

The M.S. degree is offered through the comprehensive examination and thesis plans. Students must complete a minimum of 10 full courses, at least five of which must be graduate courses. No more than 18 full courses are required for the degree. There are mandatory core introductory courses in biostatistics and epidemiology, as well as other required and elective courses.

## Doctoral Degree

Faculty in the department represent a range of disciplines and focus their research and curriculum in five areas of specialization: public health policy, health education/promotion, sociocultural aspects of health, public health nutrition, and international family health. Ph.D. students may design their programs in one or more of these areas.

A number of specific introductory courses are required if students have not already taken them or their equivalent in the course of the master's degree or other postgraduate work. This coursework, in biostatistics, community health sciences, environmental health sciences, epidemiology, and health services, is in addition to the 48-unit minimum course requirement. A doctoral roundtable is required every quarter until advancement to candidacy.

Students minor in a Ph.D.-granting department outside the School of Public Health, in a discipline relevant to community health sciences.

Written and oral qualifying examinations are required. There is a written examination administered by the department and an oral qualifying examination in the major field. Additionally, students must complete the requirements for the minor field and pass an examination administered by the minor department or the minor member of the guidance committee.

Following successful completion of the written qualifying examination and the minor requirements, students take the University Oral Qualifying Examination.

## Community Health Sciences

### Lower Division Courses

**19. Peer Health Counselor Training. (4)** Lecture, four hours. Limited to students in Peer Health Counselor Program. Analysis of student health care issues as related to campus health care delivery system and to health care 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.

**88. Lower Division Seminar: Special Topics in Community Health Sciences. (4)** Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in community health sciences approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member. Letter grading.

**90. Aging Frontier: Public Health Perspective. (4)** (Formerly numbered 190.) 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.

### 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. Not open for credit to nutrition majors. 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 M129A.) 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.

**195. Field Studies in Cancer Control. (4)** Lecture, two hours; discussion, one hour; fieldwork, four hours. Requisite: Molecular, Cell, and Developmental Biology 30. Designed for juniors/seniors. Opportunity for students to become involved in cancer control through classroom discussion, lectures, service in the field, and guided research. Biology of cancer, its prevention, early detection, treatment, and rehabilitation. Letter grading.

**196A. Introduction to Health Promotion Fieldwork. (4)** Lecture, two hours; discussion, one hour; laboratory, six hours. Designed for juniors/seniors. Training and experience in health promotion and health education in selected ethnic communities, including participation in supervised fieldwork at sites throughout Los Angeles. Letter grading.

**196B. Advanced Health Promotion Fieldwork. (4)** Lecture, two hours; discussion, one hour; laboratory, six hours. Requisite: course 196A. Application of skills and experience gained in course 196A to development and provision of additional health education and health promotion in selected ethnic communities. Letter grading.

**199. Special Studies. (2 to 4)** Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to seniors. Individual undergraduate guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Only 4 units may be taken each term. Letter grading.

### Graduate Courses

**200. Global Health Problems. (4)** Lecture, two hours; discussion, two hours. Overview of health profile of the world in the 20th century. Global health problems and methods by which they have been dealt in context of the Alma Ata goal of "health for all by year 2000." Letter grading.

**M208. Introduction to Demographic Methods. (4)** (Same as Biostatistics 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 the 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. Requisite: course 210. 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.

**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 which 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 health care. Letter grading.

**M218. Questionnaire Design and Administration. (4)** (Formerly numbered 218.) (Same as Epidemiology M218.) Lecture, four hours. Requisites: courses 211A and 211B, or Epidemiology 201A and 201B. Design, testing, field use, and administration of data collection instruments, with particular emphasis on questionnaires. Letter grading.

**219. Strategies for Multivariate Data Analysis. (4)** Discussion, three hours. Preparation: one multivariate statistics course. Designed for graduate students. Translation of theory into a data analytic plan, with special emphasis on social epidemiology; application of this analytic plan to real data; and interpretation of results obtained through multivariate analysis. Letter grading.

**220. Demography of Women. (4)** Lecture, four hours. Overview of demography of women, with focus on the U.S. Areas include trends and differentials in fertility, marital patterns and living arrangements, educational attainment, and labor force participation. 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 the four characteristics. Letter grading.

**228. Drug Abuse Prevention. (4)** Discussion, three hours. Identification and discussion of strategies for prevention of drug abuse at individual and community levels, particularly in minority populations. 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 a 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. Prerequisite: course 231 or 443. 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.

**234. Obesity and Nutrition: Multidisciplinary Perspective. (2)** Lecture, two hours; discussion, one hour; laboratory, one hour. Preparation: admission to UCLA postdoctoral fellowship training program in obesity and nutrition, or graduate public health or biological sciences student. Multidisciplinary introduction at advanced graduate level to research methods and topics on obesity and related conditions in humans and in relevant animal and in vitro models. S/U or letter grading.

**235. The Family and Mental Health. (4)** Lecture, two hours; discussion, two hours; assignments, eight hours. Emphasis on how social organization of the family, relationships among family members, and extrafamilial roles of family members contribute to or detract from psychological well-being of spouses, parents, and children. Letter grading.

**237. Evolving Paradigms of Prevention: Interventions in Early Childhood. (4)** 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 which underlie health assessment and intervention in adolescent populations (identity formation, access to care, knowledge/attitudes/behavior influences) and provide a basis for understanding pivotal issues in health enhancement, morbidity, and mortality. Letter grading.

**M239. Race and Ethnicity as a Concept in Practice and Research. (4)** (Formerly numbered 239.) (Same as Asian American Studies M239.) Discussion, three hours. Integration of cross-cultural findings in health care with current American (U.S.) health care system paradigms to facilitate designing culturally based public health programs and train culturally competent practitioners. Letter grading.

**242. Advanced Seminar: Population and Family Health. (2)** Seminar, two hours. Designed for doctoral students. Current research in population and family health. May be repeated for credit. S/U grading.

**243A-243B-243C. Seminars: Public Health Practice. (2-2-2)** Seminar, one hour; laboratory, one hour. Three-term sequence devoted to analysis of current issues, practices, research literature, and policy and trends in public health practice. Discussion of administrative, epidemiologic, and clinical methods. S/U or letter grading.

**M244. Advanced Seminar: Medical Anthropology. (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 the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the 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 the 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. Prerequisites: Health Services 200A, 200B, 200C. 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.

**M251. Human Resources and Economic Development. (4)** (Formerly numbered M236.) (Same as Education M252C.) Lecture, four hours. Examination, in context of developing countries, of interactions among economic development, population growth, levels of health and nutritional status, and educational investments. S/U or letter grading.

**M252. Health Policy Analysis. (4)** (Same as Health Services M233.) Lecture, three hours. Prerequisites: Health Services 100 or 200A, M236, M287. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of the life cycle of public policy. Letter grading.

**M253. Advanced Topics in Health Services Research: Access to Care. (4)** (Same as Health Services M253.) Lecture, three hours. Prerequisites: courses 210, 270A, and 270B, or Health Services 237A, 237B, and 237C. Doctoral seminar designed to explore health services research regarding access to health care and policies to enhance access. Topics include conceptual frameworks, measurement issues, study designs, analytic approaches, and substantive findings and trends in access and access-related policies. 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 the 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.

**256. Bioterrorism: Deliberate Public Health Disaster. (2)** Lecture, two hours. Designed for graduate students. Public health significance of biological terrorist events and identification of strategies that public health professionals can use to prevent, detect, and intervene in bioterrorist events in order to prevent morbidity and mortality in the population. Letter grading.

**257. Program Planning in Community Disaster Preparedness. (4)** Lecture, four hours; outside study, eight hours. Prerequisites: 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. Prerequisites: courses 211A, 211B, 295. Overview of interagency disaster management. How different agencies work together to respond to impact of disasters on public's health. Discussion of difficulties inherent in emergency management, as well as policy and program strategies. Letter grading.

**M260. Health and Culture in the Americas. (4)** (Same as Anthropology M266 and Latin American Studies M260.) Lecture, three hours; discussion, one hour. Preparation: bilingual skills (English/Spanish) for Spanish discussion section. Recommended requisite: course 132. Health issues throughout the Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. 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 a 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.

**270A-270B. Foundations of Community Health Sciences. (4-4)** Lecture, four hours. Prerequisite: course 210. Course 270A is requisite to 270B. Designed for 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. Prerequisite: 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.

**272. Social Epidemiology. (4)** Lecture, two hours; discussion, one hour. Prerequisite: 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. Prerequisite: Epidemiology 100. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of chronic diseases. Topics include hypertension, coronary heart disease, and cancer. Emphasis on lifestyles and other socioenvironmental factors associated with chronic diseases. Letter grading.

**M274. Health Professions. (4)** (Same as Sociology M249A.) Lecture, three hours. Prerequisite: 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 a range of organizational settings. S/U or letter grading.

**M275. Health and Illness Behavior. (4)** (Same as Sociology M249B.) Lecture, four hours. Prerequisites: course 210, Epidemiology 100. Sociocultural factors affecting differential patterns of health behavior, illness behavior, and sick-role behavior. S/U or letter grading.

**276. Complementary and Alternative Medicine. (4)** Lecture, three hours. Prerequisites: 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. Prerequisite: course 210. Before planning the educational components of a health program, one must assess behaviors and factors influencing the health problem. Conceptual, theoretical, and evaluative skills developed and applied in constructing a community-based educational program. Letter grading.

- 278. Occupational Health Psychology: Work Organization and Health. (4)** 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. Letter grading.
- 280. International Health Education: Training and Development. (4)** Lecture, four hours. Preparation: one upper division research methods or epidemiology course. Requisite: course 210. Introduction to an international perspective of health education and health promotion. Survey of current developments in health education in both developed and developing countries. 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/NIV, 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, two hours; discussion, two hours. Requisite: course 210. Design, implementation, and evaluation of interpersonal 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. Aging and Health Behavior. (4)** Discussion, three hours. Requisite: course 210. Graduate seminar intended to explore sociocultural determinants of health-related behaviors among the 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 the elderly in America. Learning gerontological theories and major issues that affect the aged, showing how those theories and issues influence health status, health promotion, and illness among the elderly. S/U or letter grading.
- 286. Doctoral Roundtable in Community Health Sciences. (2 to 4)** Seminar, two hours. Designed for departmental doctoral students. 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.
- 288A-288B. Current Problems in Health Education. (4-4)** Lecture, one hour; discussion, three hours. Preparation: three public health and/or social sciences courses. Requisite: course 210. Current problems and findings in health education content areas, such as nutrition, mental health, family health, consumer health, safety, and communicable and chronic diseases. In Progress and S/U 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 the nation. Exploration of cultural and structural influences on health and lived experiences of those elders. Letter grading.
- 291. Health Policy and the Aged. (4)** Lecture, three hours; discussion, one hour. Examination of political, economic, and social forces that shape health policy for the 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. Selected aspects of communications planning, social marketing, mass media, and communications evaluation theory and practice. 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)** (Formerly numbered 294.) (Same as Psychiatry M288.) Lecture, four hours. Requisites: course 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.
- 295. Selected Topics in Disaster Relief and Humanitarian Assistance. (2)** Lecture, two hours. Designed for graduate students. Overview of broad interdisciplinary issues which necessarily converge in fields of disaster preparedness and humanitarian assistance. Introduction to both theoretical and problem-solving strategies. 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 a variety of high-risk populations. Letter 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 44-unit minimum total required for M.P.H. degree. 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 the cancer epidemic, cancer control goals for the 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 100 and/or 200. 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 the questionnaire, select the sample, process and analyze data, and prepare final report. Letter grading.
- M420. Children with Special Health Care Needs: Systems Perspective. (4)** (Same as Social Welfare M290I.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices which 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 discussions and in fieldwork projects about which they update classmates. Highly respected leaders for children in the 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.
- 430B. Advanced Issues in International Health. (4)** Lecture, two hours; discussion, two hours. In-depth focus on major health care issues confronting recipient less-developed countries and donors of technical and financial assistance. S/U or letter grading.
- 431. Research in Women's Health: Theories and Methods. (4)** Lecture, four hours. 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.
- 432. Perinatal Health Care: Principles, Programs, and Policies. (4)** Lecture, three hours; discussion, one hour. Comprehensive examination of perinatal health care, 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.
- 434B. Recent Developments in Maternal and Child Health in Disadvantaged Countries. (2)** Seminar, two hours. Requisite: course 231. Analytic in-depth consideration of recent advances in the field of international maternal and child health, with special reference to developing countries. S/U or letter grading.
- 435. Seminar: Advanced Issues in Women's Health. (2)** Seminar, two hours. Requisite: course 246 or 431. Provides a more advanced and in-depth understanding of ways in which scientists "know" and considerations of women's place in scientific discourse. Examination of a series of case studies as a 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 the family and the disadvantaged. Letter grading.
- 438. Research Seminar: Community Child Health Services. (2)** Seminar, one hour; laboratory, one hour; field trips, two hours. Examination and development of evaluation strategies for existing community child health services at the local level and development of evaluation strategies for selected topics in programmatic areas. Emphasis on collaborative research and consultation skills, with participation of local health department personnel. S/U or letter grading.
- 441. Advanced Program Planning and Evaluation in International Health. (4)** Lecture, two hours; discussion, two hours. Theory, guidelines, and team exercise for planning community health/family planning projects in the 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.

**445. Food and Nutrition Planning: Policies and Programs in World Context. (4)** Lecture, two hours; discussion, two hours. Requisite: course 434A. Discussion of policies regarding improvement of food supplies and their global impact on health of disadvantaged families, including review of effect of many factors, with emphasis on need for multidisciplinary action, food and nutrition planning, and external assistance. S/U or 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 health care services, mass media, communications, and governmental and international interventions. S/U or letter grading.

**447. Health and Social Context in the 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 the Middle East and implications for socioeconomic development. Review of economic, demographic, and cultural variation of the region to provide background for discussion of trends and patterns of health and nutritional status of population in the 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 the 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 a post-disaster environment. Letter grading.

**M470. Introduction to Occupational and Environmental Health Education. (2 or 4)** (Formerly numbered 470.) (Same as Urban Planning M470.) Lecture, three hours. Preparation: at least three social sciences courses. Designed to provide students with understanding of problem areas of occupational and environmental health and health education interventions which can be applied. 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 the emerging field of self-care in health. S/U or letter grading.

**480. Health Education in Clinical Settings. (4)** Lecture, two hours; discussion, two hours. Requisites: courses 271, 282, Health Services 100. Analysis of role, methods, and techniques of health education pertaining to hospitals, clinics, and patient education. Observation and discussion of clinical activities in the medical center in relation to the process of health education. 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.

**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 application to health problems and health policy. Particular attention to use of community organization for health promotion and to change public policy. Letter grading.

**490. Professional Writing for Public Health. (2)** Lecture, two hours. Practice in writing reports, grant proposals, abstracts, and article-length research papers. Analyzing rhetorical and stylistic features of essays in various professional journals to help participants improve both their prose style and their editorial abilities. S/U or letter grading.

**495. Teacher Preparation in Public Health. (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 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 8)** Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

## COMPARATIVE LITERATURE

*College of Letters and Science*

UCLA  
212 Royce Hall  
Box 951536  
Los Angeles, CA 90095-1536

(310) 825-7650  
fax: (310) 825-9754  
e-mail: [complit@humnet.ucla.edu](mailto:complit@humnet.ucla.edu)  
<http://www.complit.ucla.edu/>

Emily Apter, Ph.D., Chair

### Professors

Emily Apter, Ph.D.  
Massimo Ciavarella, Ph.D.  
Teshome Gabriel, Ph.D.  
Michael Heim, Ph.D.  
Katherine C. King, Ph.D.  
Kathleen L. Komar, Ph.D.  
Efrain Kristal, Ph.D.  
Ross P. Shideler, Ph.D.  
Samuel Weber, Ph.D.  
Pauline Yu, Ph.D.

### Professor Emeritus

Arnold Band, Ph.D.

### Associate Professors

Ali Behdad, Ph.D.  
Aamir Mufti, Ph.D.  
Kenneth Reinhard, Ph.D.  
Jenny Sharpe, Ph.D.  
Shu-mei Shih, Ph.D.

### Lecturer

Marilyn Manners, Ph.D.

## Scope and Objectives

Standing at the forefront of innovative literary analysis and criticism, comparative literature is one of the most exciting fields in the humanities. As a discipline it requires exceptional linguistic ability and high intellectual caliber. UCLA's program offers students the opportunity to work with faculty in any of the University's language and literature departments as well as with the Comparative Literature Department faculty.

Comparative literature at UCLA focuses on those elements which define literature in general, such as genre, period, theme, language, and theory. Courses are designed to provide students with a historical understanding of the concepts of genre and period by studying specific genres and periods or literary movements. Paradigmatic or thematic courses offer another way of examining literature synchronically or diachronically regardless of language boundaries.

Courses in literary criticism and theory inquire into the premises of specific critical approaches, and of criticism itself, in order to provide further insight into the intellectual and moral concerns of literature and the world it reflects. Thus, through the study of these various assumptions and aspects of literature and criticism, students learn not only to cross linguistic boundaries, but to join them — to compare and

to contrast, to analyze and, finally, to synthesize the text and the subtext, the structure and the history which define, undermine, and transcend the text and its reader.

## Undergraduate Study

### Comparative Literature B.A.

#### Preparation for the Major

*Required:* Two courses from the Comparative Literature 1 or 2 series or comparable lower division courses in other departments; completion of the College English Composition requirement; literary proficiency in at least one language other than English, to be demonstrated by successful completion of (1) two years of the college language sequence or its equivalent or (2) an upper division literature course in the original language.

#### Transfer Students

To be admitted as Comparative Literature majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one English composition course, two world or English literature survey courses, and two years of one foreign language.

#### The Major

*Required:* Thirteen 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) three 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); (4) two upper division electives in a third language or a field such as anthropology, art, art history, classics, East Asian languages and cultures, film, folklore, history, music, philosophy, or political theory, to be selected in consultation with the undergraduate adviser.

### 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 197H with a core faculty member in which they write a senior honors thesis of approximately 25 pages.

**E**fraín Kristal decided to study literature after reading Kafka's *The Trial* when he was 16. It wasn't that he was immediately enraptured; in fact, he remembers feeling cheated when Mr. K is executed at the end of the novel without the reason he was tried in the first place ever being revealed. "I felt so annoyed that I threw the book to the ground. A few days later it dawned on me that Kafka purposely does not offer a solution to his mysteries in order to express a poignant insight: we may not ever have a complete picture of the meaning of our lives and yet we must still participate in the flow of human affairs."

After studying literature at UC Berkeley, Kristal earned a degree in philosophy from the University of Rouen and a Ph.D. in Spanish literature from Stanford. He studied analytic philosophy in the United States, literary theory in Paris, and was a Humboldt Foundation fellow in Berlin. "My pursuit of literature is intertwined with an interest in languages, cultures, philosophy, and the arts," he explains. "Even as my views about the significance of literature continue to change, I remain im-

pressed by its transforming potential."

Kristal has a talent for transmitting his enthusiasm to students in courses on poetry or comparative Latin American literature and on topics such as theories of translation or literary theory and the rhetoric of religion. "I enjoy the teaching process most of all when my students learn something that matters to them, and when they make me reconsider what matters to me."

Illustrating the point, he recalls that after a recent lecture on Cervantes, a student asked him to help understand why he felt sad about Don Quijoté's death when the character was obviously a fool. "I asked him to consider that his sadness might reflect his own affinities with Quijoté's apparently foolish dream that one can make our imperfect world a better place. The freshman paused and said, 'professor, that's the best interpretation I've heard.'"

In addition to his essays on Latin American literature and intellectual history, Kristal has written two books and received the UCLA Distinguished Teaching Award.



**Efraín Kristal,**  
**Comparative Literature**  
**and Spanish and**  
**Portuguese**  
**departments**

---

*I enjoy the teaching process most of all when my students learn something that matters to them, and when they make me reconsider what matters to me*

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### 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 English Composition 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, 212 Royce Hall, (310) 825-4620.

*Required Courses (28 units):* (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 language; 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.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.



## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Comparative Literature offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Comparative Literature.

## Admission

Students are admitted to the Ph.D. program only. A bachelor's degree in literature, ancient or modern, is a requisite for admission to the Ph.D. program. In special cases where a student is admitted with a bachelor's degree in a nonliterature major, following matriculation the student is required to demonstrate the equivalent knowledge and comprehension of one literature before being considered in good standing in the department.

Applicants are expected to have at least a 3.4 grade-point average in upper division literature courses, are required to take the Graduate Record Examination (GRE), and must submit three letters of recommendation. Literary proficiency in one foreign language and at least an elementary knowledge of a second one are expected. A writing sample also is required. Care should be taken with the statement of purpose and the writing sample, since the quality of thought and argument these exhibit weigh significantly in admissions decisions.

For students entering with a master's degree, the graduate adviser may agree to waive some of the normal course requirements.

## Master's Degree

During the first two years of study toward the Ph.D., each student's study plan combines the work in the major and minor literatures by focusing on a defined area in which these literatures may be explored. The area may be a literary period such as Romanticism, a genre such as the novel, or a theoretical problem.

The major literature is the area of primary concentration. Students specialize in one historically defined period (such as medieval, Renaissance and baroque, neoclassicism and 18th century, Romanticism to modern), but a general knowledge of the major literature is a requisite for the specialization.

In the minor literature, students focus on a period comparable to the area of specialization in the major literature, although they may not

have as much historical depth and breadth in this area as in the major literature.

The M.A. degree is offered through the comprehensive examination plan. Ph.D. students are required to complete 12 courses, the minimum also required for the M.A. degree. Eight of the courses must be at the graduate level. Required coursework includes courses in comparative literature and in the major and minor literatures. Periods, genres, or problems in the minor literature which lend themselves to comparison with similar elements in the major literature are studied.

There is a language requirement for this degree.

## Doctoral Degree

During the third and fourth years of study the study plan combines the work in one major and two minor literatures by focusing on a limited area in which these literatures may be explored. This area may be a literary period or a particular aspect common to several literatures (for example, a genre like tragedy or the novel, or a phenomenon like neoclassicism or the baroque). It may also be a critical or theoretical problem, involving analyses of styles or modes of interpretation; comparisons of classical and modern genres and themes; questions about the artistic process in different art forms; or problems in literary aesthetics or epistemology. A related field such as art history, film, or gender studies may be substituted for one minor literature after departmental approval of a student's petition.

For the first and second years of required coursework, see Master's Degree. During the third and fourth years of study students are expected to complete courses in comparative literature and courses in the major literature and second minor. Courses in the first minor and the second foreign language may be recommended by the adviser.

Written and oral qualifying examinations are required. The written examination in the major literature is based on a reading list meant to demonstrate competence in the broad historical scope of the student's literature as well as of a more specific period. Before taking the major written examination, students must submit a reading list based on the first and second minor areas.

Following successful completion of the written examination, students take a follow-up oral examination that covers the major and minor areas. After successful completion of the written and follow-up oral examinations, students begin work on the dissertation prospectus, discuss with their adviser the integration of the major literature focus with a comparative literature focus, and take the University Oral Qualifying Examination, which is based primarily on the prospectus.

There is a language requirement for this degree.

# Comparative Literature

## Lower Division Courses

**1A. World Literature: Antiquity to Early Middle Ages. (4)** (Formerly numbered Humanities 1A.) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Subject A requirement. Not open for credit to students with credit for course 2AW or 4AW or former course 2A. 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 the Bible, Virgil, Petronius, St. Augustine, and others such as *Gilgamesh* or *Tristan and Iseult*. P/NP or letter grading.

**1B. World Literature: Late Middle Ages to the 17th Century. (4)** (Formerly numbered Humanities 1B.) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Subject A requirement. Not open for credit to students with credit for course 2BW or 4BW or former course 2B. 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 the 20th Century. (4)** (Formerly numbered Humanities 1C.) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Subject A requirement. Not open for credit to students with credit for course 2CW or 4CW or former course 2C. 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 the World at Large. (4)** (Formerly numbered Humanities 1D.) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Subject A requirement. Not open for credit to students with credit for course 2DW or 4DW or former course 2D. Study of major literary texts usually overlooked in courses that focus only on the canon of Western literature. Texts from at least three of the following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. P/NP or letter grading.

**1E. Introduction to Literary Traditions of East and Southeast Asia. (4)** (Formerly numbered Humanities 1E.) Lecture, three hours; discussion, one hour. Through analysis of selected texts, presentation of some main currents in literatures of East and Southeast Asia, including China, Japan, Korea, Thailand, Vietnam, and India. Emphasis and readings may vary per instructor. P/NP or letter grading.

**2AW. Survey of Literature: Antiquity to Early Middle Ages. (5)** (Formerly numbered 2A.) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for course 1A or 4AW or former course 2A. Study of selected texts from antiquity to the 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 Letters and Science Writing II requirement. Letter grading.

**2BW. Survey of Literature: Late Middle Ages to the 17th Century. (5)** (Formerly numbered 2B.) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for course 1B or 4BW or former course 2B. Study of selected texts from the Middle Ages to the 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 Letters and Science Writing II requirement. Letter grading.

**2CW. Survey of Literature: Age of Enlightenment to the 20th Century. (5)** (Formerly numbered 2C.)

Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for course 1C or 4CW or former course 2C. Study of selected texts from the Age of Enlightenment to the 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 Letters and Science Writing II requirement. Letter grading.

**2DW. Survey of Literature: Great Books from the World at Large. (5)** (Formerly numbered 2D.)

Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for course 1D or 4DW or former course 2D. Study of major literary texts usually overlooked in courses that focus only on the canon of Western literature, with emphasis on literary analysis and expository writing. Texts from at least three of the following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. Satisfies Letters and Science Writing II requirement. Letter grading.

**4AW. Literature and Writing: Antiquity to Early Middle Ages. (5)**

Discussion, four hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for course 1A or 2AW or former course 2A. Study and discussion of selected texts from antiquity to the 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 Letters and Science Writing II requirement. Letter grading.

**4BW. Literature and Writing: Late Middle Ages to the 17th Century. (5)**

Discussion, four hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for course 1B or 2BW or former course 2B. Study and discussion of selected texts from the Middle Ages to the 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 Letters and Science Writing II requirement. Letter grading.

**4CW. Literature and Writing: Age of Enlightenment to the 20th Century. (5)**

Discussion, four hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for course 1C or 2CW or former course 2C. Study and discussion of selected texts from the Age of Enlightenment to the 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 Letters and Science Writing II requirement. Letter grading.

**4DW. Literature and Writing: Great Books from the World at Large. (5)**

Discussion, four hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for course 1B or 2DW or former course 2D. Study and discussion of major literary texts usually overlooked in courses that focus only on the canon of Western literature, with emphasis on literary analysis and expository writing. Texts from at least three of the 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 Letters and Science Writing II requirement. Letter grading.

**M90. Modern Literature in Southeast Asia. (4)**

(Same as South and Southeast Asian Languages M90.) 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****100. Introduction to Comparative Literature: Histories, Theories, Practices, and Perspectives. (5)**

Lecture, four hours. Preparation: satisfaction of Subject A and English Composition 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 a 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 the Hebrew Bible and the 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.

**103. Classical Tradition: Tragedy. (4)**

Seminar, three hours. Designed for juniors/seniors. Analysis of selected Greek dramas and their re-creations in Rome, in the Renaissance, and in the modern period. P/NP or letter grading.

**C104. Satire. (4)**

Lecture, three hours. Designed for juniors/seniors. Examination of satire both in texts generally recognized as models of the genre as well as in others, including examples of satirical discourse. Special attention to two important literary problems: role played by authors and narrators in relation to treatment of characters before possible audiences and importance of contextual values in interpretation of satire. Concurrently scheduled with course C204. Undergraduates read all texts in translation. 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. Undergraduates 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 the modern period. All works read in translation. P/NP or letter grading.

**C108. Saints' Lives as Literature. (4)**

Lecture, three hours. Designed for juniors/seniors. Examination of genre of the saint's life as it develops in Western European tradition from late classical to early modern period; connections between the saint's life and other forms of literature; comparative considerations (e.g., the Western European saint's life and classical Greek and Roman biography, Islamic traditions, and Buddhist traditions). Concurrently scheduled with course C208. P/NP or letter grading.

**C109. Love, Deceit, and Truth: Tristan and Isolde Legend in Literary Tradition. (4)**

Lecture, three hours. Tracing of history and literary treatment of one of most enduring "myths" of medieval and modern storytelling: tale of ill-fated love triangle as exemplified in figures of Tristan, Isolde, and Mark. Literary texts to be read in translation, but comparative literature students encouraged to read texts in original language. Concurrently scheduled with course C209. P/NP or letter grading.

**120. The Individual and Society in the 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 a 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 the Renaissance, with consideration of historical and literary influences on the plays. Readings include works of such dramatists as Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. May be concurrently scheduled with course C222. Undergraduates read all works in translation. P/NP or letter grading.

**C140. Dramatic Theory and Criticism in German and English Romanticism. (4)**

Seminar, three hours. Designed for upper division literature majors. Generic conception of drama in critical essays of the Schlegels, Tieck, Jean Paul, Coleridge, De Quincey, and Hazlitt, with emphasis on role of the actor and the idea of dramatic action as discussed by the critics. May be concurrently scheduled with course C240. Undergraduates read all works in translation. P/NP or letter grading.

**C150. The 19th-Century Novel. (4)**

Seminar, three hours. Designed for upper division literature majors. Comparative study of the 19th-century novel in England and on the continent. Novels selected so as to allow seminar to concentrate on a particular tradition or critical problem. May be concurrently scheduled with course C250. Undergraduates read all works in translation. P/NP or letter grading.

**C151. Crisis of Authority. (4)**

Seminar, three hours. Designed for juniors/seniors. Darwin's *Origin of Species* undermines the notion of a traditional fatherly God and reflects a major transition between the 19th and 20th centuries. Threat to, or collapse of, a divinely author(ized) and male-dominated society appears in writers such as G. Eliot, Zola, Ibsen, Strindberg, Conrad, Hardy, Woolf, and Camus. May be concurrently scheduled with course C251. P/NP or letter grading.

**C152. Symbolist Tradition in Poetry. (4)**

Seminar, three hours. Designed for upper division literature majors. Study of symbolist tradition in 19th- and 20th-century English, French, and German poetry. May be concurrently scheduled with course C252. Undergraduates read all works in translation. P/NP or letter grading.

**C153. Poetry and Poetics of Post-Symbolist Period. (4)**

Lecture, three hours. Designed for juniors/seniors. Study of poetic trends, such as surrealism or imagism, and poets in first half of the 20th century. Texts may include poets such as W.B. Yeats, E. Pound, T.S. Eliot, Marianne Moore, Paul Valéry, Stefan George, R.M. Rilke, Gunnar Ekelof, or Wallace Stevens. May be concurrently scheduled with course C253. Undergraduates read all works in translation. P/NP or letter grading.

**154. Adventures of the Avant-Garde. (4)**

Seminar, three 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, Lisperoch, Warhol, Orlan. Emphasis on cross-fertilization among different kinds of aesthetic expression. P/NP or letter grading.

**158. Colonial Encounters. (4)**

Seminar, three hours. Discussion of how a Western textual system restricts cultures of colonized peoples to an encounter with the European. As a means of understanding limits to a European frame of reference, reading of English literary works alongside their postcolonial counterparts. Investigation of how reversal of perspective affects the telling of a tale. P/NP or letter grading.

**159. Four Modern Dramatists. (4)**

Lecture, three hours. Study of several works by four major modern dramatists, focusing on understanding specific elements in each work and authors' possible interrelations. Pirandello, Beckett, and Pinter are read; fourth author is selected from Ionesco, Giraudoux, Cocteau. P/NP or letter grading.

**C160. Topics in Literature and Visual Arts. (4)**

Lecture, three hours. Designed for juniors/seniors. 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 C260. Undergraduates 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 the 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.

**C163. Crisis of Consciousness in Modern Literature. (4)** Seminar, three hours. Designed for upper division literature majors. Study of modern European and American works which are concerned both in subject matter and artistic methods with the growing self-consciousness of human beings and their society, focusing on works of Kafka, Rilke, Woolf, Sartre, and Stevens. May be concurrently scheduled with course C263. Undergraduates read all works in translation. P/NP or letter grading.

**C164. The Modern Continental Novel. (4)** Seminar, three hours. Designed for upper division literature majors. Study of the modern novel's development from naturalism toward a mythic or symbolic level. Use of authors such as Gide, Proust, Mann, Joyce, Nabokov, and Grass to focus on development of themes such as primitivism vs. authority, change vs. stability, and the self-conscious narrative. Concurrently scheduled with course C264. Undergraduates read all works in translation. P/NP or letter grading.

**M165. The Holocaust in Literature. (4)** (Same as Jewish Studies M187.) Lecture, three hours. Prerequisite: History 191E or 191F or 191G. Investigation of how the Holocaust informs a variety of literary and cinema works and raises a wide range of aesthetic and moral questions. P/NP or letter grading.

**C167. Theory and Texts of the Fantastic. (4)** Seminar, three hours. Designed for upper division literature majors. Attempt to define the fantastic as a theoretical genre separate from the wider genre of fantasy. Critical texts by Todorov and Brooke-Rose. Primary texts by Hoffmann, Nerval, James, Poe, Borges, Casares, Cortazar, Landolfi, and Calvino. May be concurrently scheduled with course C267. Undergraduates read all works in translation. P/NP or letter grading.

**M168. Korean American Literature. (4)** (Same as Asian American Studies M132A.) 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. Prerequisite: 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. (4)** (Formerly numbered C170.) (Same as Women's Studies M170.) 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 a cross-cultural perspective. Common themes, problems, and techniques. May be concurrently scheduled with course C270. Undergraduates read all works in translation. P/NP or letter grading.

**M171. Chinese Immigrant Literature and Film. (4)** (Same as Asian American Studies M132B and Chinese M153.) Lecture, two 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. The Postmodern Novel. (4)** Seminar, three hours. Designed for upper division literature majors. Study of the 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. Undergraduates read all works in translation. P/NP or letter grading.

**C173. Postmodernism and the 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.

**M174. Film and Literature of the Spanish-Speaking World. (4)** (Same as Spanish M161.) Lecture, three hours. Exploration of perceptions of reality offered by different authors from Spain, Latin America, and the Chicano community. P/NP or letter grading.

**M175. Topics in Southeast Asian Literature. (4)** (Same as South and Southeast Asian Languages M130.) Lecture, three hours. Prerequisite: one course from 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 the region. Topics include censorship, politics, language, and literature. 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.

**190. Semiotics of Story and Film. (4)** Seminar, three hours. Designed for upper division literature majors. Investigation of theoretical aspects of semiotics and their application to specific narratives in prose and film. P/NP or letter grading.

**192. Walter Benjamin's Literary Criticism. (4)** Seminar, three hours. Designed for juniors/seniors. Some knowledge of German desirable but not required, as all texts are available in English translation. Walter Benjamin has emerged in recent years as one of the most influential critics of the 20th century. Course approaches his work primarily through a reading of his specifically literary criticism which occupies a central place in his work. P/NP or letter grading.

**194. Variable Topics. (4)** Seminar, three hours. Designed for juniors/seniors. Study 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. Consult *Schedule of Classes* for topics to be offered in a specific term. May be repeated for credit with topic change. P/NP or letter grading.

**C195A. Heidegger, Language, and Literature. (4)** (Formerly numbered C195.) Seminar, three hours. Knowledge of German not required. Close reading of essays contained in the collection *Poetry, Language, and Thought*, including "The Origin of the Work of Art," "The Thing," and "Language." Concurrently scheduled with course C295A. P/NP or letter grading.

**C195B. Derrida as a Reader of Heidegger. (4)** (Formerly numbered C196.) Seminar, three hours. Retracing of certain of Derrida's attempts to read Heidegger, beginning with the essay, "Restitutions," in *Truth and Painting*. Other writings include *Of Spirit: Heidegger and the Question* and *Geschlecht*. May be concurrently scheduled with course C295B. P/NP or letter grading.

**C196. Feminist and Gender Theory. (4)** Seminar, three hours. Investigation of particular theoretical issues in feminism and gender studies, including topics such as critical problems of representation, feminism and queer theory, or intersections with postmodernism, post-structuralism, or postcolonialism. Concurrently scheduled with course C296. P/NP or letter grading.

**197. Senior Essay. (4)** Lecture, three hours. Limited to senior Comparative Literature majors. Research essay on a comparative topic selected by the student and written under supervision of a core faculty member. P/NP or letter grading.

**197H. Honors Senior Essay. (2 to 6)** Lecture, two to six hours. Limited to senior comparative literature honors students. Research essay on a comparative topic selected by the student and written under supervision of a core faculty member. Students expected to meet regularly with supervisor throughout term. May be repeated once for a maximum of 8 units. No more than one course may be used to fulfill the four-course requirement for Comparative Literature majors. P/NP or letter grading.

**199. Special Studies in Comparative Literature. (2 to 4)** Prerequisite: course 100. May be repeated for credit with consent of chair. P/NP or letter grading.

## Graduate Courses

**200. Methodology of Comparative Literature. (6)** Seminar, four hours. Study of methodology of comparative literature and theory of literature.

**202. Classical Tradition: Epic. (4)** Seminar, three hours. Preparation: reading knowledge of Greek, Latin, or Italian. 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. S/U or letter grading.

**203. Classical Tradition: Tragedy. (4)** Seminar, three hours. Preparation: knowledge of one appropriate foreign language, usually Greek or French. Analysis of selected Greek dramas and their re-creations in Rome, in the Renaissance, and in the modern period. S/U or letter grading.

**C204. Satire. (4)** Lecture, three hours. Examination of satire both in texts generally recognized as models of the genre as well as in others, including examples of satirical discourse. Special attention to two important literary problems: role played by authors and narrators in relation to treatment of characters before possible audiences and importance of contextual values in interpretation of satire. Concurrently scheduled with course C104. Graduate students required to prepare papers based on texts read in original languages whenever possible and may meet as a group one additional hour each week. 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 a 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 the modern period. S/U or letter grading.

**207. Allegory and Some Allegories. (4)** Seminar, three hours. Preparation: reading knowledge of French, German, Italian, Latin, Greek, or Chinese. Designed for graduate students. Historical perspective on topic of allegory, with readings from texts traditionally held to be examples of the genre. Defining allegory is simple; saying which works count as examples of allegory, and why, is much harder. Authors include Prudentius, Augustine, Dante, Spenser, Donne, Tung Yueh, Hegel, Baudelaire, and Mallarmé. S/U or letter grading.

**C208. Saints' Lives as Literature. (4)** Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Designed for graduate students. Examination of genre of the saint's life as it develops in Western European tradition from late classical to early modern period; connections between the saint's life and other forms of literature; comparative considerations (e.g., the Western European saint's life and classical Greek and Roman biography, Islamic traditions, and Buddhist traditions). Concurrently scheduled with course C108. S/U or letter grading.

**C209. Love, Deceit, and Truth: Tristan and Isolde Legend in Literary Tradition. (4)** Lecture, three hours. Preparation: reading knowledge of one appropriate foreign language. Tracing of history and literary treatment of one of most enduring "myths" of medieval and modern storytelling: tale of ill-fated love triangle as exemplified in figures of Tristan, Isolde, and Mark. Literary texts to be read in translation, but comparative literature students encouraged to read texts in original language. Concurrently scheduled with course C109. 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 the Renaissance, with consideration of historical and literary influences on the 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 a group one additional hour each week. S/U or letter grading.

**C240. Dramatic Theory and Criticism in German and English Romanticism.** (4) Seminar, three hours. Preparation: reading knowledge of German. Generic conception of drama in critical essays of the Schlegels, Tieck, Jean Paul, Coleridge, De Quincey, and Hazlitt, with emphasis on role of the actor and the idea of dramatic action as discussed by the critics. May be concurrently scheduled with course C140. S/U or letter grading.

**C250. The 19th-Century Novel.** (4) Seminar, three hours. Preparation: reading knowledge of French or German. Comparative study of the 19th-century novel in England and on the continent. Novels selected so as to allow seminar to concentrate on a particular tradition or critical problem. May be concurrently scheduled with course C150. S/U or letter grading.

**C251. Crisis of Authority.** (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Designed for graduate students. Darwin's *Origin of Species* undermines the notion of a traditional fatherly God and reflects a major transition between the 19th and 20th centuries. Threat to, or collapse of, a divinely author(ized) and male-dominated society appears in writers such as G. Eliot, Zola, Ibsen, Strindberg, Conrad, Hardy, Woolf, and Camus. May be concurrently scheduled with course C151. Graduate students required to prepare papers based on texts read in original languages and may meet as a group one additional hour each week. S/U or letter grading.

**C252. Symbolist Tradition in Poetry.** (4) Seminar, three hours. Preparation: reading knowledge of either French or German. Study of symbolist tradition in 19th- and 20th-century English, French, and German poetry. May be concurrently scheduled with course C152. Graduate students required to prepare papers based on texts read in original languages and may meet as a group one additional hour each week. S/U or letter grading.

**C253. Poetry and Poetics of Post-Symbolist Period.** (4) Lecture, three hours. Study of poetic trends, such as surrealism or imagism, and poets in first half of the 20th century. Texts may include poets such as W.B. Yeats, E. Pound, T.S. Eliot, Marianne Moore, Paul Valery, Stefan George, R.M. Rilke, Gunnar Kjelof, or Wallace Stevens. May be concurrently scheduled with course C153. S/U or letter grading.

**C260. Topics in Literature and Visual Arts.** (4) Lecture, three hours. Preparation: reading knowledge of one appropriate foreign language. 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 the 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.

**262. The Psychological Novel.** (4) Seminar, three hours. Preparation: major in literature, reading knowledge of French. Comparative study of French and English novels which both precede and follow development of psychoanalysis. Selected readings of Freud, in addition to the required fiction. S/U or letter grading.

**C263. Crisis of Consciousness in Modern Literature.** (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of modern European and American works which are concerned both in subject matter and artistic methods with the growing self-consciousness of human beings and their society, focusing 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 a group one additional hour each week. S/U or letter grading.

**C264. The Modern Continental Novel.** (4) Seminar, three hours. Preparation: reading knowledge of at least one appropriate foreign language. Study of the modern novel's development from naturalism toward a mythic or symbolic level. Use of authors such as Gide, Proust, Mann, Joyce, Nabokov, and Grass to focus on development of themes such as primitivism vs. authority, change vs. stability, and the self-conscious narrative. Concurrently scheduled with course C164. Graduate students required to prepare papers based on texts read in original languages and to meet as a group one additional hour each week. S/U or letter grading.

**265. Intertextuality in Literature and Film.** (4) Discussion, three hours. Study of relationships between literature and film from perspective of intertextuality grounded in theorists Mikhail Bakhtin and Jacques Derrida and elaborated by critics Barthes, Chatman, and Kristeva. Focus on processes of inscription, reiteration, transformation, filiation, and dissemination during consideration of representative types of intertextuality. S/U or letter grading.

**266. Writing and the 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 a 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.

**C267. Theory and Texts of the Fantastic.** (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Attempt to define the fantastic as a theoretical genre separate from the wider genre of fantasy. Critical texts by Todorov and Brooke-Rose. Primary texts by Hoffmann, Nerval, James, Poe, Borges, Casares, Cortazar, Landolfi, and Calvino. May be concurrently scheduled with course C167. Graduate students required to prepare papers based on texts read in original languages and may meet as a group one additional hour each week. S/U or letter grading.

**C270. Alternate Traditions: In Search of Female Voices in Contemporary Literature.** (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Investigation of narrative texts by contemporary French, German, English, American, Spanish-American, African, and Asian women writers from a cross-cultural perspective. Common themes, problems, and techniques. May be concurrently scheduled with course CM170. Graduate students required to prepare papers based on texts read in original languages whenever possible. 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 reincarnations in modern African American, Anglo-American, Asian American, European, Native American, and Spanish-American literatures. Particular emphasis on position of women in the cultures and ideology of the authors. S/U or letter grading.

**C272. The Postmodern Novel.** (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of the 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 a group one additional hour each week. S/U or letter grading.

**C273. Postmodernism and the 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 the Third World.** (4) (Same as Asian American Studies M261.) Seminar, three hours. Investigation of politics of power, gender, and race in complex relationships between the 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 the 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.

**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 a 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 the field. Weekly exercises in translation technique with genres, periods, and authors at discretion of participants. S/U or letter grading.

**289. Theory of Film and Literature.** (5) Seminar, three hours; film screening, two hours. Study of redefinition 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 200. 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. Problems of the Sign in Literature.** (4) Seminar, three hours. Inquiry into theoretical bases and implications of the sign as metaphysical, logical, and grammatical categories. Many texts central to Western thinking dwell on the sign as a concept-tool in order to focus on the relationship between words and things, language and reality, the linguistic medium in its meaning-producing functions. Excerpts from Plato, Aristotle, Augustine, Locke, Vico, and Hegel lead to a discussion of "sciences" envisioned by Saussure (semiology) and Peirce (semiotics) and propounded by contemporary theorists such as Barthes, Hjelmslev, and Greimas. S/U or letter grading.

**293. Psychoanalytic Approaches to Literature.** (4) Seminar, three hours. Prerequisite: course 200 or equivalent criticism course in English. Study of development of modern psychoanalytic approaches to literature, with particular stress on affective theories of criticism. Readings include Freud and early psychoanalytic critics, contemporary psychoanalytic critics of literature, and modern British and American psychoanalytic theorists (Winnicott, Schafer) whose work is applicable to literary theory. S/U or letter grading.

**C295A. Heidegger, Language, and Literature. (4)** (Formerly numbered C295.) Seminar, three hours. Knowledge of German not required. Close reading of essays contained in the collection *Poetry, Language, and Thought*, including "The Origin of the Work of Art," "The Thing," and "Language." Concurrently scheduled with course C195A. S/U or letter grading.

**C295B. Derrida as a Reader of Heidegger. (4)** (Formerly numbered C296.) Seminar, three hours. Retracing of certain of Derrida's attempts to read Heidegger, beginning with the essay, "Restitutions," in *Truth and Painting*. Other writings include *Of Spirit: Heidegger and the Question* and *Geschlecht*. May be concurrently scheduled with course C195B. S/U or letter grading.

**C296. Feminist and Gender Theory. (4)** Seminar, three hours. Investigation of particular theoretical issues in feminism and gender studies, including topics such as critical problems of representation, feminism and queer theory, or intersections with postmodernism, post-structuralism, or postcolonialism. Concurrently scheduled with course C196. S/U or letter grading.

**297. Death and the Limits of Representation. (4)** Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Examination of fundamental shifts in the relationship that obtains between thinking and death which are closely tied to rethinking of the status and structure of representation. May be repeated once for credit. S/U or letter grading.

**299. Analytic Philosophy and Literary Theory. (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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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 the 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.

**596. Directed Individual Study or Research. (2 to 12)** 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)** Preparation for foreign language examination. S/U grading.

**597. Preparation for M.A. and Ph.D. Examinations. (2 to 12)** 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)** Limited to Ph.D. students. Research for and preparation of Ph.D. dissertation. May be repeated for credit. S/U grading.

## COMPUTER SCIENCE

*Henry Samueli School of Engineering  
and Applied Science*

UCLA  
4732 Boelter Hall  
Box 951596  
Los Angeles, CA 90095-1596

(310) 825-3886  
<http://www.cs.ucla.edu/>

Milos D. Ercegovic, Ph.D., *Chair*  
D. Stott Parker, Jr., Ph.D., *Vice Chair*  
David A. Rennels, Ph.D., *Vice Chair*

### Professors

Rajive L. Bagrodia, Ph.D.  
Alfonso F. Cardenas, Ph.D.  
Wesley W. Chu, Ph.D.  
Jason (Jinsheng) Cong, Ph.D.  
Joseph J. DiStefano III, Ph.D.  
Michael G. Dyer, Ph.D.  
Milos D. Ercegovic, Ph.D.  
Deborah L. Estrin, Ph.D.  
Mario Gerla, Ph.D.  
Sheila A. Greibach, Ph.D.  
Richard E. Korf, Ph.D.  
Richard R. Muntz, Ph.D.  
D. Stott Parker, Jr., Ph.D.  
Miodrag Potkonjak, Ph.D.  
Majid Sarrafzadeh, Ph.D.  
Carlo A. Zaniolo, Ph.D. (*Norman E. Friedmann  
Professor of Knowledge Sciences*)  
Lixia Zhang, Ph.D.

### Professors Emeriti

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Bertram Bussell, Ph.D.  
Jack W. Carlyle, Ph.D.  
Gerald Estrin, Ph.D.  
Thelma Estrin, Ph.D.  
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David A. Rennels, Ph.D.  
Yuval Tamir, Ph.D.

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Elias Koutsoupias, Ph.D.  
Songwu Lu, Ph.D.  
Stefano Soatto, Ph.D.

### Senior Lecturer

Leon Levine, M.S., *Emeritus*

### Adjunct Professors

Andrew B. Kahng, Ph.D.  
Boris Kogan, Ph.D.  
Gerald J. Popek, Ph.D.

### Adjunct Associate Professors

Leon Alkalai, Ph.D.  
Peter L. Reiher, 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 strongly related studies of subjects in computer system architecture, computer networks, distributed computer systems, programming languages and systems, information and data management, artificial intelligence, computer science theory, and scientific computing.

The undergraduate and graduate studies and research projects in computer science are supported by extensive computing resources. In addition to the departmental computing facility, there are nearly a dozen laboratories specializing in areas such as distributed systems, multimedia computer communications, VLSI sys-

tems, VLSI CAD, and artificial intelligence. The Cognitive Systems Laboratory is engaged in studying computer systems which 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 Bachelor of Science degree may be attained either through the Computer Science and Engineering major or through the Computer Science major described below.

The Henry Samueli School of Engineering and Applied Science 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. Anderson Graduate School of Management, the Computer Science Department offers a concurrent degree program which enables students to obtain the M.S. in Computer Science and the M.B.A. (Master of Business Administration).

## Undergraduate Study

### Computer Science and Engineering B.S.

The ABET- and CSAB-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 major components from 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, system programming, networking fundamentals, higher-level language skills, and application of these to systems. Students are prepared for employment in the high-technology industries that employ information and digital systems.

### The Major

Course requirements are as follows (186 minimum units required):

- Four core courses: Computer Science 31, 32, 33, M51A (or Electrical Engineering M16)
- Computer Science 111, 118, 131, M151B (or Electrical Engineering M116C), 180, 181, Electrical Engineering 10, 102, 103, 110, 110L, 115A, 115AL, 115C, Statistics 110A; 6 laboratory units from Computer Science M152A (or Electrical Engineering M116L) and M152B (or Electrical Engineering M116D); one computer science/electrical engineering elective (excluding Electrical Engineering 100)
- Four upper division elective courses from the Computer Science Department.

Course 199 may normally be taken only as a free elective; however, students may petition for exceptions in extraordinary situations

4. Chemistry and Biochemistry 20A; Electrical Engineering 1, 2, Physics 1A, 1B, 4AL, 4BL; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61
5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details. Computer Science and Engineering majors are also required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements

## Computer Science B.S.

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 major 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 program is accredited by the Computer Science Accreditation Commission (CSAC) of the Computing Sciences Accreditation Board (CSAB), a specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation (CORPA).

### The Major

Course requirements are as follows (182 minimum units required):

1. Four core courses: Computer Science 31, 32, 33, M51A (or Electrical Engineering M16)
2. Computer Science 111, 112, 118, 131, 132, M151B (or Electrical Engineering M116C), 180, 181, Statistics 110A; one course from Computer Science 161 or 163; Mathematics 151A or Electrical Engineering 103; 6 laboratory units from Computer Science M152A (or Electrical Engineering M116L) and M152B (or Electrical Engineering M116D)
3. Two elective upper division computer science courses
4. A minor or technical support area composed of three upper division courses selected from one of the following areas: as-

tronomy, atmospheric sciences, biology, chemical engineering, chemistry and biochemistry, civil and environmental engineering, Earth and space sciences, economics, electrical engineering, information studies, linguistics, management, materials science and engineering, mathematics, mechanical and aerospace engineering, molecular biology, physics

5. Electrical Engineering 1, 2, Physics 1A, 1B, 4AL, 4BL; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61
6. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details. Computer Science majors must also select two additional humanities/social sciences courses and one additional life sciences course and are required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements. Chemistry 20A may be substituted for one of the life sciences courses

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Computer Science offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Computer Science.

## Admission

### M.S./Ph.D. in Computer Science

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. program are required to take the General Test of the Graduate Record Examination (GRE) and the Subject Test in Mathematics or Computer Science.

Applicants to the Ph.D. program who hold the M.S. degree should have completed the requirements for the M.S. degree with at least a 3.25 grade-point average and should also have demonstrated creative ability. The M.S. degree is normally required for admission to the Ph.D. program. However, in some cases exceptional students who do not hold the M.S. degree may be admitted directly to the Ph.D. program.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide

Programs in *Program Requirements for UCLA Graduate Degrees*.

Applicants are encouraged to apply online. Application forms, including a departmental supplement to the application, may be found at <http://www.cs.ucla.edu> or by writing to Student Affairs Office, Computer Science Department, 4732 Boelter Hall, UCLA, Box 951596, Los Angeles, CA 90095-1596, e-mail: [gradadm@cs.ucla.edu](mailto:gradadm@cs.ucla.edu).

### Computer Science M.S./ Management M.B.A.

The John E. Anderson Graduate School of Management and the Department of Computer Science offer a concurrent degree program that enables students to complete the requirements for the M.S. in Computer Science and the M.B.A. in three academic years. Application materials should be requested separately from both schools. Contact the Anderson School for details.

## Master's Degree

For major fields, see Doctoral Degree.

The M.S. degree is offered through the comprehensive examination and thesis plans. A total of nine courses is required for the M.S. degree, including a minimum of five graduate courses. No specific courses are required, but a majority of the required courses must consist of those offered by the department. Students must satisfy a computer science breadth requirement.

## Doctoral Degree

Major fields include artificial intelligence; computer network modeling and analysis; computer science theory; computer system architecture; information and data management; scientific computing (two subareas: biomedical engineering systems and biocybernetics, and physical systems); and software systems and languages.

Students normally take courses to acquire the knowledge needed to prepare for the written and oral preliminary examinations and for conducting Ph.D. research. The basic program of study is built around the fundamental examination, the major field requirement, and two minor fields. The major field and at least one minor field must be in computer science. To satisfy the major field requirement, students are expected to attain a body of knowledge contained in the coursework, as well as the current literature in the area of specialization. In particular, students are required to take a minimum of four graduate courses in the major field of Ph.D. research, selecting these courses in accordance with guidelines specific to the major field.

Each minor field normally embraces a body of knowledge equivalent to three courses, at least two of which are graduate courses. By petition and administrative approval, a minor field may be satisfied by examination. For the Ph.D. de-

gree, students must successfully complete at least three quarters of a research seminar, in addition to the three quarters of the seminar that may have been completed for the M.S. degree.

Written and oral qualifying examinations are required. The written examination is known as the fundamental examination. After mastering the body of knowledge defined in a detailed syllabus, students take the fundamental examination.

Following successful completion of the fundamental examination and coursework for the major and minor field requirements, students may also be required to take an oral preliminary examination that encompasses the major and minor fields. If required, the examination is in addition to the required University Oral Qualifying Examination.

The nature and content of the University Oral Qualifying Examination are at the discretion of the doctoral committee but ordinarily include a broad inquiry into the student's preparation for research, as well as a review of the dissertation prospectus.

## Computer Science

### Lower Division Courses

**1. Principles of Computer Science. (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Not open for credit to Computer Science majors. Introduction to fundamental scientific principles of computation. Programming in LISP. Systems software, including interpreters, and operating systems. Computer hardware design and implementation. Theory of computation, including computability and complexity. Applications, including artificial intelligence and scientific computing. P/NP or 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.

**10C. Introduction to Programming. (4)** Lecture, four hours; discussion, four hours; outside study, four hours. Exposure to computer organization and capabilities. Basic principles of programming: algorithmic, procedural problem solving. Program design and development. Control structures and data structures. Character strings and word processing. Letter grading.

**10F. Introduction to Programming/FORTRAN. (4)** Lecture, four hours; discussion, two hours. Open to Mathematics and Computer Science majors; open to graduate students on S/U grading basis only. Description and use of FORTRAN programming language. Selected topics in programming techniques. Programming and running of several problems. Letter grading.

**11. Introduction to PASCAL. (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Limited to majors in Computer Science and Engineering and Computer Science majors. Open to graduate students on S/U grading basis only. Not open to students with credit for course 10C, 10F, or Program in Computing 10A. Human factors in programming and program design. Exposure to computer organization and capabilities, data representation, professional ethics. Principles of programming (using PASCAL as example language): algorithm design and procedural abstraction. Program design and development. Control structures and data structures. Letter grading.

**31. Introduction to Computer Science I. (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Limited to Computer Science and Electrical Engineering majors. 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. Requisite: course 31. Limited to Computer Science and Electrical Engineering majors. Not open to students with credit for former course 23. 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. Limited to Computer Science and Electrical Engineering majors. 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.

**M51A. Logic Design of Digital Systems. (4)** (Formerly numbered 51A.) (Same as Electrical Engineering M16.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Physics 1C. 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

**111. Operating Systems Principles. (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Requisites: courses 32, 33. Introduction to design and performance evaluations of modern operating systems. Mapping and binding of addresses. Organization of multiprogramming and multiprocessing systems; interrupts, process model, and interlocks. Resource allocation models and problem of deadlocks. Scheduling, synchronization. Memory management, virtual memory. input/output (I/O) control, file systems. Letter grading.

**112. Computer System Modeling Fundamentals. (4)** Lecture, four hours; outside study, eight hours. Requisite: Statistics 110A. Designed for juniors/seniors. Basic tools necessary for performance evaluation and design of distributed computer systems, including such topics as combinatorics, generating functions, probability theory, transforms, Markov chains, baby queueing theory. Presentation of this set of tools in a fashion that is rich with examples from computer systems field. Letter grading.

**118. Computer Network Fundamentals. (4)** Lecture, four hours; discussion, two hours. Designed for juniors/seniors. Investigation of functions required to operate computer communications networks. Development of methodology for implementing these functions in procedures called protocols. Organization around ISO-OSI seven-layer architecture, with review of each layer. Specific functions defined and available alternatives studied. Presentation of several applications and case studies based on existing public and private networks. Letter grading.

**130. Software Engineering. (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Requisite: course 32. 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. Study, comparison, and evaluation of alternative strategies for language specification, data description, data control, program modularity, instruction sequencing, and language implementations. Use of a few languages selected from FORTRAN 77, ADA, SNOBOL 14, LISP, MODULA 2, and PROLOG to illustrate particular implementations of some of above features. Letter grading.

**132. Compiler Construction. (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 32, 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.

**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.

**M151B. Computer Systems Architecture. (4)** (Formerly numbered 151B.) (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: course M152A or Electrical Engineering M116L. Machine organization and design, formal descriptions, comparative study of machine instruction sets and formats, data representation and floating-point, addressing structures, mechanization of procedure calls, memory organization and management, microprogramming, input/output (I/O) processing and interrupts, and reliability aspects. Letter grading.

**151C. Design of Digital Systems. (4)** Lecture, four hours; discussion, two hours. Requisites: courses M51A, M151B, M152A. Design of complex digital systems using hierarchical 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)** (Formerly numbered 152A.) (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.

**M152B. Digital Design Project Laboratory. (4)** (Formerly numbered 152B.) (Same as Electrical Engineering M116D.) 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 23. 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.

**163. Introduction to Natural Language Processing. (4)** Lecture, four hours; laboratory, two hours. Requisite: course 130 or 131. Role of syntax, semantics, and pragmatics in human language processing by computers. Natural language generators and parsers, inference, and conceptual analysis. Modeling conceptual processes and representing semantic knowledge by means of computer problems. Letter grading.

**170A. Introduction to Scientific Computing. (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Designed for senior Computer Science majors. Introduction to scientific modeling and simulation, using the very high-level computer languages MATHEMATICA and MAPLE. Extensive coverage of programming in MATHEMATICA, with applications involving engineering modeling; simulation term project required. Letter grading.

**171. Real-Time Computer Systems. (4)** Lecture, four hours; outside study, eight hours. Designed for seniors. Survey of fundamentals, with emphasis on hardware and systems concepts. Adapting digital computers to interfaces, including multiprogramming, bus structure, interrupt, and time-sharing considerations. Digital communication, remote consoles, sampling, quantizing, multiplexing, analog-digital conversion, and data reconstruction. Letter grading.

**M171L. Data Communication Systems Laboratory. (2 to 4)** (Formerly numbered 171L.) (Same as Electrical Engineering M171L.) Laboratory, four to eight hours; outside study, two to four hours. Recommended preparation: courses M152A, 171. 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 analyzer, 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.

**174. Elements of Computer Graphics. (4)** Lecture, two hours; laboratory, two hours; outside study, eight hours. Requisite: course 32. Hardware and software elements of computer graphics systems. Graphics languages. Graphic workstations and specialized input/output (I/O) devices. Design and development of interactive graphics programs. Letter grading.

**180. Introduction to Algorithms and Complexity. (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32, Mathematics 61. Limited to 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. Requisite: Mathematics 61. 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.

**190. Computer Science Design Project. (4)** Lecture, four hours; outside study, eight hours. Preparation: adequate background in hardware, software, and computer applications. Limited to senior Computer Science and Engineering majors and senior Computer Science majors. Basic concepts of design of projects in computer science, including interpretation of specifications, subtasking, design of experiments, data analysis and performance evaluation, cost engineering, reliability, and societal and safety considerations. Letter grading.

**M196A. Introduction to Cybernetics, Biomodeling, and Biomedical Computing. (2)** (Formerly numbered 196A.) (Same as Biomedical Engineering M196A and Cybernetics M196A.) Lecture, two hours. Requisites: Mathematics 31A, 31B, Program in Computing 10A. Strongly recommended for students with potential interest in biomedical engineering/biocomputing fields or in Cybernetics as a major. Introduction and survey of topics in cybernetics, biomodeling, biocomputing, and related bioengineering disciplines. Lectures presented by faculty currently performing research in one of the areas; some sessions include laboratory tours. P/NP grading.

**M196B. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5)** (Same as Biomedical Engineering M196B, Cybernetics M196B, and Medicine M196B.) Lecture, four hours; discussion, one hour; laboratory, two hours. Requisite: Electrical Engineering 102 or Mathematics 115A. Introduction to dynamic system modeling, compartmental modeling, and computer simulation methods for studying biomedical systems. Basics of numerical simulation algorithms, translating biomodeling goals and data into mathematical models and implementing them for simulation and analysis. Modeling software exploited for class assignments in PC laboratory. Letter grading.

**CM196L. Biomedical Systems/Biocybernetics Research Laboratory. (2 to 4)** (Same as Biomedical Engineering CM196L and Cybernetics M196L.) Lecture, two hours; laboratory, two hours. Requisite: course M196B. Special laboratory techniques and experience in biocybernetics research. Laboratory instruments, their use, design, and/or modification for research in life sciences. Special research hardware, firmware, software. Use of simulation in experimental laboratory. Laboratory automation and safety. Comprehensive experiment design. Radioactive isotopes and kinetic studies. Experimental animals, controls. Concurrently scheduled with course CM296L. Letter grading.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Occasional field trips may be arranged. May be repeated for credit. 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 the specialized area. May be repeated for credit. 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,  $M \rightarrow M$ ; computational algorithms for performance measures; asymptotic behavior and bounds; approximation techniques — diffusion — iterative techniques; applications. 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.; protocol 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 the 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.

**217. Advanced Topics in Internet Research. (4)** Lecture, four hours; outside study, eight hours. Designed for graduate students. Overview of Internet development history and fundamental principles underlying TCP/IP protocol design. Discussion of current research topics, including multicast routing protocols, multicast transport protocols (e.g., real-time, transport protocol, RTP, and SRM), support for integrated services, World Wide Web, multimedia applications on Internet. 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 an area of computer system modeling analysis in which instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. May be repeated for credit with consent of instructor. Letter grading.

**M222. Control and Coordination in Economics. (4)** (Same as Economics M222A.) Lecture, three hours. Recommended preparation: appropriate mathematics course. Designed for graduate economics and engineering students. Stabilization policies, short- and long-run dynamics and stability analysis; decentralization, coordination in teams; certainty equivalence and separation theorems; stochastic and learning models. Bayesian approach to price and output rate adjustment. S/U or 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 metamodeling; 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.

**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.

**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 an area of computer science programming languages and systems in which instructor has developed special proficiency as a 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, which 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)** (Formerly numbered 249.) 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; recitation, 30 minutes; laboratory, one hour; outside study, eight hours. Requisite: course 143. Object and database principles. Data models and accessing. Database systems architecture and functional components. Extended relational systems. Object and semantic systems. Systems comparison. Database design, organization, indexing, and performance. Other topics at discretion of instructor. Letter grading.

**241B. Pictorial and Multimedia Database Systems. (4)** Lecture, three and one-half hours; recitation, 30 minutes; outside study, nine hours. Requisites: courses 143, 241A. Pictorial and multimedia information system requirements. Data models and accessing; alternatives. Database systems. Visual languages and communication. Hypertext. Database design and organization, logical and physical. Database heterogeneity and distribution. 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.

**249. Current Topics in Data Structures. (2 to 12)** Lecture, four hours; outside study, eight hours. Review of current literature in an area of data structures in which instructor has developed special proficiency as a 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. Requisites: courses M51A, 111, M151B. Functional and structural models of computer systems. Architecture and organization at microprogramming, machine language, and operating system level. Processor organization and system control. Arithmetic processors: algorithms and implementation. Storage system organization: hierarchy and management. Communication organization and control. Letter grading.

**251B. Parallel Computer Architectures. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 251A. Parallel algorithmic structures and computer organizations. Effect of sequencing mechanisms, granularity, coupling, and locality. Organizations of control, memory, interconnection, and processing elements. Performance evaluation measures. Detailed discussion of system organization and performance of vector computers, array computers, loop-level multiprocessors, process-level multiprocessors, and dataflow computers. 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, multipierand addition, multiplication, division, and square root. On-line 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 measures, 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.

**253B. Advanced Topics in Fault-Tolerant Computing. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 253A. Fault tolerance in distributed systems: protocols and network redundancy. Design of fault-tolerant software: N-version programming and recovery blocks. Relationship between fault tolerance and system security. Case studies of contemporary fault-tolerant systems. Review of recent research results. 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: Systems, Building Blocks, and Technology. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 251A. State-of-the-art scalable multiprocessors and multicomputers. High-performance VLSI building blocks. Capabilities and limitations of VLSI technology. Interdependency among implementation technology, packaging, chip microarchitecture, and system architecture. Mechanisms for exploiting parallelism. Current research areas. Examples of chips and systems. Letter grading.

**M258A. LSI in Computer System Design. (4)** (Same as Electrical Engineering M216A.) Lecture, four hours; laboratory, four hours. Limited to graduate computer science and electrical engineering students. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on a chip. Letter grading.

**M258B-M258C. LSI in Computer System Design. (4-4)** (Same as Electrical Engineering M216B-M216C.) Lecture, four hours; laboratory, four hours. Requisite: course M258A. LSI/VLSI design and application in computer systems. In-depth studies of VLSI architectures and VLSI design tools. In Progress and S/U or letter grading.

**258D. VLSI CAD Techniques. (4)** Lecture, four hours; outside study, eight hours. Designed for graduate computer science and electrical engineering students. In-depth study of latest advances in computer-aided VLSI design techniques, including building block layout, placement and routing algorithms, simulation, design verification and timing, analog/digital synthesis techniques, testing, silicon compilation, expert system applications, and automatic performance optimization. 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 a 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 an area of computer science system design in which instructor has developed special proficiency as a 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 23. Examination in depth of that part of artificial intelligence concerned with problem-solving behavior, including problem spaces, brute-force search, heuristic search, two-player game searches, planning, subgoaling, GPS, macro-operators, and abstraction. Emphasis on mathematical rigor and complexity analyses of search algorithms. 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.

**262C. Computer Methods of Data Analysis and Model Formation. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 112. 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 which 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. Recommended preparation: understanding of LISP. Introduction to natural language processing. Representation and manipulation of conceptualizations underlying processes of thought for natural language comprehension and generation. Process models of story comprehension, question answering, paraphrasing, machine translation. Conceptual dependency theory, scripts, plans, goals, expectation-based parsing. Letter grading.

**263B. Language and Memory. (4)** Lecture, four hours; outside study, eight hours. Preparation: knowledge of LISP or PROLOG. Requisite: course 263A. Recommended: course 264A. Advanced natural language processing. Emphasis on organization of human memory for language comprehension. Episodic and semantic memory. Subjective understanding and modeling ideologies. Language acquisition, processes of generalization during comprehension. Cross-contextual reminders and thematic abstraction. 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.

**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.

**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 a paper 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 multisensor pattern recognition including speed and vision, and adaptive robot control. Students required to prepare a paper 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.

**268CN. Computational Neuroscience. (4)** Lecture, four hours; discussion, two hours; outside study, eight hours. Computational neuroscience as a paradigm of formal analysis and demonstrations of how to correctly interpret sensory data by discovering constraints from the natural world. Neural networks and connectionist models as a paradigm for parallel and concurrent computation and application to problem of vision, multimodal sensory interpretation, and learning. Letter grading.

**268S. Seminar: Computational Neuroscience. (2)** Seminar, two hours; outside study, six hours. Designed for students undertaking thesis research. Discussion of advanced topics and current research in computational neuroscience. Neural networks and connectionism as a 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 an area of artificial intelligence in which instructor has developed special proficiency as a 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 the applicability of contemporary developments in numerical software. Computer exercises. Letter grading.

**271A. Modeling and Simulation of Lumped Parameter Systems. (4)** Lecture, eight 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. 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.

**276A. Pattern Analysis and Machine Intelligence. (4)** Lecture, four hours; outside study, eight hours. Designed for graduate students. Fundamentals of pattern recognition, feature extraction and selection, autonomous learning, clustering, and machine intelligence. 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 276A 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 an area of computer science methodology in which instructor has developed special proficiency as a 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 with topic change. 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.

**282A. Cryptography. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 180. Basics of cryptography: symmetric and asymmetric cryptosystems; DES, RSA, ElGamal, elliptic curves. Schemes for signature, key distribution and key agreement, identification, authentication, and secret sharing. Advanced topics may include pseudo-random number generation, zero-knowledge proofs, and oblivious traffic. 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 with topic change. 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 an area of computer theory in which instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. 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 algorithms 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 M196B. Introduction to mathematical modeling and computer simulation of cardiac electrophysiological process. Ionic models of action potential (AP). Theory of AP propagation in 1D and 2D cardiac tissue. Simulation on sequential and parallel supercomputers, choice of numerical algorithms, to optimize accuracy and to provide computational stability. Letter grading.

**CM296L. Biomedical Systems/Biocybernetics Research Laboratory. (2 to 4)** (Formerly numbered C296L.) (Same as Biomedical Engineering CM296L.) Lecture, two hours; laboratory, two hours. Requisite: course M196B. Special laboratory techniques and experience in biocybernetics research. Laboratory instruments, their use, design, and/or modification for research in life sciences. Special research hardware, firmware, software. Use of simulation in experimental laboratory. Laboratory automation and safety. Comprehensive experiment design. Radioactive isotopes and kinetic studies. Experimental animals, controls. Concurrently scheduled with course CM196L. Letter grading.

**298. Research Seminar: Computer Science. (2 to 4)** (Formerly numbered 209AA-209ZZ.) 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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 an external company or organization which they investigate as a candidate for possible computerization, submitting a team report of their findings and recommendations. In Progress and S/U or letter 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. 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.

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## COMPUTING, PROGRAM IN

See Mathematics

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## CYBERNETICS

*Interdepartmental Program  
College of Letters and Science*

UCLA  
4532H Boelter Hall  
Box 951596  
Los Angeles, CA 90095-1596  
(310) 825-7482  
<http://www.cs.ucla.edu/~cyber/Cybernetics/script/index.cgi>

Joseph J. DiStefano III, Ph.D., *Chair*

### Faculty Advisory Committee

Jack W. Carlyle, Ph.D.  
Joseph J. DiStefano III, Ph.D., *Chair*  
Vivek Dixit, M.D.  
Michael G. Dyer, Ph.D.  
Stephen A. Engel, Ph.D.  
John Hanley, M.D.  
Richard E. Korf, Ph.D.  
James A. Lake, Ph.D.  
Elliot M. Landaw, M.D., Ph.D.  
Christopher J. Lee, Ph.D.  
Valeriy Nenov, M.D.  
Stefano Soatto, Ph.D.  
Jason Speyer, Ph.D.  
Richard K. Vance, Ph.D.

### Affiliated Faculty

#### Professors

Joseph J. DiStefano III, Ph.D. (*Computer Science, Medicine*)  
Michael G. Dyer, Ph.D. (*Computer Science*)  
Richard E. Korf, Ph.D. (*Computer Science*)  
James A. Lake, Ph.D. (*Molecular, Cellular, and Developmental Biology*)  
Elliot M. Landaw, M.D., Ph.D. (*Biomathematics*)  
Jason Speyer, Ph.D. (*Mechanical and Aerospace Engineering*)

#### Professors Emeriti

Jack W. Carlyle, Ph.D. (*Computer Science*)  
John Hanley, M.D. (*Psychiatry and Biobehavioral Sciences*)

#### Associate Professor

Richard K. Vance, Ph.D. (*Organismic Biology, Ecology, and Evolution*)

#### Assistant Professors

Stephen A. Engel, Ph.D. (*Psychology*)  
Christopher J. Lee, Ph.D. (*Chemistry and Biochemistry*)  
Stefano Soatto, Ph.D. (*Computer Science*)

#### Adjunct Associate Professors

Vivek Dixit, M.D. (*Medicine*)  
Valeriy I. Nenov, M.D. (*Neurosurgery*)

## Scope and Objectives

The major in Cybernetics is designed primarily for highly motivated undergraduates interested in interdisciplinary activities 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 introduction to psychology and computing. The major itself provides an introduction to modeling, information processing, control and system analysis, with emphasis on quantitative ideas and methodologies. Mathematical and other analytical skills are essential in the major.

Cybernetics majors have four options for in-depth studies: life sciences, behavioral sciences, engineering and applied mathematical sciences, or an integration of courses from these areas that form a coherent cybernetics curriculum. 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 medicine, public health, management, dentistry, and engineering.

## Undergraduate Study

### Cybernetics B.S.

#### Precybernetics Major

Students may apply for the precybernetics major via petition if they are sophomores and have taken at least three of the premajor mathematics courses with a 2.7 grade-point average or better and three other premajor courses. Together, all preparation for the major courses, including mathematics, must be completed with at least a 3.0 GPA and a minimum grade of C in all courses.

#### Transfer Students

To be admitted as Cybernetics majors, transfer students 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, 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 students must meet the same academic requirements as current UCLA students, based on all courses transferred from another institution which satisfy premajor requirements, and must have completed one 12-unit term of residence in regular session at UCLA.

#### Preparation for the Major

*Required:* A minimum of 82 or 83 units (depending on the physics sequence selected), including Chemistry and Biochemistry 20A, 20B, 20L, 30, 30L; Life Sciences 1, 2, 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 115A; Physics 1A, 1B, and 1C (or Electrical Engineering 1), or 1AH, 1BH, and 1CH; Program in Computing 10A; Psychology 10.

#### 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 all preparation for the major courses).

The major consists of a methodology core (five and one-half courses), a specialization area (seven courses), and a cybernetics breadth requirement (three courses). Each course in the major must be passed with a grade of C or better.

#### Methodology Core

*Required:* Four subject areas as follows:

1. One overview course: Computer Science M196A
2. 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
3. Two courses in signals and control systems (one from each group): (a) Electrical Engineering 102 and (b) Electrical Engineering 141 or Mechanical and Aerospace Engineering 171A
4. One course in modeling and computer simulation: Computer Science M196B

#### Applications/Specialization Areas

*Required:* A minimum of seven courses in either life sciences, behavioral sciences, engineering and applied mathematics, or an integration of courses from these areas. A continually updated and approved list of courses in each specialization area is available in the program office and the College Counseling Service.

With few exceptions, courses in the life sciences area are in biology, microbiology, chemistry, and biochemistry, as well as in departments of the School of Medicine. Courses in the behavioral sciences area are in physiological or cognitive psychology. And courses in the engineering and applied mathematics area are in engineering, computer science, and mathematics.

Students may select the **bioinformatics concentration** as an option in the existing applications/specialization areas. Program in Computing 10B, 10C, and 60 are required, in addition to six courses selected from the current approved list. The three-course breadth requirement must also be satisfied by taking courses from the approved list.

#### Cybernetics Breadth Requirement

*Required:* One course from each of the applications/specialization areas selected from the current approved list.

## 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, in which honors-designated sections of selected courses are required. Students pursuing highest honors must, in addition, complete a senior thesis 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 required honors courses) are awarded a degree with honors. At the discretion of the faculty sponsor and the interdepartmental committee, students demonstrating excep-

tional ability on the senior research thesis are awarded highest honors.

## Computing Specialization

Students may select this area as an option in the existing applications/specialization areas. Program in Computing 10B, 10C, 30, and 60 are required, in addition to six courses selected from the current approved list. Students graduate with a bachelor's degree in cybernetics and a specialization in Computing.

## Cybernetics

### Upper Division Courses

**195H. Honors Thesis. (4)** Limited to Cybernetics honors majors. Honors thesis preparation and submission, under direction of a faculty sponsor on Cybernetics Interdepartmental Committee. P/NP grading.

**M196A. Introduction to Cybernetics, Biomodeling, and Biomedical Computing. (2)** (Same as Biomedical Engineering M196A and Computer Science M196A.) Lecture, two hours. Requisites: Mathematics 31A, 31B, Program in Computing 10A. Strongly recommended for students with potential interest in biomedical engineering/biocomputing fields or in Cybernetics as a major. Introduction and survey of topics in cybernetics, biomodeling, biocomputing, and related bioengineering disciplines. Lectures presented by faculty currently performing research in one of the areas; some sessions include laboratory tours. P/NP grading.

**M196B. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5)** (Same as Biomedical Engineering M196B, Computer Science M196B, and Medicine M196B.) Lecture, four hours; discussion, one hour; laboratory, two hours. Requisite: Electrical Engineering 102 or Mathematics 115A. Introduction to dynamic system modeling, compartmental modeling, and computer simulation methods for studying biomedical systems. Basics of numerical simulation algorithms, translating biomodeling goals and data into mathematic models and implementing them for simulation and analysis. Modeling software exploited for class assignments in PC laboratory. Letter grading.

**M196L. Biomedical Systems/Biocybernetics Research Laboratory. (2 to 4)** (Same as Biomedical Engineering CM196L and Computer Science CM196L.) Lecture, two hours; laboratory, two hours. Requisite: Computer Science M196B. Special laboratory techniques and experience in biocybernetics research. Laboratory instruments, their use, design, and/or modification for research in life sciences. Special research hardware, firmware, software. Use of simulation in experimental laboratory. Laboratory automation and safety. Comprehensive experiment design. Radioactive isotopes and kinetic studies. Experimental animals, controls. Letter grading.

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## DANCE

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## DENTISTRY

*School of Dentistry*

UCLA  
A3-042 Dentistry  
Box 951668  
Los Angeles, CA 90095-1668

(310) 825-6401  
<http://www.dent.ucla.edu/>

No-Hee Park, D.D.S., M.S.D., Ph.D., *Dean*

## Scope and Objectives

The UCLA School of Dentistry offers one lower division and two upper division courses for pre-dental students, plus several graduate courses. 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.

## Dentistry

### Lower Division Course

**88. Lower Division Seminar: Special Topics in Dentistry. (4)** Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in dentistry approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

### Upper Division Courses

**199. Individual Special Studies. (2 to 8)** Studies in dentistry and related subject areas appropriate for the training of particular students, with required reading assignments or laboratory work leading to a final oral or written examination. P/NP or letter grading.

**199H. Individual Special Studies (Honors). (2 to 8)** Studies in dentistry and related subject areas appropriate for the 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). 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 the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the relevant public agencies. Letter grading.

**M422. Health Policy Issues for Dental Professionals. (2)** (Same as Health Services M448.) Lecture, two hours. Requisites: Biostatistics 100A, Epidemiology 100, Health Services 100. Current public health policy issues in dental health, including cost, financing, role of government, and quality assurance. S/U grading.

**M433A. Case Studies in Dental Practice. (2)** (Same as Health Services M448D.) Lecture, two hours. Provides students with practice methodology for evaluation of dental care settings. Didactic and field experience, providing foundation for evaluation of programs. S/U grading.

**441C. Introduction to Health Care. (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 health care services in America, with comparisons to dental care provisions in other countries. S/U grading.

## DESIGN | MEDIA ARTS

*School of the Arts and Architecture*

UCLA  
1200 Dickson Art Center  
Box 951456  
Los Angeles, CA 90095-1456  
(310) 825-9007  
<http://www.design.ucla.edu>

Victoria Vesna, Ph.D., *Chair*

### Professors

Rebecca Allen, M.S.  
N. Katherine Hayles, Ph.D.  
Lionel March, Sc.D.  
Vasa Mihich  
William Seaman, Ph.D.  
Victoria Vesna, Ph.D.

### Professors Emeriti

James W. Bassler, M.A.  
William C. Brown, M.A.  
Jack B. Carter, M.A.  
Thomas Jennings, M.A.  
J. Bernard Kester, M.A.  
Alice E. McCloskey, M.A.  
John A. Neuhart  
Nathan Shapira, Dottore in Architettura  
Madeleine Sunkees, B.Ed

### Associate Professor

Mitsuru Kataoka, M.A.

### Adjunct Assistant Professors

Cameron McNall, M.Arch.  
Jennifer Steinkamp, M.F.A.  
Gail Swanlund, M.F.A.

### Scope and Objectives

The Department of Design | Media Arts offers the Bachelor of Arts and Master of Fine Arts degrees, which focus on visual communication design with emphasis on digital media. 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, visual technologies, and the manipulation of photography and video through image-capture technologies. 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.) degree fosters mature, professional-quality work utilizing the most current technologies in the

field of media design. The exploration of visual communication in a digital format leads to new concepts and understanding that address the role of design in the rapidly evolving area of digital media. The program focuses on developing an individual thesis project that incorporates in-depth research and theoretical exploration of a topic, culminating in a final exhibition of work. Students have the opportunity to participate in ongoing research projects that may form the basis of their thesis work. Sample topics include design of the interface and design of virtual environments and information spaces that integrate visual elements with sound, movement, time, and space.

Facilities and equipment in the department enable students to create visual designs in two, three, and even four dimensions. The Center for Digital Arts expands opportunities for students to develop interactive media applications in a networked environment, as well as advanced computer graphics involving virtual reality and three-dimensional form. The center's equipment combines high-end PC and Macintosh computers with facilities for sound and nonlinear video editing.

The Department of Design | 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 | Media Arts B.A.

##### Preparation for the Major

*Required:* Design | Media Arts 10, 21, 22, 23, 24, 25, 26, and one course from Art 31A or 31B or Art History 50 through 57.

##### The Major

*Required:* Thirteen upper division courses, including a minimum of three courses from comparative and theoretical studies (Design | Media Arts 101 through C106) and seven courses from area studies (courses 153 through 160). Three additional upper division courses must be selected from the courses listed above and/or from major electives (courses C121 through C143 and 182 through 199). In consultation with and with approval of the faculty adviser, other nonmajor courses may be applied toward major credit.

It is recommended that students have each term's program approved by the departmental adviser.

Note: Consult the *Schedule of Classes* for courses restricted to majors only.

### Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*,

available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Design | Media Arts offers the Master of Arts (M.A.) and Master of Fine Arts (M.F.A.) degrees in Design | Media Arts.

## Admission

### M.A. in Design | Media Arts

The department is not currently accepting applications for admission to the M.A. program.

### M.F.A. in Design | Media Arts

Applicants for admission to the M.F.A. program are expected to hold a bachelor's degree from an accredited institution. The bachelor's degree need not be in design. A minimum grade-point average of 3.0 overall in undergraduate upper division work is required. Applicants are expected to have working knowledge of graphics software. Additional experience with video, interactive media, and/or three-dimensional modeling and animation is preferred. A portfolio is required in the form of slides (maximum 20) and/or videotape that is no more than five minutes in length. A statement of purpose is also considered. A minimum score of 620 (paper and pencil test) or 260 (computer-based test) on the Test of English as a Foreign Language (TOEFL) or an overall band score of 7.0 on the International English Language Testing System (IELTS) examination is required for applicants whose native language is not English. Formal faculty review of graduate applicant portfolios takes place toward the end of Winter Quarter. Students are admitted for Fall Quarter only.

## Master's Degrees

### M.A. in Design | Media Arts

The M.A. degree is offered through the comprehensive examination plan. Although a revised curriculum is approved for this degree, the courses that comprise this curriculum have not been established.

### M.F.A. in Design | Media Arts

Areas of study include media design: interface design, interactive media, time-based work, virtual environments, and information spaces.

The M.F.A. degree is offered through the comprehensive examination plan. The comprehensive examination consists of an oral examination and a concentrated body of work which is presented as the master's statement. Also required is an accompanying record of the project, consisting of documentation in the form of slides of physical work, research material, and other visual material; this may include a written statement as determined by the graduate guidance committee.

A minimum of 72 units of upper division and graduate design | media arts coursework is required, including a minimum of 24 units in the 200 series and 32 units in the 400 series. Sixteen units of electives may be applied toward the requirements for the degree.

## Design | Media Arts

### Lower Division Courses

**10. Nature of Design. (4)** Lecture, three hours. Open to nonmajors. Understanding the design process, with emphasis on development of a visual language; study of historic, scientific, technological, economic, and cultural factors influencing design in our physical environment. 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 the 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 a 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. Visual Technologies. (4)** Lecture/studio, four hours; laboratory, two hours. Introduction and integration of traditional design tools, the camera, and digital technologies for application to visual thinking and fundamentals of design. P/NP or letter grading.

**25. Letterforms and Typography. (4)** Lecture/studio, four hours; laboratory, two hours. Prerequisite: course 24. Introduction to typography as basic element of information design and as it applies to various forms of media; historical basis for development of letterform design and its architecture. P/NP or letter grading.

**26. Image Capture. (4)** Lecture/studio, four hours; laboratory, two hours. Prerequisite: course 24. Introduction to image capture technologies through understanding of photography and video. Studio and field exercises include equipment operation, lighting techniques, and digital image manipulation. P/NP or letter grading.

**35B. Introduction to Tools and Processes. (4)** Lecture, two hours; studio, four hours. Introductory design shop course to develop necessary skills with traditional tools and power equipment, including fundamentals of joining, fastening, and finishing both natural and industrial materials, and their appropriate application in fabrication of design prototypes. Letter grading.

### Upper Division Courses

**101. Introduction to Study of Design. (4)** Lecture, three hours. Preparation: completion of preparation for the major courses. Historical introduction to principles of design, theories about design process, and culture of artifacts from classical times to the present day. P/NP or letter grading.

**102. Introduction to Design and Computation. (4)** Lecture, three hours. Preparation: completion of preparation for the major courses. Introduction to use of computational methods in representation, creation, and study of designs. Discussion of spatial algorithms, recursive procedures, and formal grammars and languages. Presentation of elementary applications in design. P/NP or letter grading.

**103. Introduction to Visual Communication. (4)** Lecture, three hours. Preparation: completion of preparation for the major courses. Designed for juniors/seniors. Introduction to methodology of design in context of visual communication, with focus on integrative themes and representative case studies that encourage independent student investigation. Letter grading.

**104. Design and Society: Society and Design. (4)** Lecture, three hours. Preparation: completion of preparation for the major courses. Open to nonmajors with consent of instructor. Historical and thematic examination of how design affects society from classical antiquity to the 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. (4)** (Not the same as Design 106 prior to Fall Quarter 1998.) Lecture, three hours. Preparation: completion of preparation for the 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.

**C121. Fundamentals of Architectonics: Proportion. (4)** Lecture, three hours; outside study, nine hours. Preparation: completion of preparation for the major courses. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. Concurrently scheduled with course CM221. P/NP or letter grading.

**C122. Fundamentals of Architectonics: Symmetry. (4)** Lecture, three hours; outside study, nine hours. Preparation: completion of preparation for the major courses. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. Concurrently scheduled with course CM222. P/NP or letter grading.

**C123. Fundamentals of Architectonics: Compartment and Order. (4)** Lecture, three hours; outside study, nine hours. Preparation: completion of preparation for the major courses. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. Concurrently scheduled with course CM223. P/NP or letter grading.

**C141. Programming Computer Applications in Architecture and Urban Design. (4)** 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. Concurrently scheduled with course CM241. P/NP or letter grading.

**C142. Introduction to Geometric Modeling. (4)** Lecture, three hours; outside study, nine hours. Prerequisite: course C141 or Computer Science 141. 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. Concurrently scheduled with course CM242. P/NP or letter grading.

**C143. User Interaction Techniques in Design. (4)** Lecture, three hours; outside study, nine hours. Prerequisite: course C141 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. Concurrently scheduled with course CM243. P/NP or letter grading.

**153. Design for Video. (4)** Studio, six hours. Preparation: completion of preparation for the 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.

**154. Design for Print Media. (4)** Studio, six hours. Preparation: completion of preparation for the major courses. Prerequisite: course 103 or C106. Introduction to procedures to create, plan, and produce visual communication design. Emphasis on acquiring and working with visual vocabulary to gain mastery of conceptual and creative procedures by learning technical skills to translate ideas and concepts into visual design and graphic imagery. P/NP or letter grading.

**155. Design for Print and Digital Media. (4)** Studio, six hours. Preparation: completion of preparation for the major courses. Prerequisites: courses 103 or C106, 154. 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: Design of Virtual Form. (4)** Studio, six hours. Preparation: completion of preparation for the major courses. Requisite: course 103 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: Time and Motion in Virtual Space. (4)** Studio, six hours. Preparation: completion of preparation for the major courses. Requisites: courses 103 or C106, 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. P/NP or letter grading.

**157A. Design for Interactive Media. (4)** Studio, six hours. Preparation: completion of preparation for the major courses. Requisites: courses 103 or C106, 154. 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. Advanced Interactive Media. (4)** Studio, six hours. Preparation: completion of preparation for the major courses. Requisites: courses 103 or C106, 154, 157A. Extension of study of interactive media design. Focus on development of advanced conceptual skills in interface design and nonlinear narrative utilizing programming techniques such as lists and objects. Builds on skills and concepts acquired in course 157A. P/NP or letter grading.

**158. Design for Environmental Communication. (4)** Studio, six hours. Preparation: completion of preparation for the major courses. Requisites: courses 103 or C106, 154. Introduction to environmental communication design through experience in the 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. (4)** Lecture, two hours; discussion, two hours; laboratory, two hours. Preparation: completion of preparation for the major courses. Requisites: courses 103, C106, three courses from 153 through 158. Limited to seniors. Individual studies organized and conceptualized by senior students. Proposal for research and development of design and production of a body of work. May be repeated once for credit. Letter grading.

**160. Special Topics in Area Studies. (2 to 8)** Lecture, to be arranged. Preparation: completion of preparation for the major courses. Requisite: course 103 or C106. Selected topics in design and media arts explored through variety of approaches which may include projects, readings, discussion, research papers, and oral presentations. Topics to be announced in advance. May be repeated for a maximum of 8 units. Letter grading.

**161A. Introduction to Creative Use of Internet. (4)** Lecture, three hours; studio, three hours. Preparation: completion of preparation for the major courses. Emphasis on gaining deeper understanding of technical concepts in networking while learning history of Internet and becoming familiar with state-of-the-art tools of the moment. Storyboard and project development integrated into all aspects of class. Letter grading.

**161B. Dynamic Web. (4)** Lecture, three hours; studio, three hours; outside study, six 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. Letter grading.

**161C. Designing Networked Public Spaces. (4)** Lecture, three hours; studio, three hours; outside study, six hours. Requisites: courses 161A, 161B. Advanced-level course exploring creative production through online environments and telepresence. Focus on design of multi-user collaborative spaces. Builds on skills and concepts acquired in course 161B. Letter grading.

**182. Design Processes: World Cultures. (4)** Studio, six hours. Introduction to early development of tools, cloth, shelters, symbols, and embellishments in world cultures. P/NP or letter grading.

**183. Material Processes: Fiber Structure. (4)** Studio, six hours. Use of basic hand methods of construction to develop both two- and three-dimensional forms, utilizing pliable materials but not to exclude other media. P/NP or letter grading.

**184. Material Processes: Surface Pattern. (4)** Studio, six hours. Use of hand processes and a variety of materials to develop simple to complex surface pattern systems as a means for creative expression. P/NP or letter grading.

**189. Topics in Design. (2 to 8)** Lecture, to be arranged. Examination by faculty members of specific problems relevant to design theory and performance. Topics announced in advance. May be repeated for a maximum of 16 units. Letter grading.

**193. Proseminar: Design. (4)** Proseminar, three 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.

**197. Honors Course. (4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average overall, 3.5 grade-point average in major. Limited to juniors/seniors. Individual studies for majors. May be repeated once for credit. P/NP or letter grading.

**199. Special Studies in Design. (2 to 8)** Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to seniors. Individual studies for majors. May be taken for a maximum of 8 units. P/NP or letter grading.

## Graduate Courses

**C206. Media Studies. (4)** Lecture, three hours. Designed for graduate design | 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 Computation 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 Computation 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.

**CM221. Fundamentals of Architectonics: Proportion. (4)** (Same as Architecture and Urban Design M225A.) Lecture, three hours; outside study, nine hours. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. May be repeated for credit with consent of adviser. Concurrently scheduled with course C121. S/U or letter grading.

**CM222. Fundamentals of Architectonics: Symmetry. (4)** (Same as Architecture and Urban Design M225B.) Lecture, three hours; outside study, nine hours. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. May be repeated for credit with consent of adviser. Concurrently scheduled with course C122. S/U or letter grading.

**CM223. Fundamentals of Architectonics: Comparison and Order. (4)** (Same as Architecture and Urban Design M225C.) Lecture, three hours; outside study, nine hours. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. May be repeated for credit with consent of adviser. Concurrently scheduled with course C123. S/U or letter grading.

**229. Advanced Seminar: Architectonics. (4)** Seminar, three hours. Requisites: courses CM221, CM222, CM223. Exploration in depth of an active research question in architectonics. Topics may focus on some aspect of proportion, symmetry, comparison, and order from historical and/or formal point of view. May be repeated for credit with consent of adviser. S/U or letter grading.

**CM241. Programming Computer Applications in Architecture and Urban Design. (4)** (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. Concurrently scheduled with course C141. S/U or letter grading.

**CM242. Introduction to Geometric Modeling. (4)** (Same as Architecture and Urban Design M227B.) Lecture, three hours; outside study, nine hours. Requisite: course CM241. 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. Concurrently scheduled with course C142. S/U or letter grading.

**CM243. User Interaction Techniques in Design. (4)** (Same as Architecture and Urban Design M227C.) Lecture, three hours; outside study, nine hours. Requisite: course CM241 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. Concurrently scheduled with course C143. S/U or letter grading.

**249. Advanced Seminar: Computer Applications. (4)** Seminar, three hours. Requisite: course C141 or Computer Science 141. 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.

**254. Dynamic Media. (4)** Lecture/studio, six hours. Designed for graduate design | 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 C206, 254. Designed for graduate design | 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 | media arts majors. Introduction to state-of-the-art software programs and techniques necessary for design of interactive and multimedia applications. May be repeated for credit with consent of adviser. Letter grading.

**269. Graduate Seminar. (4)** Seminar, four hours. Designed for graduate design | media arts majors. Survey of critical theories in media art and design. Critical examination of student work by peers, faculty, and expert guests. Must be taken twice for M.F.A. degree. May be repeated for credit with consent of adviser. 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 a maximum of 8 units. Letter grading.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**401. Design Studio I. (2 to 8)** Studio, to be arranged. Limited to first-year graduate design | 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 Studio II. (2 to 8)** Studio, to be arranged. Requisites: courses C206, 254, 256, 401 (4 units). Continuation of advanced design research based on experimentation integrated into a disciplined approach to design process. Focus on development of comprehensive body of work which 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.

## DIVERSIFIED LIBERAL ARTS

*College of Letters and Science  
Certificate Program*

UCLA  
A316 Murphy Hall  
Box 951430  
Los Angeles, CA 90095-1430  
(310) 206-6661, 825-9315  
<http://www.college.ucla.edu/up/dlap>

### Faculty Advisory Committee

Bruce Barbee, Ph.D.  
Bruce Beiderwell, Ph.D.  
Diane Durkin, Ph.D.  
Megan Franke, Ph.D.  
Bernard Frischer, Ph.D.  
Elma Gonzalez, Ph.D.  
Shelley Kriegler, Ph.D.  
Susan Mach, Ph.D.  
James W. Trent Ph.D., *Chair*  
Jerome Rabow, Ph.D.

## Scope and Objectives

The Diversified Liberal Arts Program (DLAP) is not a major, but a special certificate program through which students may waive the Multiple Subject Assessment for Teachers (MSAT) in California. The MSAT examination must be passed (or the DLAP completed) before students in elementary school teaching credential programs may begin their student teaching. To earn an elementary school teaching credential, students must complete an accredited program offered through a graduate school of education.

## Undergraduate Study

### Diversified Liberal Arts Certificate Program

To earn the certificate in Diversified Liberal Arts, students must complete a major in the College of Letters and Science. (For eligibility of students in other schools, consult a DLAP counselor.) They must also complete DLAP re-

quirements in four main areas: (1) language and literature, (2) mathematics and science, (3) history and social science, (4) arts and culture. Many program requirements can be satisfied by courses taken to fulfill general education requirements.

Students must petition for admission to the program and are advised to do so as soon as possible. Transfer students may petition to have suitable courses completed at other institutions applied toward the course requirements of this program. The College certifies completion of the program.

Students who do not complete the program prior to graduation must petition out of the program to be eligible to graduate.

For further information about the program and a complete list of courses that apply, contact a DLAP counselor in the College of Letters and Science, A316 Murphy Hall (310-206-6681; e-mail: [dlap@college.ucla.edu](mailto:dlap@college.ucla.edu)). For information regarding the Teacher Credential Program in the Graduate School of Education and Information Studies, see a counselor in 1009 Moore Hall (310-825-8328).

## EARTH AND SPACE SCIENCES

*College of Letters and Science*

UCLA  
3806 Geology  
Box 951567  
Los Angeles, CA 90095-1567  
(310) 825-3880  
(888) ESS-UCLA  
<http://www.ess.ucla.edu/>

Gerald Schubert, Ph.D., *Chair*

### Professors

Orson L. Anderson, 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.  
Vladimir Keilis-Borok, Ph.D., *in Residence*  
Margaret G. Kivelson, Ph.D.  
Charles R. Marshall, Ph.D.  
Kevin D. McKeegan, Ph.D.  
Robert L. McPherron, Ph.D.  
William I. Newman, Ph.D.  
Gilles F. Peltzer, Ph.D.  
Bruce N. Runnegar, Ph.D.  
Christopher T. Russell, Ph.D.  
J. William Schopf, Ph.D.  
Gerald Schubert, Ph.D.  
Didier Sornette, Ph.D.  
John E. Vidale, Ph.D.  
Raymond J. Walker, Ph.D., *in Residence*  
John T. Wasson, Ph.D.  
An Yin, Ph.D.  
Edward D. Young, Ph.D., *Acting*

### Professors Emeriti

Donald Carlisle, Ph.D.  
John M. Christie, Ph.D.  
Paul J. Coleman, Jr., Ph.D.

Wayne A. Dollase, Ph.D.  
Clarence A. Hall, Jr., Ph.D.  
Isaac R. Kaplan, Ph.D.  
Helen Tappan Loeblich, Ph.D.  
Arthur Montana, Ph.D.  
Clemens A. Nelson, Ph.D.  
Gerhard Oertel, Dr.rer.nat.  
Walter E. Reed, Ph.D.  
John L. Rosenfeld, Ph.D.  
Ronald L. Shreve, Ph.D.

### Associate Professors

Craig E. Manning, Ph.D.  
Mark B. Moldwin, Ph.D.  
David A. Paige, Ph.D.  
Mary R. Reid, Ph.D.  
Paul J. Tackley, Ph.D.

### Assistant Professors

Gary J. Axen, Ph.D.  
Laurence Smith, Ph.D.

### Adjunct Professor

Paul M. Merifield, Ph.D.

### Adjunct Associate Professors

Heidi Houston, Ph.D.  
Frank Kyte, 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 which 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 Sciences 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 environmental sciences, law, government, business, journalism, public health, medicine, or dentistry. 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

### Geology B.S.

#### Preparation for the Major

*Required:* Earth and Space Sciences 1 or 1H, 51A, 51B, 61; Chemistry and Biochemistry 20A, 20B, 20L; Life Sciences 1; Mathematics 31A, 31B, 32A; Physics 1A, 1B, 1C, 4AL, 4BL; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20 or Program in Computing 10A or knowledge of FORTRAN or C++ demonstrated by examination. All courses must be passed with a minimum grade of C–.

#### Transfer Students

To be admitted as Geology majors, transfer students with 90 or more quarter units (60 semester units) must complete the following introductory courses prior to admission to UCLA: one Earth sciences course, one biology course with laboratory, two general chemistry courses with laboratory for majors, one year of calculus, and one year of calculus-based physics with laboratory. One computer programming course is recommended.

#### The Major

*Required:* Earth and Space Sciences 103A, 103B, 103C, 111, 112, 116, 121, 133, 135, and three additional courses from C106, C107, C109, 119, 125, C126, 129, 134, 136C, 137, 139, 141, 150, 152.

Students with an interest in nonrenewable natural resources are advised to take courses 136C, 137, 139, 141, and/or 150. Those interested in geochemistry are advised to take Earth and Space Sciences 103C, C107, C109, 119, 121, C126, and/or Chemistry and Biochemistry 110A, 110B, 114, 132A, 132B, 153A, 184.

### Geology/Engineering Geology B.S.

#### Preparation for the Major

*Required:* Earth and Space Sciences 1 or 1H, 51A, 51B, 61; Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 33A; Physics 1A, 1B, 1C, 4AL, 4BL; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20 or Program in Computing 10A or knowledge of FORTRAN or C++ demonstrated by examination. *Recommended:* Mathematics 32B. All courses must be passed with a minimum grade of C–.

#### Transfer Students

To be admitted as Geology/Engineering Geology majors, transfer students with 90 or more quarter units (60 semester units) must complete the following introductory courses prior to admission to UCLA: one Earth sciences course, one biology course with laboratory, two general chemistry courses with laboratory for majors, one year of calculus, and one year of calculus-based physics with laboratory. One

computer programming course is recommended.

#### The Major

*Required:* Earth and Space Sciences 103A, 103B, 111, 112, 121, 135, 139; Civil and Environmental Engineering 108, 120, 121, 128L, 150; one course from Earth and Space Sciences C126, 129, 134, 136C, 137, 141, 150, Civil and Environmental Engineering 151, 155, Geography 100.

### Geology/Paleobiology B.S.

#### Preparation for the Major

*Required:* Earth and Space Sciences 1 or 1H, 16 or 17, 51A, 51B, 61; Chemistry and Biochemistry 20A, 20B, 20L, 30, 30L; Life Sciences 2, 3, 4; Mathematics 31A, 31B, 32A; Physics 1A, 1B, and 4AL, or 6A and 6B. All courses 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 complete the following introductory courses prior to admission to UCLA: one Earth sciences course, one biology course with laboratory, two general chemistry courses with laboratory for majors, one year of calculus, and one year of calculus-based physics with laboratory. One computer programming course is recommended.

#### The Major

*Required:* Earth and Space Sciences 103B, 111, 112, 116, CM118, 133; seven courses from Biostatistics 110A, 110B, Chemistry and Biochemistry 130A, 130AL, 130B, 130BL, 153A, 153L, Earth and Space Sciences C109, 119, 121, 141, Organismic Biology, Ecology, and Evolution 101A, 101B, 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 1H, 51A, 51B, 61; Chemistry and Biochemistry 20A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20 or Program in Computing 10A or knowledge of FORTRAN or C++ demonstrated by examination. All courses must be passed with a minimum grade of C–.

#### Transfer Students

To be admitted as Geophysics/Applied Geophysics majors, transfer students with 90 or more quarter units (60 semester units) must complete the following introductory courses prior to admission to UCLA: one Earth sciences course, one general chemistry course with laboratory for majors, two years of calculus, and one and one half years of calculus-based physics. One computer programming course is recommended.

#### 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, 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 1H, 9; Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, and 4BL (or 2AH, 2BH, 4AL, and 4BL), 17, 18L; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20 or Program in Computing 10A or knowledge of FORTRAN or C++ demonstrated by examination. All courses must be passed with a minimum grade of C–.

#### Transfer Students

To be admitted as Geophysics/Geophysics and Space Physics majors, transfer students with 90 or more quarter units (60 semester units) must complete the following introductory courses prior to admission to UCLA: one Earth sciences course, one general chemistry course with laboratory for majors, two years of calculus, and one and one half years of calculus-based physics. One computer programming course is recommended.

#### 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 Geology, 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.

### Earth Sciences B.A.

#### Preparation for the Major

*Required:* Earth and Space Sciences 1 or 1H, 9, 15, 51A, 51B, 61; Chemistry and Biochemistry 20A, 20B, 20L; Life Sciences 1; Mathematics 3A, 3B, and 3C, or 31A and 31B; Physics 1A, 1B, 1C, and 4AL, or 2AH, 2BH, and 4AL, or 6A, 6B, and 6C. All courses must be passed with a minimum grade of C–.

### Transfer Students

To be admitted as Earth Sciences majors, transfer students with 90 or more quarter units (60 semester units) must complete the following introductory courses prior to admission to UCLA: courses in Earth sciences, Earth history, origin and evolution of the solar system, and oceanography, one biology course with laboratory, two general chemistry courses with laboratory for majors, one year of calculus, and one year of calculus-based physics with laboratory.

### The Major

*Required:* Earth and Space Sciences 103A, 103B, 111, 112, 116; five additional upper division courses from Earth and Space Sciences other than 100 or 120, English Composition 129C, Geography 100 and 100A, 101 and 101A, 104, 105 and 105A, 106 and 106A, 107, 113, or other upper division physical sciences, life sciences, or engineering courses by petition.

### 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 member of the faculty. 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 199H leading to the preparation of a satisfactory honors thesis. Students demonstrating exceptional ability are awarded highest honors.

### 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 (12 units):* Earth and Space Sciences 1, 51A, 51B.

*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.

All minor courses must be taken for a letter grade, with 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 which 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 (12 units):* Earth and Space Sciences 1, 61, and one course from 5, 8, 9, 15, 16, or 17.

*Required Upper Division Courses (22 units):* Earth and Space Sciences 112, 119, and three courses from 116, 129, 133, 137, 139, 150.

All minor courses must be taken for a letter grade, with 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 which 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.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

### Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website,

<http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Earth and Space Sciences offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Geochemistry, Master of Science (M.S.) 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.

### Admission

#### Geochemistry

A bachelor's degree in chemistry, geology, physics, or a related field is required. Applicants must have outstanding records in the basic sciences, physics, chemistry, and mathematics. Recent Graduate Record Examination (GRE) General Test scores are required; the Subject Test is optional and may be in any appropriate field of science. Students planning to work for the Ph.D. degree are not encouraged to obtain the M.S. degree.

#### Geology

A bachelor's degree in geology, biology, chemistry, physics, or other science is required. Applicants must have outstanding records in the relevant basic sciences and mathematics. Recent Graduate Record Examination (GRE) General Test scores are required. Subject Test scores are optional and may be in any appropriate subject. Qualified students may proceed directly toward the Ph.D. degree without first obtaining an M.S. degree.

#### Geophysics and Space Physics

A bachelor's degree in a physical science, engineering, mathematics, or other field is required. Undergraduate work must include junior- or senior-level courses in mathematical methods, dynamics, electromagnetism, and thermodynamics. Recent Graduate Record Examination (GRE) General Test scores are required. Subject Test scores are desirable, preferably in Physics, although Mathematics or Geology are also acceptable. Qualified students may proceed directly toward the Ph.D. degree, although most obtain the M.S. degree in the process.

Undergraduate preparation for admission to the program in geophysics and space physics with specialization in applied geophysics is the equivalent of the B.S. degree in Geophysics – Applied Geophysics, including a common mastery of the subject matter of Earth and Space Sciences 111, 112, 136A, 136B, 136C, 152, Physics 105A, 105B, 110A, 110B, and 114. Exceptions may be allowed, but in particular, deficiency in geophysical fieldwork must be made up.

## Master's Degrees

Areas of study for each major are listed under Doctoral Degrees.

### Geochemistry

The M.S. degree is offered through the comprehensive examination and thesis plans. A minimum of nine courses is required for the degree, at least six of which must be graduate-level courses. Each course of study is worked out individually by the advising committee in consultation with the student. Students are expected to attain, either through previous training or through prescribed coursework, a common mastery of the subject matter in designated coursework in Earth and space sciences and chemistry and biochemistry, as well as more advanced courses in particular fields, and some familiarity with the methods of field geology.

### Geology

The M.S. degree is offered through the comprehensive examination and thesis plans; the latter is normally reserved for terminal master's students. Courses applied toward the 36-unit minimum requirement must be from the 100, 200, or 500 series in the physical or life sciences. At least 24 units must be graduate-level courses, of which at least 4 units must be a geology seminar. The advising committees may require additional courses in light of individual educational objectives and backgrounds. Each course of study is worked out individually by the advising committee in consultation with the student. It may include appropriate courses offered by other departments.

### Geophysics and Space Physics

The M.S. degree is offered through the comprehensive examination and thesis plans. Students in geophysics and space physics with a specialization in applied geophysics must follow the thesis plan. Courses applied toward the 36-unit minimum requirement must include a required three-course sequence in Earth and space sciences and at least 12 additional units of 200-series courses, of which at least half must fall within a single field of concentration (geophysics, geophysical fluid dynamics, planetology, or space physics) which students select with the advice and approval of their faculty adviser, and the remainder must contribute to their general competence in geophysics and space physics.

For the program in geophysics and space physics with specialization in applied geophysics, courses applied toward the 36-unit minimum requirement must include a required two-course sequence in Earth and space sciences, plus at least two courses from another list of designated courses. Eight additional units of graduate-level courses are required.

## Doctoral Degrees

### Geochemistry

The program in geochemistry offers study in biogeochemistry, crystal chemistry, experimen-

tal petrology, isotopic studies of stable and radioactive elements, marine geochemistry, meteorite research, planetology, and lunar geochemistry.

Students are expected to complete at least the minimum number of courses required for the M.S. degree. Each course of study is worked out individually by the advising committee in consultation with the student. Students are expected to attain, either through previous training or through prescribed coursework, a common mastery of the subject matter in designated courses in Earth and space sciences and chemistry and biochemistry, as well as more advanced courses in particular fields, and some familiarity with the methods of field geology.

Written and oral qualifying examinations are required. The written examination may be given in either a question/answer format or in a proposal format, at the discretion of the student.

Following successful completion of the written qualifying examination, students prepare a written prospectus of their proposed dissertation research and take the University Oral Qualifying Examination. The subject matter covered in the examination includes, but is not limited to, the proposed research.

### Geology

The program in geology offers study in geomorphology, glaciology, micropaleontology, mineral deposits, mineralogy, organic geochemistry, paleobiology, petrology, paleontology, sedimentology, stratigraphy, structural geology, tectonophysics, and other fields.

Students are expected to complete at least the minimum number of courses required for the M.S. degree and take a geology seminar each year. Each course of study is worked out individually by the advising committee in consultation with the student. It may include appropriate courses offered by other departments. Required coursework can vary depending on the student's previous academic preparation.

Written and oral qualifying examinations are required. The written examination is given in either a question/answer format or a proposal/proposition format, at the discretion of the student.

Following successful completion of the written examination, students prepare a written prospectus of their proposed dissertation research and take the University Oral Qualifying Examination. The subject matter covered in the examination includes, but is not limited to, the proposed research.

### Geophysics and Space Physics

The program in geophysics and space physics offers study in Earth's interior (seismology, gravity, thermal regime, geomagnetism, tectonics), geophysical fluid dynamics (turbulence, rotating systems, stability, hydromagnetism), planetology (orbital dynamics, planetary interiors, surfaces and atmospheres, solar-system

origin), space physics (magnetosphere, radiation belts, solar wind, magnetic fields, cosmic rays), and applied geophysics. Other comparable areas of study are also possible.

The objective of the program in geophysics and space physics with specialization in applied geophysics is to provide advanced technical training to students who plan to do detailed analysis of geophysical data in industry, mainly in petroleum exploration.

Six courses are required, three in fundamental physics and three in the major geophysics disciplines. Examinations for both areas must be passed prior to undertaking the departmental written qualifying examination.

Written and oral qualifying examinations are required. The written examination is given in either a question/answer format or a proposal/proposition format, at the discretion of the student.

Following successful completion of the examination, students prepare a written prospectus of their proposed dissertation research and take the University Oral Qualifying Examination. While the examination focuses on the suitability of the chosen problem for the Ph.D. dissertation and students' capacity to pursue research on the problem, it is not limited to these topics.

## 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 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.

**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.

**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 the 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.

**8. Earthquakes. (4)** Lecture, three hours; discussion, one hour. Causes and effects of earthquakes, with special emphasis on problems of living with earthquakes in Southern California. Topics include relationship between earthquakes and local and regional geology, types of earthquakes, past and future earthquakes in California, earthquake engineering, disaster preparedness, and prospects for predicting or controlling earthquakes.

**9. Origin and Evolution of Solar System. (4)** Lecture, three hours; discussion, one hour. Properties of sun, planets, asteroids, and comets. Astronomical observations relevant to understanding the solar system and its origin. Dynamical problems, including examination of fallacious hypotheses. Meteoritic evidence regarding earliest history of the solar system. Chemical models of solar nebula. Space exploration and its planning.

**15. Introduction to Oceanography. (4)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for Organismic Biology 25. General introduction to geological, physical, chemical, and biological processes related to characteristics and evolution of 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 the 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.

**20. Natural History of Southern California. (4)** Lecture, one hour; laboratory, three hours; four field week-ends. 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.

**51A. Mineralogy-Lithology. (4)** Lecture, three hours; laboratory, six hours. Enforced prerequisite: course 1 or 1H. Recommended: completion of chemistry requirement. Mineralogic crystal chemistry; relation of physical properties to structure. Structural classification and petrogenesis of major minerals and rocks. Laboratory study of crystallography and identification of minerals and igneous, sedimentary, and metamorphic rocks in hand sample.

**51B. Optical Mineralogy-Petrography. (4)** Lecture, three hours; laboratory, six hours. Preparation: one introductory high school or college physics course. Enforced prerequisite: course 51A. Principles of optical crystallography. Utilization of optical properties to identify nonopaque minerals in immersion media and in thin section. Study of common igneous, sedimentary, and metamorphic rocks in thin section.

**61. Geologic Maps. (4)** Lecture, two hours; laboratory, three hours; fieldwork, five days. Enforced prerequisites: courses 1 (or 1H), 51A. Planning, creation, and interpretation of geologic maps, including both practical and philosophical problems that arise. Topographic and geologic mapping in the 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.

**102. Reflected Light Microscopy. (2 or 4)** Lecture, 90 minutes; laboratory, three hours. Prerequisite: course 51B. Study of opaque and ore minerals in polished section using reflected light methods. Optical theory, qualitative and quantitative measurements, mineral identification, textures and assemblages of reflective metals, oxides, sulfides, and arsenides. Independent project required if taken for 4 units. P/NP or letter grading.

**103A. Igneous Petrology. (6)** Lecture, two to three hours; laboratory, six hours; field trips. Requisites: courses 51A, 51B, Chemistry 20B, 20L, Mathematics 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 the crust and mantle and its relation to seismology. Overview of petrological and chemical evolution of Earth, moon, and other planets from their origin to the present. P/NP or letter grading.

**103B. Sedimentary Petrology. (6)** Lecture, two to three hours; laboratory, six hours; field trips. Prerequisite: 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. Prerequisite: 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. Prerequisite: course 51B. 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 the elements and their isotopes; distribution and chemistry of the 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. Prerequisite: course 61. Principles of stratigraphy; geologic mapping of a selected area; preparation of a geologic report.

**111G. Field Geology. (2 to 4)** Designed for graduate students. Geologic mapping, principles of stratigraphy, structural geology, and map interpretation.

**112. Structural Geology. (6)** Lecture, three hours; laboratory, six hours. Prerequisite: course 1. Recommended: course 51B. 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.

**116. Paleontology. (4)** Lecture, three hours; laboratory, three hours; field trips. Prerequisite: Biology 5. Review of major groups of fossil organisms and their significance in geology and biology.

**CM118. Advanced Paleontology. (4)** (Same as Organismic Biology CM145.) Lecture, three hours. Prerequisite: course 116 or Organismic 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. Concurrently scheduled with course CM218. P/NP or letter grading.

**119. Continental Drift and Plate Tectonics. (4)** Lecture, three hours. Prerequisite: 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.

**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). Supervision of continuity and assessment of student performance by a faculty member. Content varies from year to year. If laboratory work is required, course 199 must be taken concurrently.

**121. Advanced Field Geology. (8)** (Formerly numbered 121A-121B.) 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 the field and written summary geologic report on the selected area. P/NP or letter grading.

**125. Volcanoes. (4)** Lecture, three hours; laboratory, three hours; field trip(s). Requisites: courses 1, 61. Recommended: courses 51A, 51B, 103A. Origins of magmas and their properties. Physics of volcanism and characteristics of volcanic deposits. Monitoring volcanic hazards and understanding effects of volcanoes on life. Case studies of historical eruptions. P/NP or letter grading.

**C126. Advanced Igneous Petrology. (4)** Lecture, three hours; laboratory, three hours; field trips. Prerequisite: course 103A. Understanding the genesis of igneous rocks based on geochemical, tectonophysical, and other geological evidence and principles. Concurrently scheduled with course C226. P/NP or letter grading.

**129. Hydrogeology. (4)** Lecture, three hours. Prerequisite: course 1 or 1H or 100. Designed for juniors/seniors. Hydrogeologic controls of groundwater occurrence, movement, quality, and management. Hydrologic equation, groundwater/surface water relationships, water wells, pumping tests, pollution, artificial recharge, seawater intrusion, safe yield of groundwater basins, groundwater models.

**C132. Subsurface Fluid Flow and Geological Processes. (4)** Lecture, three hours; laboratory, one hour. Prerequisite: 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. Prerequisite: 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. Prerequisite: Program in Computing 3 or 10A. 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 the Earth and space sciences. Introduction to software used in research and industry.

**135. Introduction to Applied Geophysics. (4)** Lecture, three hours; laboratory, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 2AH and 2BH), 4AL, 4BL, Program in Computing 3 or 10A. 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. Requisites: Mathematics 33A, Physics 1A, 1B, and 1C (or 2AH and 2BH), 4AL, 4BL, Program in Computing 3 or 10A. 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. Requisites: course 136A, Program in Computing 3 or 10A. 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.

**136C. Field Geophysics. (6)** Lecture, three hours; discussion, one hour; laboratory, two hours; fieldwork, 10 hours. Prerequisite: 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).

**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.

**139. Engineering and Environmental Geology. (4)**

Lecture, two and one-half hours. 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 sub-surface disposal of liquids and solid wastes.

**M140. Introduction to Fluid Dynamics. (4)** (Same as Atmospheric Sciences CM120.) Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Equations of fluid motion. Circulation theorems. Irrotational flow. Vortex motion. Rotating frame. Hydrostatic and geostrophic balance. Sound and shock waves. Viscous flow. Letter grading.

**141. Basin Analysis. (4)** Lecture, three hours; laboratory, six hours. Requisites: courses 103B, 111. Interpretation of sedimentary rock records in terms of tectonics and basin evolution. Sedimentary patterns in modern plate settings serve to focus interpretations of deformed rocks in complex structural regions.

**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.

**152. Physics of the Earth. (4)** Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 2AH and 2BH). Application of physics to structure and evolution of the solid Earth. Seismology, convection and heat flow, gravity, geomagnetism, rock magnetism, and relation of these topics to plate tectonics and other problems of current geophysical interest. 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 2AH and 2BH). 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 the sun under quiet and under disturbed conditions. Solar wind. Magnetospheres and ionospheres of Earth and other planets. Geomagnetic phenomena and the aurora.

**155. Planetary Physics. (4)** Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 2AH and 2BH). 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)** Lecture, one to three hours; fieldwork, five to 20 days. Requisite: course 61. Field-based teaching and discussion forum which varies in focus from general geology through structure and tectonics, sedimentology, igneous and metamorphic petrology, volcanology, or other subdisciplines as prescribed. Concurrently scheduled with course C260. P/NP or letter grading.

**195G. Field Geology for Graduate Students. (2 to 4)** Lecture, two hours; four to five field trips. Requisite: course 121B. 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. P/NP or letter grading.

**199. Special Studies in Earth and Space Sciences. (2 to 8)** May be repeated for credit.

**199H. Honors Research in Earth and Space Sciences. (4)** Limited to seniors. Individual research designed to broaden and deepen students' knowledge of some phase of Earth and space sciences.

## Graduate Courses

**200A. Introduction to Geophysics and Space Physics I: The 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 the mantle; core and geomagnetism; lunar and planetary interiors.

**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.

**200C. Introduction to Geophysics and Space Physics III: Plasmas — Aeronomy and the 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 the solar wind with Earth, magnetospheric phenomena.

**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.

**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.

**204. Time-Series Analysis and Spectral Estimation. (4)** Lecture, three hours. Preparation: intermediate courses in calculus (including linear algebra and complex variables) and computer programming (including FORTRAN). Basic methods in time-series analysis, including spectral estimation, prediction, and signal detection, in application to problems in geophysics, atmospheric physics, and space physics. Topics include Fourier transforms (continuous, discrete, FFT), time series (Z-transforms, deconvolution), maximum entropy spectral analysis, autoregressive and moving average methods (AR, MA, ARMA), and multichannel prediction and spectral analysis.

**205. Inverse Theory and Data Interpretation. (4)** Lecture, three hours. Requisites: Mathematics 115A, M150A-150B, 151. 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 a broad range of physical sciences.

**C206. Physical Geochemistry. (4)** Lecture, three hours. Requisite: course 51B. 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 the elements and their isotopes; distribution and chemistry of the 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.

**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, which 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.

**M216. Evolutionary Biology. (4)** (Same as Organismic 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 Organismic 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 the 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.

**CM218. Advanced Paleontology. (4)** (Same as Organismic Biology CM245.) Lecture, three hours. Requisite: course 116 or Organismic 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. Concurrently scheduled with course CM118. S/U or letter grading.

**219. Planetary and Orbital Dynamics. (4)** Planetary rotations, satellite orbits, and tidal dissipation; planetary orbital system; resonance effects and chaos; spin-orbit and orbit-orbit coupling; planetary rings.

**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.

**221. Field Geology. (4)** Lecture, one hour; discussion, one hour; fieldwork, 10 days. Requisite: course 121B or 195G. 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.

**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.

**M224A. Elastodynamics. (4)** (Same as Mechanical and Aerospace Engineering M257A.) Lecture, four hours. Requisites: Mechanical and Aerospace Engineering 256A, 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)** 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.

**225B. Physics and Chemistry of Planetary Interiors II. (4)** 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.

**C226. Advanced Igneous Petrology. (4)** Lecture, three hours; laboratory, three hours; field trips. Requisite: course 103A. Designed for graduate students. Understanding the 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.

**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.

**230. X-Ray Crystallography. (4)** Lecture, three hours; laboratory, three hours. Requisite: course 51B. 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.

**231. Crystal Chemistry and Structure of Minerals. (4)** Lecture, three hours; laboratory, three hours. Requisite: course 51B. 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.

**C232. Subsurface Fluid Flow and Geological Processes. (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 Equations 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.

**234. Petrologic Phase Equilibria. (4)** Lecture, three hours; discussion, three hours. Requisites: course 51B, Chemistry 110B. Principles governing homogeneous and heterogeneous equilibria, with selected applications to mineral stability relations in igneous and metamorphic 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)** 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 piezobaric 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.

**240. Space Plasma Physics. (4)** Lecture, three hours. Requisite: course 203 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; substorm processes; magnetic merging; field-aligned currents and magnetosphere/ionosphere coupling; ring current dynamics; and wave particle instabilities.

**241. Sedimentary Petrology. (4)** Lecture, two hours; laboratory, six hours. Requisites: courses 51B, 103B. Texture, composition, structure, and modes of origin of sedimentary rocks. Content varies from year to year.

**242. Sandstone Petrology. (4)** Lecture, two hours; laboratory, four hours. Requisite or corequisite: course 141. Petrographic study of sandstones, with emphasis on provenance, petrofacies, and paleotectonic reconstructions.

**244. Tectonics of Sedimentary Basins. (4)** Lecture, two hours; discussion, two hours; field trips. Requisites: courses 103B, 119. Recommended: course 141. Plate-tectonic settings of sedimentary basins. Basin analysis, stratigraphy, paleoenvironments, sedimentology, and related subjects in context of plate-tectonic controls on basin evolution.

**245A-245B. Stress and Deformation. (4-4)** Lecture, three hours. Requisites: Mathematics 32A, 32B, Physics 1A or 2AH, 4AL. Recommended: Mathematics 33A. Scalars, vectors, tensors; subscript notation; rotation and inversion of axes, transformation matrix; stress; finite homogeneous strain, rotation; infinitesimal strain, strain rate; Mohr's circle construction and other graphical methods; flow laws. S/U or letter grading.

**246. Stress in the Lithosphere. (4)** Lecture, three hours. Requisite: course 202 or 245A or Civil Engineering 108. Overcoring, 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.

**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.

**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.

**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 cosmochronology.

**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 the mantle; element fractionation among coexisting phases; other current subjects in the 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 lutites; stratigraphy; paleoenvironmental studies.

**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.

**257. Seminar: Paleontology. (4)** Seminar/discussion, three hours. Advanced topics in paleobiology, biostratigraphy, paleoecology, and paleobiogeography, with emphasis on relations to other disciplines.

**259. Seminar: Paleotectonics. (4)** Seminar, two hours; discussion, two hours. Requisite: course 244. Basin evolution and paleogeography, with emphasis on the Phanerozoic of the Western U.S.

**C260. Field Seminar. (2 to 6)** Lecture, one to three hours; fieldwork, five to 20 days. Requisite: course 61. Field-based teaching and discussion forum which varies in focus from general geology through structure and tectonics, sedimentology, igneous and metamorphic petrology, volcanology, or other subdisciplines as prescribed. Concurrently scheduled with course C160. S/U or letter grading.

**261. Topics in Magnetospheric Plasma Physics. (4)** 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.

**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.

**M270A-M270B-M270C. Seminars: Climate Dynamics. (2 to 4 each)** (Same as Atmospheric Sciences M272A-M272B-M272C and Geography M270A-M270B-M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout the 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.

**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.

**M285. Origin and Evolution of Solar System. (4)** (Same as Astronomy M285.) Dynamical problems of solar system; chemical evidences from geochemistry, meteorites, and solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydro-magnetic 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)** 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)** 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 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)** Discussion, three hours. Discussion of recent research in spectral estimation, filtering, and signal detection applied to geophysical problems. S/U grading.

**295A-295B-295C. Current Research in Earth and Space Sciences. (1-1-1)** 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.

**296A-296Z. Research Topics in Earth and Space Sciences. (1 each)** Discussion, one to three hours. Designed for graduate Earth and space sciences students. 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. S/U grading:

**296A.** Rock Deformation, Structural Geology, Tectonics.

**296B.** Volcanology and Geochemistry of Volcanic Rocks.

**296C.** Seismology and Solid Earth Physics.

**296D.** Thermal Evolution of Lithosphere.

**296E.** Sedimentation and Tectonics.

**296F.** Seismology.

**296G.** Planetary and Orbital Dynamics.

**296H.** Space Plasma Physics.

**296I.** Earthquakes.

- 296J.** Metamorphic Petrology.  
**296K.** Quantitative and Molecular Paleobiology.  
**296L.** Magnetic Phenomena.  
**296M.** Planetary Physics.  
**296N.** Martian Surface and Atmosphere.  
**296O.** Tectonics and Stratigraphy.  
**296P.** Chemical Geodynamics.  
**296Q.** Paleobiology.  
**296R.** Planetary and Space Physics.  
**296S.** Precambrian Paleobiology.  
**296T.** Geophysical Fluid Dynamics.  
**296U.** Geomorphology and Geological Physics.  
**296V.** Cosmochemistry.  
**296W.** Structural Geology, Tectonics.  
**296X.** Earthquakes and Earth Structure.  
**297. Advanced Techniques in Geological Research. (2 to 4)** 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. Requisite: course M370A or Chemistry M370A or Physics M370A (or former course 370). 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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)** 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)** May be repeated. S/U or letter grading.  
**597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8)** S/U grading.  
**598. M.S. Research and Thesis Preparation. (2 to 12)** May be repeated. S/U grading.  
**599. Ph.D. Research and Dissertation Preparation. (2 to 12)** S/U grading.

## EAST ASIAN LANGUAGES AND CULTURES

*College of Letters and Science*

UCLA  
290 Royce Hall  
Box 951540  
Los Angeles, CA 90095-1540  
(310) 206-8235

<http://www.humnet.ucla.edu/humnet/ealc/>

Robert E. Buswell, Ph.D., *Chair*

### Professors

Noriko Akatsuka, Ph.D.  
Robert E. Buswell, Ph.D.  
Theodore D. Hutters, Ph.D.  
Shoichi Iwasaki, Ph.D.  
Peter H. Lee, Ph.D.  
Michele F. Marra, Ph.D.  
Herbert E. Plutschow, Ph.D.  
Gregory Schopen, Ph.D.  
Richard E. Strassberg, Ph.D.  
Pauline R. Yu, Ph.D.

### Professors Emeriti

Ben Befu, Ph.D.  
Robert C. Epp, Ph.D.  
Kan Lao, B.A.  
Richard C. Rudolph, Ph.D.  
Hartmut E.F. Scharfe, Ph.D.  
Shirleen S. Wong, Ph.D.

### Associate Professors

William M. Bodiford, Ph.D.  
Hung-hsiang Chou, Ph.D.  
John B. Duncan, Ph.D.  
Shu-mei Shih, Ph.D.  
Sung-Ock Sohn, Ph.D.  
Timothy R. Tangherlini, Ph.D.

### Assistant Professors

Michael K. Bourdaghs, Ph.D.  
Seiji M. Lippit, Ph.D.  
David C. Schaberg, Ph.D.  
Hongyin Tao, Ph.D.

### Lecturers S.O.E.

Y.C. Chu, M.A., *Emeritus*  
Kuo-yi Pao (Unenseßen), M.A., M.S., *Emeritus*

### Lecturers

Supa Angkurawaranon, Ph.D.  
Masako Douglas, Ph.D.  
Eun Hee Lee, Ph.D.  
Gyanam Mahajan, Ph.D.  
Tin Pham, M.A.  
Yihua Wang, M.A.

## Scope and Objectives

The Department of East 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 India 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 opportunity for education abroad in an East 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 East Asian culture. The program aims to give students a solid mastery of these fields preparatory to careers in teaching or in areas such as journalism, business, banking, or government service. 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.humnet.ucla.edu/humnet/ealc/ealcmain.html>.

## Undergraduate Study

The department offers two majors in the study of East Asian cultures — B.A. in Asian Humanities and B.A. in Asian Religions — and three majors in East Asian literatures — B.A. in Chinese, B.A. in Japanese, and B.A. in Korean. All courses in the majors must be taken for a letter grade.

The department also offers two minors — Asian Humanities minor and East Asian Languages minor. All courses 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.humnet.ucla.edu/humnet/ealc/ealcmain.html>.

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* 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 Chinese, Japanese, or Korean may not repeat those 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 course in Chinese, Japanese, and Korean conversation, grammar, and/or composition.

## Asian Humanities B.A.

### Preparation for the Major

*Required:* Chinese 6 or Japanese 6 or Korean 6 or equivalent; one civilization course (e.g., Chinese 50, Japanese 50, 60, Korean 50) or one introduction to religion course (e.g., East Asian Languages and Cultures 60, 60W, 61) within the department.

### Transfer Students

To be admitted as Asian Humanities majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Chinese, Japanese, or Korean and either one Chinese, Japanese, or Korean civilization course or one introduction to Buddhism course.

### The Major

*Required:* Five upper division language courses in Chinese or Japanese or Korean, and six additional upper division electives within the department, including at least one course each concerning China, Japan, and Korea.

## Asian Religions B.A.

### Preparation for the Major

*Required:* Chinese 6 or Japanese 6 or Korean 6 or equivalent; East Asian Languages and Cultures 60 or 60W or 61.

### Transfer Students

To be admitted as Asian Religions majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Chinese, Japanese, or Korean and one introduction to Buddhism course.

### The Major

*Required:* Five upper division language courses in Chinese or Japanese or Korean (of which at least one must be from Chinese 165, Japanese 165, Korean 165), five additional upper division Asian religions courses within the department, including at least one course each concerning religions in China, Japan, and Korea, and one elective within the department.

## Chinese B.A.

### Preparation for the Major

*Required:* Chinese 6 or equivalent, 50.

### Transfer Students

To be admitted as Chinese majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Chinese and one Chinese civilization course.

### The Major

*Required:* Five upper division Chinese language courses (of which at least two must be in the premodern language or texts), three upper division Chinese literature courses, two upper division electives in Chinese, and one upper division elective in East Asian languages and cultures or Japanese or Korean.

## Japanese B.A.

### Preparation for the Major

*Required:* Japanese 6 or equivalent, and 50 or 60.

### Transfer Students

To be admitted as Japanese majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Japanese and one Japanese civilization or images of Japan course.

### The Major

*Required:* Five upper division Japanese language courses (of which at least two must be in the premodern language or texts), three upper division Japanese literature courses, two upper division electives in Japanese, and one upper division elective in Chinese or East Asian languages and cultures or Korean.

## Korean B.A.

### Preparation for the Major

*Required:* Korean 6 or equivalent, 50.

### Transfer Students

To be admitted as Korean majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Korean and one Korean civilization course.

### The Major

*Required:* Five upper division Korean language courses, three upper division Korean literature courses, two upper division electives in Korean, and one upper division elective in Chinese or East Asian languages and cultures or Japanese.

## 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 Winter Quarter of their junior year. For application forms and further information, contact the departmental undergraduate adviser.

### Requirements

Two honors projects, a seminar, and an honors thesis are required. The honors project consists of special research on a topic selected in consultation with the instructor, resulting in a written report to be completed in addition to the normal course requirements. All honors students are required to demonstrate the ability to conduct research by writing an honors thesis. In preparation for this project, students must take an undergraduate seminar (e.g., Chinese 197B, East Asian Languages and Cultures C197, 197B, Japanese 197A, C197B, Korean 197A, 197B, or an equivalent course) during which they write a seminar paper. After completing the seminar, they must also take East Asian Languages and Cultures 199H during which they revise their seminar paper into an honors thesis under the direction of a faculty member. Course 199H (4 units minimum) must be taken in addition to courses applied toward major requirements. 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, (3) complete an honors project in each of two upper division courses within the department, (4) complete an undergraduate seminar within the department, and (5) complete East Asian Languages and Cultures 199H.

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, (3) complete an honors project in each of two upper division courses within the department, (4) complete an undergraduate seminar within the department, and (5) complete East Asian Languages and Cultures 199H with a grade of A.

## 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 file a petition with the departmental undergraduate adviser.

*Required Lower Division Courses (8 units):* Two civilization courses (e.g., Chinese 50, Japanese 50, 60, Korean 50) or two introduction to religion courses (e.g., East Asian Languages and Cultures 60, 60W, 61) within the department.

*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 the students' majors and this minor, and at least 20 units must be taken in residence at UCLA.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## East Asian Languages Minor

The East Asian Languages minor is designed to recognize a serious commitment to the study of East 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 the Chinese, Japanese, or Korean 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 the Chinese, Japanese, or Korean 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 file a petition with the departmental undergraduate adviser.

*Required Lower Division Courses (8 units):* Chinese 6 or Japanese 6 or Korean 6 or equivalent; one civilization course (e.g., Chinese 50, Japanese 50, 60, Korean 50) or one introduction to religion course (e.g., East Asian Languages and Cultures 60, 60W, 61) within the department.

*Required Upper Division Courses (20 units):* Three language courses in Chinese or Japanese or Korean and two electives within the department.

No more than 4 units may be applied toward both the students' majors and this minor, and at least 20 units must be taken in residence at UCLA.

All minor courses must be taken for a letter grade, with an overall grade-point average of

2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of East Asian Languages and Cultures offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in East Asian Languages and Cultures.

### Admission

Applicants to the M.A. program are expected to (1) meet general University requirements for the undergraduate major, (2) present a B.A. degree from a Department of East Asian Languages and Cultures similar to the department at UCLA, and (3) have taken a minimum of three quarter courses or the equivalent in classical Chinese for Chinese majors, classical Japanese for Japanese majors, or a minimum of three years of modern Korean for Korean majors. Applicants with a B.A. in another field or from a department whose requirements are less rigorous are admitted only if they meet the requisite standards within one year. Selection is based on (1) prior scholastic performance (at the junior, senior, and/or graduate levels), (2) recommendations by faculty, (3) scores on the Graduate Record Examination (GRE), (4) statement of purpose focusing on research interests, and (5) an undergraduate term paper or comparable writing sample in English. All materials must be complete before the application is considered. Students transferring from other departments must also fulfill the above requirements.

International applicants are required to take the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) examination. A test in translation from Chinese, Japanese, or Korean into English must be taken, either with the comprehensive examinations or earlier.

An M.A. degree in the field or in a related field is required for admission to the Ph.D. program. Selection among qualified applicants from outside the department is based on (1) prior scholastic performance, (2) three letters of recommendation, (3) scores on the Graduate Record Examination (GRE), (4) statement of purpose focusing on research interests, and (5) a recent research paper in English. Applicants with an M.A. in the department are judged on their M.A. record.

Students applying from foreign institutions are encouraged to complete an M.A. in the department before proceeding to the Ph.D. program.

## Master's Degree

The department recognizes three areas of specialization at the M.A. level: Chinese language and culture, Japanese language and culture, or Korean language and culture. A comparative or interdisciplinary field may be incorporated into an area of specialization.

The M.A. degree is offered through the comprehensive examination and thesis plans; the latter is recommended for those continuing for the Ph.D. The comprehensive examination consists of the submission of three seminar research papers and a translation examination in the student's area of specialization. Nine courses are required for the degree, six of which must be graduate courses.

There is a language requirement for this degree.

## Doctoral Degree

The department emphasizes six major fields at the Ph.D. level: (1) Chinese language and literature with the subdisciplines of poetry, drama, fiction, and modern literature, (2) Japanese language and literature with the subdisciplines of ancient, medieval, early modern, and modern literature, (3) Korean language and literature with the subdisciplines of culture, Buddhism, classical poetry and fiction, and modern literature, (4) Buddhist studies with the subdisciplines of Chinese Buddhism, Japanese Buddhism, and Korean Buddhism, (5) Japanese linguistics, and (6) cultural and comparative studies, which is designed to allow students with a primary focus on China, Japan, or Korea to incorporate comparative, interdisciplinary, and/or historical interests. In addition, a program in ancient Chinese civilization may be arranged by petition.

Students entering the program with an M.A. in a different field, or in the same field but from another institution, must meet the standards of the department's M.A. coursework in addition to fulfilling Ph.D. course requirements. A minimum of five graduate courses beyond the M.A. degree is required for the Ph.D.

In addition, if the student's major field is Chinese, two years of modern Japanese must be taken, as well as a written examination that tests the ability to translate Japanese studies in the student's field of study. If the student's major field is Japanese, two years of modern Chinese, classical Chinese, or modern Korean must be taken, as well as a written examination that tests the ability to translate Chinese or Korean studies in the student's field of study. If the student's major field is Korean, two years of modern Chinese, classical Chinese, or modern Japanese must be taken, as well as a written examination that tests the ability to translate Chinese or Japanese studies in the student's field of study. Those majoring in Buddhist studies are encouraged to take San-

skrit and/or Pali and Parsi. Students in the comparative and cultural studies track must meet the language requirements for their primary area of interest, and must also take a required seminar in cultural and comparative studies.

Written and oral qualifying examinations are required. The written examinations differ by major field. Students are required to take an examination in translation in their area of specialization. Following successful completion of the written examinations, students take the University Oral Qualifying Examination, which covers the dissertation proposal.

There is a language requirement for this degree.

## Chinese

### Lower Division Courses

**1. Elementary Modern Chinese. (4)** 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. (4)** 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. (4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 1 or Chinese placement test. 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. (4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 1A or Chinese placement test. 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. (4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 2 or Chinese placement test. 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.

**3R. Reading and Writing of Elementary Modern Chinese. (4)** Lecture, two hours; discussion, three hours. Recommended preparation: fluent speaking and listening skills in Mandarin Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Training in reading and writing skills at elementary level. P/NP or letter grading.

**4. Intermediate Modern Chinese. (4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 3 or Chinese placement test. 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. (4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 2A or Chinese placement test. 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. (4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 4 or Chinese placement test. 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. (4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 4A or Chinese placement test. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 4A. Completion of course 5A is equivalent to completion of course 6. P/NP or letter grading.

**6. Intermediate Modern Chinese. (4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 5 or Chinese placement test. 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.

**6R. Reading and Writing of Intermediate Modern Chinese. (4)** Lecture, two hours; discussion, three hours. Recommended preparation: fluent speaking skills in Mandarin Chinese. Enforced requisite: course 3R or Chinese placement test. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Modern Chinese for students who understand and speak Mandarin but cannot read and write at intermediate level. Students learn to read texts in traditional and simplified characters and write simple compositions. Readings provide insight into Chinese society. Completion of course 6R is equivalent to completion of course 6. P/NP or letter grading.

**8. Elementary Chinese: Intensive. (12)** 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. Letter grading.

**10. Intermediate Modern Chinese: Intensive. (12)** Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 3 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 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. Letter grading.

**50. Chinese Civilization. (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Survey of development of significant aspects of Chinese culture from prehistoric to modern times. 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 or Chinese placement test. Course 100A or Chinese placement test is enforced requisite to 100B; course 100B or Chinese placement test is enforced requisite to 100C. 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.

**101A-101B. Advanced Readings in Modern Chinese. (4-4)** Lecture, two hours; discussion, two hours. Enforced requisite: course 100C 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. Business Chinese. (4)** Lecture, two hours; discussion, two hours. Enforced requisite: course 100C or Chinese placement test. Advanced course designed to develop speaking, listening, reading, and writing skills in modern Chinese in business-related contexts and to gain awareness of cultural concepts and values in Chinese business practice and behavior. 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 or Chinese placement test is enforced requisite to 110B; course 110B or Chinese placement test 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. Enforced requisite: course 6 or Chinese placement test. 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)** Readings/discussion, three hours. 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.

**140A-140B-140C. Readings in Classical Chinese Literature. (4-4-4)** Readings/discussion, three hours. Enforced requisite: course 110B or Chinese placement test. 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.

**150A. Lyrical Traditions. (4)** Lecture, three hours. Knowledge of Chinese not required. Readings from poetic, critical, and essayistic writings of traditional China, with emphasis on development of subjectivity and modes of address. May be taken independently for credit. Letter grading.

**150B. Traditional Narrative and Drama. (4)** Lecture, three hours. 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 the 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 M132B and Comparative Literature M171.) Lecture, two 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.

**155. Topics in Chinese Cinema. (4)** Lecture, three hours; film viewing, four hours. Knowledge of Chinese not required. Critical understanding of films from Hong Kong, Taiwan, and China to be offered. Examination of questions of cultural identity, transnationalism, postmodernity, and intersections between politics and culture in this "Greater China" region. P/NP or letter grading.

**C160. Chinese Buddhism. (4)** (Formerly numbered 160.) Lecture, three hours. 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. Enforced prerequisite: 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.

**170. Readings in Chinese Philosophical Texts. (4)** Lecture, three hours. Enforced prerequisite: course 110B or Chinese placement test. Readings in premodern texts written in literary Chinese. Coverage varies. May be repeated for credit with consent of instructor. Letter grading.

**175. Introduction to Chinese Thought. (4)** Lecture, three hours. Knowledge of Chinese not required. General survey of indigenous Chinese thought from Chou period to circa 1800, covering Confucianism, Taoism, Mo-tzu, legalists, influence of Buddhism, development of neo-Taoism and neo-Confucianism. Letter grading.

**180. Chinese Mythology. (4)** Lecture, three hours. Knowledge of Chinese not required. Survey of corpus of traditional Chinese mythology, with focus on examples preserved in a variety of early texts, later evolutions in dramatic and fictional works, and evidence from visual arts. Letter grading.

**190. Archaeology in China. (4)** Lecture, three hours. 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.

**195. Chinese Etymology and Calligraphy. (4)** Lecture, three hours. Enforced prerequisite: course 110B or Chinese placement test. Coverage of (1) development of the Chinese writing system from the "Pottery Inscriptions" 6,000 years ago to modern "Simplified Forms" and the studies of Six Scripts principles which were used to form Chinese characters and (2) aesthetic training of calligraphic art and its appreciation, with focus on ways of recognizing and interpreting the "Cursive Style," a common form of handwriting. Letter grading.

**197B. Undergraduate Seminar: 20th-Century China and Taiwan. (4)** Seminar, three hours. Designed for juniors/seniors. Undergraduate seminar on related topics in modern and contemporary literature and culture from China and Taiwan. Letter grading.

## Graduate Courses

**200. Bibliography and Methods of Research in Chinese. (4)** Required of all graduate students in Chinese. Lectures and discussion on research methodologies for dealing with traditional Chinese materials, with emphasis on bibliography training (including most up-to-date indexes in Chinese studies), punctuation practice, knowledge of textual criticism, and rare book editions.

**M201. China — Seminar: Classical Historiography and Readings in Classical Studies. (4)** (Same as History M281.) 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.

**205. Methods and Issues in 20th-Century Chinese Literature and Culture. (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.

**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 the relationship between literature and history.

**211A-211B. Seminars: Classical Chinese Poetry. (4-4)** (Formerly numbered 211.) 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 and letter 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.

**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 and 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 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 the Han dynasty collection of writings on the forms of music, social interaction, education, marriage, and mourning in the Zhou royal court, with discussion of topics in recent cultural semiology and anthropology. In Progress grading.

**242. Chinese Classics and Exegetical Traditions. (4)** Seminar, three hours. Preparation: command of literary Chinese. Reading and discussions of selections from one of the traditional Chinese classics (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.

**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-ch'u* and *ch'uan-ch'i*. May be repeated for credit with consent of instructor. In Progress grading.

**250A-250B. 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.

**C260. Chinese Buddhism. (4)** Lecture, three hours. 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 grading.

**290A-290B. Seminars: Selected Topics in Chinese Archaeology. (4-4)** Seminar, three hours. Requisite: course 190. Discussion and research on major problems about Chinese archaeology and different interpretations to the most important archaeological finds, with emphasis on studies of the Xia and Shang cultures and Xia and Shang dynasties. May be repeated for credit. In Progress 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 the Chinese civilization and Chinese dynastic history. Other topics include cultural developments of ancient and medieval China. May be repeated for credit. In Progress grading.

## East Asian Languages and Cultures

### Lower Division Courses

**60. Introduction to Buddhism. (4)** 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, focusing on those religious doctrines and meditative practices most essential to various Asian traditions of the religion. Letter grading.

**60W. Introduction to Buddhism. (5)** Lecture, three hours; discussion, one hour. Enforced prerequisite: English Composition 3 or 3H. 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 the religion. Particular attention to problems involved in study of religion. Satisfies Letters and Science Writing II requirement. Letter grading.

**61. Introduction to Zen Buddhism. (4)** 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.

## Upper Division Courses

**138. Travel Writing in East Asia. (4)** Lecture, three hours. Recommended preparation: Chinese 50 or Japanese 50 or 60. Exploration of travel writing about countries of East Asia, primarily China and Japan, with focus on English translations of works by native writers and by foreign visitors through the centuries. Letter grading.

**161. Buddhist Literature in Translation. (4)** Readings, 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.

**162. Buddhist Meditation Traditions. (4)** Lecture, three hours. 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.

**C197. 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. Concurrently scheduled with course C297. Letter grading.

**197B. Undergraduate Seminar: Buddhist Studies. (4)** Seminar, three hours. Limited to juniors/seniors. Selected topics in Buddhist studies. Letter grading.

**199. Special Studies in East Asian Languages and Cultures. (2 to 4)** Tutorial, to be arranged. Recommended preparation: advanced reading knowledge of Chinese or Japanese or Korean. Special individual studies. May be repeated once with consent of instructor. Letter grading.

**199H. Honors Tutorial. (4)** Tutorial, to be arranged. Preparation: one undergraduate departmental seminar. Tutorial in which students write honors theses under direction of faculty member. Letter grading.

## Graduate Courses

**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, semantics-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.

**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 the modern period. Readings include Western theoretical works balanced with texts taking congruent approaches to East Asian topics. S/U or letter 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 and letter 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 which are brought to the 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 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, the written and the oral, etc. In Progress grading.

**245A-245B. Seminars: Position of Modernity in East Asian Literature. (4-4)** Seminar, three hours. Preparation: at least five years of an 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 grading.

**265A-265B. Seminars: Selected Topics in Buddhist Studies. (4-4)** Seminar, three hours. Coverage varies. May be repeated for credit. In Progress grading.

**C297. 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. Concurrently scheduled with course C197. Additional readings and research required of graduate students. Letter grading.

**299. Independent Study. (2 to 6)** Designed for graduate students. Guided research and writing of a 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 an East Asian Language as a 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**495C. Teaching Chinese at College Level. (2 to 4)** Seminar, two hours. Preparation: Chinese language proficiency at advanced level. Study in team-teaching, teaching methodology, developing course and testing materials, teaching of Mandarin pronunciation, grammar, and characters, integrating cultural aspects in Chinese teaching, and comparative analysis between Chinese and English. S/U grading.

**495J. Teaching Japanese at College Level. (2 to 4)** Seminar, to be arranged. Preparation: appointment as teaching assistant in Japanese. 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.

**495K. Teaching Korean at College Level. (2 to 4)** Seminar, to be arranged. Preparation: appointment as teaching assistant in Korean. 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.

**495S. Teaching South and Southeast Asian Languages. (4)** Seminar, three hours. Preparation: appointment as teaching assistant in South and Southeast Asian program. 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 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)** 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)** S/U grading.

**597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (4 to 8)** S/U grading.

**598. Research for and Preparation of M.A. Thesis. (4 to 8)** 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)** S/U grading.

## Indic

### 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 the understanding of other Indo-European languages.

**110B. Intermediate Sanskrit. (4)** Lecture, three hours. Prerequisite: course 110A. Advanced aspects of grammar and reading of literary texts.

**110C. Advanced Sanskrit. (4)** Lecture, three hours. Prerequisite: course 110B. Reading of entire *Bhagavadgita* or comparable amount of other Sanskrit literature.

**115. Readings in Sanskrit. (4)** Lecture, three hours. Prerequisite: course 110C. Extensive reading in such texts as best serve students' needs.

**175. Introduction to Indic Philosophy. (4)** Lecture, three hours. Survey of main trends in Indian philosophy from ancient to modern times.

### 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.

**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. Prerequisite: course 110C. Reading of selected passages of the 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.

## Japanese

### Lower Division Courses

**1. Elementary Modern Japanese. (4)** 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 1 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 2 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 3 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 4 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 5 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.

**8. Elementary Japanese: Intensive. (12)** Lecture, five hours; discussion, 15 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. Letter grading.

**10. Intermediate Modern Japanese: Intensive. (12)** Lecture, 10 hours; discussion, 10 hours. Enforced prerequisite: course 3 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. Letter grading.

**15. Intermediate Reading and Writing for Japanese-Heritage Speakers. (4)** Lecture, three hours. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Designed for intermediate-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). Completion of course 15 is equivalent to completion of course 6. P/NP or letter grading.

**M40. Language and Gender: Introduction to Gender and Stereotypes in English, Japanese, and Russian.** (5) (Same as Communication Studies M40 and Russian M40.) Lecture, three hours; discussion, one hour. Introduction to language from sociological perspective of gender. Use of research and examples in English, Japanese, and Russian to explore nature of male and female "genderlects" and gendered language, as reflected in lexicon, language behavior, phonetics and intonation, language acquisition. Letter grading.

**50. Japanese Civilization.** (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Survey of development of Japanese culture and its relationship to the Asiatic mainland. P/NP or letter grading.

**60. Images of Japan: Humanistic Tradition.** (4) Lecture, three hours. Knowledge of Japanese not required. Basic introduction to literary heritage of Japan and to its humanistic tradition through exposure to select literary works and to documentary and feature films based on Japan's literary classics. P/NP or 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, hieikare, yugen*, as reflected and practiced in the tea ceremony. P/NP or letter grading.

## Upper Division Courses

**100A-100B-100C. Advanced Modern Japanese.** (4-4-4) Lecture, two hours; discussion, three hours. Enforced requisite: course 6 or Japanese placement test. Course 100A or Japanese placement test is enforced requisite to 100B; course 100B or Japanese placement test is enforced requisite 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.

**101A-101B. Advanced Readings in Modern Japanese.** (4-4) Lecture, two hours; discussion, 90 minutes. Enforced requisite: course 100C 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.

**110. Introduction to Classical Japanese.** (4) Lecture, three hours. Enforced requisite: course 100C 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) (Formerly numbered 120.) (Same as Linguistics M116.) Lecture, three hours; discussion, one hour. Enforced requisite: 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. Structure of Japanese I.** (4) (Same as Linguistics M176A.) Lecture, three hours. Recommended preparation: two years of Japanese. Requisite: course M120. Discussion of many seemingly idiosyncratic characteristics of Japanese syntax and semantics in light of word-order typology and universal grammar, often in form of a contrastive analysis of Japanese and English. Concurrently scheduled with course C222. Letter grading.

**CM123. Structure of Japanese II.** (4) (Same as Linguistics M176B.) Lecture, three hours. Recommended preparation: two or more years of Japanese language study. Survey of Japanese language at three different levels of organization: (1) word level — word class, verbal morphology and semantics; (2) clause/sentence level — grammatical constructions; (3) discourse level — point of view, ellipsis, topicalization. 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) Readings/discussion, three hours. Enforced requisite: course 100C or Japanese placement test. Course 130A or Japanese placement test is enforced requisite to 130B; course 130B or Japanese placement test is enforced requisite to 130C. Readings and discussion of works by modern Japanese writers. Letter grading.

**140A-140B-140C. Readings in Classical Japanese Literature.** (4-4-4) Discussion, three hours; readings, nine hours. Enforced requisite: course 110 or Japanese placement test. Readings and discussion of works of premodern 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 requisite: course 110 or Japanese placement test. Introduction to Kambun, the Japanese literary rendering of premodern Sino-Japanese, and Sorobun, the epistolary style. Concurrently scheduled with course C249. Letter grading.

**150. Japanese Literature in Translation: Classical.** (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 Japanese not required. Survey of Japanese literature from the beginning to 1600, emphasizing Chinese, Buddhist, and Western influences. P/NP or letter grading.

**151. Japanese Literature in Translation: Modern.** (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 Japanese not required. Survey of Japanese literature from the 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. Requisite: 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 a 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.

**C160. Japanese Buddhism.** (4) Lecture, three hours. 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. 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. Enforced requisite: course 110 or Chinese 165 or Japanese placement test. Readings in premodern Buddhist texts written by Japanese in Sino-Japanese or Kambun 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.

**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.

**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 the question of what might qualify as recognizably "Japanese" in aesthetics, ethics, and philosophy. Letter grading.

**C180. Readings in Japanese Literary Thought.** (4) Discussion, three hours. Enforced requisite: course 110 or Japanese placement test. 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.

**CM182. Japanese Folklore.** (4) (Formerly numbered M182.) (Same as Folklore CM182.) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of the Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course CM282. Letter grading.

**188. Personalities in Japanese Civilization.** (4) Seminar, three hours. Five weeks of introductory lectures and five weeks of student presentations based on instructor-guided student research. Letter grading.

**C195. Japanese Aesthetics and Hermeneutics.** (4) Lecture, three hours. Requisite: course 50 or 60 or 150 or 151. 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 C295. P/NP or letter grading.

**197A. Undergraduate Seminar: Classical Japan.** (4) Seminar, three hours. Selected topics in premodern Japanese literature and thought. Letter grading.

**C197B. Seminar: Modern Japan.** (4) Seminar, three hours. Selected topics on modern Japan. Concurrently scheduled with course C297B. Letter grading.

## Graduate Courses

**200. Bibliography and Methods of Research in Japanese.** (4) Lecture, three hours. Required of all graduate students in Japanese.

**201A-201B. Introduction to Reading Japanese Academic Texts.** (4-4) Lecture, three hours. Requisite: course 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 the field of modern Japanese literature, with readings in primary and secondary sources. Topics vary.

**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.

**C212. Japanese Urban History and Culture. (4)** (Formerly numbered 212.) 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. Structure of Japanese I. (4)** Lecture, three hours. Recommended preparation: two years of Japanese. Requisite: course M120. Discussion of many seemingly idiosyncratic characteristics of Japanese syntax and semantics in light of word-order typology and universal grammar, often in form of a contrastive analysis of Japanese and English. Concurrently scheduled with course CM122. Letter grading.

**C223. Structure of Japanese II. (4)** Lecture, three hours. Recommended preparation: two or more years of Japanese language study. Survey of Japanese language at three different levels of organization: (1) word level — word class, verbal morphology and semantics; (2) clause/sentence level — grammatical constructions; (3) discourse level — point of view, ellipsis, topicalization. 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 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 grading.

**226. Survey of Functional Linguistics. (4)** Lecture, four hours. Survey of recent empirical and theoretical research in several areas of functional linguistics, which 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.

**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 grading.

**240A-240B. Seminars: Selected Topics in Japanese Literature. (4-4)** Seminar, three hours. May be repeated for credit. In Progress 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 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 grading.

**C249. Introduction to Kambun and Other Literary Styles. (4)** Lecture, three hours. Requisite: course 110 or Japanese placement test. Introduction to Kambun, the Japanese literary rendering of premodern Sino-Japanese, and Sorobun, the epistolary style. Concurrently scheduled with course C149. Letter grading.

**C260. Japanese Buddhism. (4)** Lecture, three hours. 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 grading.

**M270A-M270B. Seminars: Japanese Ritual Arts. (4-4)** (Same as Folklore M270A-M270B.) 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 religious-magical purposes and symbolic structure of these arts. In Progress 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.

**C280. Readings in Japanese Literary Thought. (4)** Discussion, three hours. Requisite: course 110 or Japanese placement test. 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.

**CM282. Japanese Folklore. (4)** (Same as Folklore CM282.) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of the Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course CM182. Letter grading.

**290A-290B. Seminars: Japanese Philosophy of Art. (4-4)** Seminar, three hours. Preparation: reading knowledge of Japanese. Requisite: course 110. Reading and discussion of selected topics on philosophy of literary arts. May be repeated once with consent of instructor. In Progress grading.

**C295. Japanese Aesthetics and Hermeneutics. (4)** Lecture, three hours. Requisite: course 50 or 60 or 150 or 151. 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 C195. S/U or letter grading.

**C297B. Seminar: Modern Japan. (4)** Seminar, three hours. Selected topics in modern Japan. Graduate students to be assigned additional readings and write seminar papers based on research in their own disciplinary areas. Concurrently scheduled with course C197B. Letter grading.

## Korean

### Lower Division Courses

**1. Elementary Modern Korean. (4)** 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. (4)** 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 the Korean language or have had no formal instruction in the language. Emphasis on spelling, basic grammar, reading, writing, and daily conversation. P/NP or letter grading.

**2. Elementary Modern Korean. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 1 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 1A 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 a 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 2 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 2A 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 3 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 3A 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 4 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 4A 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 5 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. (4)** Lecture, two hours; discussion, three hours. Enforced prerequisite: course 5A 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. (12)** 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. Letter grading.

**10. Intermediate Modern Korean: Intensive. (12)** Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 3 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. Letter grading.

**50. Korean Civilization. (4)** 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.

## Upper Division Courses

**100A-100B-100C. Advanced Modern Korean. (4-4-4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 6 or Korean placement test. Course 100A or Korean placement test is enforced requisite to 100B; course 100B 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.

**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.

**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 an 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.

**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)** Readings/discussion, three hours. Enforced requisite: course 101A or Korean placement test. Readings and discussion of major modern Korean literary texts. Each course may be taken independently for credit. 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 the beginning to the 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 the 20th century. P/NP or letter grading.

**155. Topics in Korean Cinema. (4)** Lecture, three hours; film viewing, four 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)** (Formerly numbered 160.) Lecture, three hours. 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 C260. Letter grading.

**165. Introduction to Korean Buddhist Texts. (4)** Lecture, three hours. Enforced 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. 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 the earliest records to the 19th century, including shamanism, Taoism, Buddhism, Christianity, and neo-Confucianism. Korean traditions and those found in India, China, Japan, and the 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, two hours; discussion, one hour. Requisite: course 50. Knowledge of Korean not required. Survey of Korean thought in the 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)** Lecture, 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.

**M183. Korean Folklore. (4)** (Same as Folklore M183.) Lecture, three hours. 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.

**197A. Seminar: Traditional Korea. (4)** Seminar, three hours. Selected issues of interpretation in Korean history from earliest times through the mid-19th century. Coverage varies from term to term and includes such topics as state formation, international relations, or “sprouts of capitalism” thesis. Letter grading.

**197B. Seminar: Contemporary Korean Society and Culture. (4)** Seminar, three hours. Requisite: course 177 or 180C. Selected topics in modern Korean history. 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.

**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 an 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 the rise of neo-Confucianism in the 14th century to the 20th century.

**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 the Korean War.

**215. Korean Literary History. (4)** Seminar, 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 a nationalist canon that governs literary studies in Korea and the West. Letter grading.

**C220. Structure of Korean. (4)** 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 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 and 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 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 a 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 grading.

**240A-240B. Seminars: Classical Korean Fiction. (4-4)** Seminar, three hours. Preparation: reading knowledge of Korean. Formal and thematic study of tales of the marvelous, romance, satirical stories, diaries, and *p'an-sorifiction*. Status of fiction in society and culture, fiction as imaginative representation of the writer's relationship to real conditions of existence. Latest Western theory of narratology applied in analysis. In Progress 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 grading.

**C260. Korean Buddhism. (4)** Lecture, three hours. 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 Buddhist texts. Coverage varies. In Progress 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 the West in Eastern learning and enlightenment movements of the 19th century. May be repeated for credit. In Progress 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 and S/U or letter grading.

## South and Southeast Asian Languages and Cultures

### Lower Division Courses

**40A-40B-40C. Introductory Hindi. (5-5-5)** Lecture, two hours; discussion, three hours. Course 40A is enforced requisite to 40B, which is enforced requisite to 40C. Coverage of basic Hindi grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**41A-41B-41C. Intermediate Hindi. (5-5-5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 40C. Course 41A is enforced requisite to 41B, which is enforced requisite to 41C. 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.

**50A-50B-50C. Introductory Vietnamese. (5-5-5)** Lecture, two hours; discussion, three hours. Course 50A is enforced requisite to 50B, which is enforced requisite to 50C. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. Letter grading.

**51A-51B-51C. Intermediate Vietnamese. (5-5-5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 50C. Course 51A is enforced requisite to 51B, which is enforced requisite to 51C. Reinforcement of basic Vietnamese grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. Letter grading.

**60A-60B-60C. Introductory Thai. (5-5-5)** Lecture, two hours; discussion, three hours. Course 60A is enforced requisite to 60B, which is enforced requisite to 60C. Coverage of basic Thai grammar, with equal emphasis on reading, writing, conversation, and comprehension. Letter grading.

**61A-61B-61C. Intermediate Thai. (5-5-5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 60C. Course 61A is enforced requisite to 61B, which is enforced requisite to 61C. Reinforcement of basic Thai grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. Letter grading.

**70A-70B-70C. Introductory Tagalog. (5-5-5)** Lecture, two hours; discussion, three hours. Course 70A is enforced requisite to 70B, which is enforced requisite to 70C. Coverage of basic Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. Letter grading.

**71A-71B-71C. Intermediate Tagalog. (5-5-5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 70C. Course 71A is enforced requisite to 71B, which is enforced requisite to 71C. Reinforcement of basic Tagalog grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. Letter grading.

**80A-80B-80C. Introductory Indonesian. (5-5-5)** Lecture, two hours; discussion, three hours. Course 80A is enforced requisite to 80B, which is enforced requisite to 80C. 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.

**81A-81B-81C. Intermediate Indonesian. (5-5-5)** Lecture, five hours. Enforced requisite: course 80C. Course 81A is enforced requisite to 81B, which is enforced requisite to 81C. 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.

**M90. Modern Literature in Southeast Asia. (4)** (Same as Comparative Literature M90.) 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

**M130. Topics in Southeast Asian Literature. (4)** (Same as Comparative Literature M175.) 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 the region. Topics include censorship, politics, language, and literature. P/NP or letter grading.

**162A-162B-162C. Advanced Thai. (5-5-5)** (Formerly numbered 62A-62B-62C.) Lecture, two hours; discussion, three hours. Requisite: course 61C. Course 162A is requisite to 162B, which is requisite to 162C. 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.

**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.

**182A-182B-182C. Advanced Indonesian. (5-5-5)** (Formerly numbered 82A-82B-82C.) Lecture, five hours. Requisite: course 81C. Course 182A is requisite to 182B, which is requisite to 182C. 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.

**199. Special Studies in South and Southeast Asian Languages. (4)** Tutorial, to be arranged. Independent studies course for juniors/seniors and graduate students who desire more advanced or specialized treatment of one language offered in the program beyond introductory and intermediate courses currently offered. May be repeated for credit. See academic coordinator for course contract. P/NP or letter grading.

## Related Courses

### Art History

114A. Early Art of India  
114C. Japanese Art  
114D. Later Art of India  
114E. Arts of Korea  
114F. Arts of Southeast Asia  
C115A. Advanced Indian Art  
C115B. Advanced Chinese Art  
C115C. Advanced Japanese Art  
C115D. Art and Material Culture, Neolithic to 210 B.C.  
C115E. Art and Material Culture of Early Imperial China, 210 B.C. to A.D. 906  
C115F. Art and Material Culture of Late Imperial China, 906 to 1911  
260A. Indian Art  
260B. Chinese Art  
260C. Japanese Art

### Education

253C. Seminar: Asian Education

### English

95A. Introduction to Poetry  
140A. Criticism: History and Theory  
140B. Criticism: Special Topics  
201A. Criticism and Interpretation from Classical Era to the Renaissance

### Ethnomusicology

91D. Music of China  
91G. Music of Japan  
91J. Music of Korea  
C156A-156B. Music in China  
157. History of Chinese Opera  
158A-158B-158C. Studies in Chinese Instrumental Music  
160A. Survey of Music in Japan  
160B. Studies in Japanese Court Music

### Geography

186. Contemporary China  
286. Geography of Contemporary China

### History

182A-182B. Thought and Society in China  
183A. Culture and Power in Late Imperial China  
183B. Selected Topics in Chinese History from 1500  
184. 20th-Century China  
187A-187B-187C. Japanese History  
188A. Early History of India  
200L. Advanced Historiography: China  
200M. Advanced Historiography: Japan  
200P. Advanced Historiography: History of Religions  
201L. Topics in History: China  
201M. Topics in History: Japan  
201P. Topics in History: History of Religions  
282A-282B. Seminars: Chinese History  
285A-285B. Seminars: Japanese History  
293A-293B. Seminars: History of Religions

### Law

278. Comparative Law: Japanese Law and Society

### Linguistics

103. Introduction to General Phonetics  
120A. Phonology I  
120B. Syntax I



220. Linguistic Areas  
 225H. Linguistic Structures: Japanese  
 225P. Linguistic Structures: Chinese

#### Political Science

135. International Relations of China  
 136. International Relations of Japan  
 159A-159B. Government and Politics of China  
 160. Government and Politics of Japan  
 C242. Chinese and East Asian Politics  
 C243. Japanese and Western Pacific Politics

#### Sociology

188. Comparative East Asian Societies before World War II  
 276. Selected Topics in Sociology of East Asia

## EAST ASIAN STUDIES

Interdepartmental Program  
 College of Letters and Science

UCLA  
 11361 Bunche Hall  
 Box 951487  
 Los Angeles, CA 90095-1487  
 (310) 206-2806  
<http://www.isop.ucla.edu/eastasia/>

Richard E. Strassberg, Ph.D., *Administrative Director*

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 Min Zhou, Ph.D. (*Sociology*)  
 Lynne G. Zucker, Ph.D. (*Sociology*)

#### Associate Professors

William M. Bodiford, Ph.D. (*East Asian Languages and Cultures*)  
 Hung-hsiang Chou, Ph.D. (*East Asian Languages and Cultures*)  
 John B. Duncan, Ph.D. (*East Asian Languages and Cultures*)  
 Chi-Fun Cindy Fan, Ph.D. (*Geography*)  
 Shoichi Iwasaki, Ph.D. (*East Asian Languages and Cultures*)  
 Kyeyoung Park, Ph.D. (*Anthropology*)  
 Shu-mei Shih, Ph.D. (*East Asian Languages and Cultures*)  
 Gi-Wook Shin, Ph.D. (*Sociology*)  
 Sung-Ock Sohn, Ph.D. (*East Asian Languages and Cultures*)  
 Mariko Tamanoi, Ph.D. (*Anthropology*)  
 Timothy R. Tangherlini, Ph.D. (*East Asian Languages and Cultures*)  
 James Tong, Ph.D. (*Political Science*)  
 Yunxiang Yan, Ph.D. (*Anthropology*)

#### Assistant Professors

Michael K. Bourdaghs, Ph.D. (*East Asian Languages and Cultures*)  
 Cameron D. Campbell, Ph.D. (*Sociology*)  
 Burglind Jungmann, Ph.D. (*Art History*)  
 Hui-shu Lee, Ph.D. (*Art History*)  
 Seiji M. Lippit, Ph.D. (*East Asian Languages and Cultures*)  
 David C. Schaberg, Ph.D. (*East Asian Languages and Cultures*)  
 Hongyin Tao (*East Asian Languages and Cultures*)  
 Helen Rees, Ph.D. (*Ethnomusicology*)  
 Michael F. Thies, Ph.D. (*Political Science*)

#### Lecturers

Masako Douglas, Ph.D. (*East Asian Languages and Cultures*)  
 Tsun Y. Lui, *Emeritus (Ethnomusicology)*  
 Yihua Wang, M.A. (*East Asian Languages and Cultures*)  
 Ikuko Yuge, B.A. (*Ethnomusicology*)

#### Adjunct Professor

Thomas G. Plate, M.A. (*Communication Studies*)

## Scope and Objectives

East Asia is one of the most important regions of the world today with its ancient cultures, growing economies, technological progress, and increasing role in global affairs. As the focus of attention continues to shift toward Asia and the Pacific, new career opportunities open up requiring familiarity with the region. The East Asian Studies major is an interdepartmental and interdisciplinary area studies program divided into three areas of concentration — China, Japan, and Korea. 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.

In addition to selecting from the large number of courses offered at UCLA, students are encouraged to participate in the Education Abroad Program (EAP) or other study abroad

programs to enhance understanding of the region through direct contact with its peoples and cultures. East Asian Studies is also useful as a double major. When combined with other majors, it can add greater depth and provide a more intense focus, expanding students' range of expertise. It is suitable for those seeking further academic or professional training as well as for those who plan to enter the job market after graduation.

## Undergraduate Study

### East Asian Studies B.A.

Two years of language and a total of 13 upper division courses are required for graduation. Students must take a minimum of nine courses in the area of their choice. The remainder should be taken in another area of concentration within the major. No more than eight courses may be from a single department. Students should select the courses from the lists below. Courses on East Asia not listed below, offered only on a temporary basis, may also be applied toward the major. Courses marked with an asterisk are those on East Asia in general.

### China Concentration

#### Preparation for the Major

*Required:* Chinese 1, 2, 3, 4, 5, 6, History 11A or 11B, one lower division social sciences course in an area other than history.

#### Transfer Students

To be admitted as East Asian Studies (China) majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Chinese, one history of China course, and one lower division social sciences course in an area other than history.

#### The Major

*Required:* A minimum of nine courses selected from Art History C115B, C115D, C115E, C115F, Chinese 150A, 150B, 151, C160, 175, 190, and up to three upper division language courses or equivalent, East Asian Languages and Cultures 161, 162, Economics \*190, \*191, \*192, Ethnomusicology C156A, 156B, 157, 158A, 158B, 158C, Geography 186, History 182A, 182B, 183A, 183B, 184, Political Science 135, 159A, 159B, Sociology \*188, and a 199 special studies course in Chinese or in any social sciences or humanities department.

### Japan Concentration

#### Preparation for the Major

*Required:* History 9C, Japanese 1, 2, 3, 4, 5, 6, one lower division social sciences course in an area other than history.

#### Transfer Students

To be admitted as East Asian Studies (Japan) majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Japanese, one history of Japan course, and

one lower division social sciences course in an area other than history.

### The Major

*Required:* A minimum of nine courses selected from Anthropology 175S, Art History 114C, C115C, East Asian Languages and Cultures 161, 162, Economics \*190, \*191, \*192, Ethnomusicology 160A, 160B, History 185A, 185B, 186, 187A, 187B, 187C, Japanese 60, 150, 151, C160, 175, CM182, C195, and up to three upper division language courses or equivalent, Political Science 136, 160, Sociology \*188, 189, Theater 102A, and a 199 special studies course in Japanese or in any social sciences or humanities department.

### Korea Concentration

#### Preparation for the Major

*Required:* Korean 1, 2, 3, 4, 5, 6, 50, one lower division social sciences course.

#### Transfer Students

To be admitted as East Asian Studies (Korea) majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Korean, one Korean civilization course, and one lower division social sciences course.

### The Major

*Required:* A minimum of nine courses selected from Anthropology 175V, Art History 114E, East Asian Languages and Cultures 161, 162, Economics \*190, \*191, \*192, Korean 150, 151, C160, 175, 180A, 180B, 180C, and three upper division language courses or equivalent, Sociology \*188, Theater \*102E, and a 199 special studies course in Korean or in any social sciences or humanities department.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degree

The East Asian Studies Program offers the Master of Arts (M.A.) degree in East Asian Studies.

## Admission

Applicants are expected to present a bachelor's degree from a recognized university and meet the standard University requirements for graduate admission. Applicants with East Asian field experience or a degree in another field are given special consideration. Selection criteria include (1) prior scholastic performance, (2) recommendations by professors

and other qualified referents, (3) scores on the Graduate Record Examination (GRE), and (4) a statement of purpose outlining the applicant's background, proposed program of study, and future career goals. UCLA graduate students who wish to transfer from other departments or who apply from the professional schools are judged on the same selection criteria.

International applicants whose first language is not English are required to take the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) examination. All materials must be complete before the application is considered.

Admission is normally limited to the Fall Quarter, and decisions are made by the admissions committee, composed of the program faculty and director. Deadlines for submission of the application are December 15 (to be considered for admission and financial assistance) and May 1 (to be considered for admission but not for financial assistance).

## Master's Degree

Students are expected to concentrate on one cultural area (China, Japan, or Korea), or to combine areas for a cross-cultural program.

The M.A. degree is offered through the comprehensive examination plan. A minimum of nine courses is required for the degree, at least five of which must be at the graduate level. Of the nine courses, at least five must be in the area of concentration, including one survey course; at least one course should be in a national culture other than the area of concentration.

There is a language requirement for this degree.

# ECONOMICS

*College of Letters and Science*

UCLA  
8283 Bunche Hall  
Box 951477  
Los Angeles, CA 90095-1477  
(310) 825-1011  
<http://www.econ.ucla.edu>

V. Joseph Hotz, Ph.D., *Chair*  
Janet Currie, Ph.D., *Vice Chair*  
Lee Ohanian, Ph.D., *Vice Chair*

### Professors

Andrew G. Atkeson, Ph.D.  
Costas Azariadis, Ph.D.  
Trudy Ann Cameron, Ph.D.  
Harold Linn Cole, Ph.D.  
Janet Currie, Ph.D.  
Sebastian Edwards, Ph.D. (*Henry Ford II Professor of International Management*)  
Bryan C. Ellickson, Ph.D.  
Roger E. Farmer, Ph.D.  
Gary D. Hansen, Ph.D.  
Arnold C. Harberger, Ph.D.  
V. Joseph Hotz, Ph.D.  
Guido Wilhelmus Imbens, Ph.D.

Benjamin Klein, Ph.D.  
Deepak K. Lal, D.Phil. (*James S. Coleman Professor of International Development Studies*)  
Naomi R. Lamoreaux, Ph.D.  
Edward E. Leamer, Ph.D. (*Chauncey J. Medberry Professor of Management*)  
David K. Levine, Ph.D. (*Armen Alchian Professor of Economic Theory*)  
Lee Ohanian, Ph.D.  
Joseph M. Ostroy, Ph.D.  
John G. Riley, Ph.D.  
Jean-Laurent Rosenthal, Ph.D.  
Kenneth L. Sokoloff, Ph.D.  
Duncan Thomas, Ph.D.  
Earl A. Thompson, Ph.D.  
Carlos A. Vegh, Ph.D.  
William R. Zame, Ph.D.

### Professors Emeriti

Armen A. Alchian, Ph.D.  
William R. Allen, Ph.D.  
Masanao Aoki, Ph.D.  
Robert W. Clower, D.Litt.  
Harold Demsetz, Ph.D.  
George W. Hilton, Ph.D.  
Werner Z. Hirsch, Ph.D.  
Jack Hirshleifer, Ph.D.  
Michael D. Intriligator, Ph.D.  
Axel Leijonhufvud, Ph.D.  
John J. McCall, Ph.D.  
George G.S. Murphy, Ph.D.  
Lloyd S. Shapley, Ph.D.  
Harold M. Somers, Ph.D., LL.B.

### Associate Professors

Ekaterina Kyriazidou, Ph.D.  
Kathleen M. McGarry, Ph.D.  
Sule Ozler, Ph.D.  
Aaron Tornell, Ph.D.

### Assistant Professors

Daniel A. Akerberg, Ph.D.  
Alberto Bennardo, Ph.D.  
Sandra Black, Ph.D.  
Hongbin Cai, Ph.D.  
Paul J. Devereux, Ph.D.  
Matthias Doepke, Ph.D.  
Mark J. Dwyer, Ph.D.  
Keisuke Hirano, Ph.D.  
Dean R. Hyslop, Ph.D.  
Amartya Lahiri, Ph.D.  
Luisa Lambertini, Ph.D.  
Phillip Leslie, M.A.  
Enrico Moretti, Ph.D.  
Ichiro Obara, Ph.D.  
Klaus Martin Schneider, Ph.D.  
Leeat Yariv, Ph.D.  
Aaron Yelowitz, 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 phe-

nomena 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.

#### Preeconomics Major

While students are completing the lower division preparation courses for the major, they may be classified as Preeconomics majors and are eligible to apply for the major once they have completed the preparation courses and at least one 12-unit term in residence at UCLA. Application for the major should be filed at the undergraduate counselors office in 2263 Bunche Hall by the time students attain 135 quarter units.

#### Preparation for the Major

*Required:* Economics 1, 2, 11, M40 (or Statistics M11); English 4W or English Composition 100W or 129B; Mathematics 31A, and 31B or 31E. All courses must be taken for a letter grade. A 2.0 (C) grade is required in each pre-major 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

To be admitted as Economics majors, transfer students 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 statistics course, and one English critical reading and writing 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.

#### The Major

*Required:* Nine upper division courses in economics which must include Economics 101, 102, 103, and one course from at least three different fields in economics selected from the major fields list below. All courses must be taken for a letter grade. Economics 100, 110,

and 190 may not be included among the nine upper division courses. One or two of the nine courses may be selected from Management 120A, 120B, 130A, 130B, and/or 133.

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, 102, and 103. All upper division major courses 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.

#### Major Fields

Economic theory (courses 101, 102, 104, 105AH, 105BH, 107, 188A through 188Z); economic development (courses 111, 112); regional economics (course 120); public finance (courses 130, 133, 134A, 134B, M135, M136); statistics, mathematical economics, and econometrics (courses 103, 141A, 141B, 141C, 142, 143, 144, 145, 146, 147A, 147B, 148); labor economics (courses 150, 151, 152); money and banking (courses 160, 161); government and industry (courses 106, 170, 171, 172, 173, 174, 175, 176, 177); economic institutions (courses 180, 181A, 181B, 182, 183, 184); international economics (courses 191, 192).

### Economics B.A./Applied Economics M.S. Dual Program

An intercampus dual degree program has been established between UCLA and UC Santa Cruz which 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 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 135 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 3.0 (B) overall average in all preparation courses except English, and (4) have a 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).

Note: 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. Students must petition to enter the major at the undergraduate counselors office in 2263 Bunche Hall.

### Prebusiness Economics Major

While students are completing the preparation courses for the major, they may be classified as Prebusiness Economics majors. (Transfer students who wish to enter UCLA as Prebusiness Economics majors 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, M40 (or Statistics M11), 101; English 4W or English Composition 100W or 129B; Management 1A, 1B; Mathematics 31A, and 31B or 31E. All courses 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

To be admitted as Business Economics majors, transfer students 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 statistics course, one English critical reading and writing course, one elementary financial accounting course, and one elementary managerial accounting course.

Transfer credit for any of the above is subject to department approval.

#### The Major

*Required:* Economics 102, 103, and at least two courses from 104, 106, 173, 174, 177, 184; four other upper division courses in economics in at least two different fields (no more than two may be taken in the government and industry field); four upper division courses from Management 108, 120A, 120B, 122, 123, 124, 127A, 130A, 130B, 133, 140, 175. 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 at least a 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.) All upper division major courses must be taken for a letter grade.

## Economics/International Area Studies B.A.

The 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 135 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. All courses 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 193. The program as a whole must be approved by an Economics Department counselor before students are admitted to the major.

### Preeconomics/International Area Studies Major

While students are completing the preparation courses for the major, they may be classified as Preeconomics/International Area Studies majors.

### Preparation for the Major

*Required:* Economics 1, 2, 11, M40 (or Statistics M11), 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

To be admitted as Economics/International Area Studies majors, transfer students with 90 or more units must complete the following in-

troductory courses prior to admission to UCLA: one microeconomics course, one macroeconomics course, two calculus courses from the mathematics/physical sciences sequence, one statistics course, and two years of a modern foreign language related to the geographical concentration.

Transfer credit for any of the above is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

### 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, 191, 192, 193, and five 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. The four remaining upper division courses are social sciences courses related to the concentration and must be chosen from the approved courses listed below. Students are required to include selections from at least two different departments. Economics 193 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.

One or two courses from Management 120A, 120B, 130A, 130B, and/or 133 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. All major courses must be taken for a letter grade.

### 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 175, Geography 186, History 182A, 182B, 183A, 183B, 184, 185A, 187A, 187B, 187C, 190A, 190B, Japanese 175, Korean 175, 180A, 180B, 180C, Political

Science 135, 136, 159A, 159B, 160, Sociology M153, 188, 189

#### Europe

Languages: French, German, Italian, Portuguese, Spanish

Approved Noneconomics Courses: French 109, 130, 132, Geography 183, German 100A, 100B, 100C, History 117A, 124A, 124B, 125A, 125C through 125F, 126A through 126F, 128A, 128B, 128C, 129A, 129B, 129C, 130, 132A, 132B, 133A, 133B, 134A, 134B, 141A, 141B, 141C, 142A, 142B, 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 165A, 166, 167A through 167D, 168, 170A, 171, 172, 173, 174, Political Science 130, 131, 154A, 154B, Sociology 186

#### Middle East

Languages: Arabic, Hebrew, Persian, Turkish

Approved Noneconomics Courses: Geography 187, History 106C, 107B, 108A, 110B, 111B, Jewish Studies 142, Political Science 132A, 157, Sociology 187, Turkic Languages 180

#### Former Soviet Union

Languages: Armenian, Russian

Approved Noneconomics Courses: Geography 184, History 112A, 112B, 112C, 113, 124A, 124B, 131A through 131D, 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, (3) present the thesis in Economics 195H, and (4) 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 195H and 199, 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

Majors in Economics, Business Economics, and Economics/International Area 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, Mathematics 61, and two courses from Program in Computing 10C, 15, 30, 60, and (3) completing at least two courses from Economics 104, 143, 144, 145, 146, 147A, 147B, 199, with the additional provision that the courses taken must make substantial use of computers. A grade of C– or better is required in each course, with a combined grade-point average of at least 2.0. Students graduate with a bachelor's degree in their major and a specialization in Computing.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Economics offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Economics.

## Admission

The department only admits applicants whose objective is the Ph.D. Applicants who satisfy the University minimum requirements are eligible to apply. It is strongly recommended that applicants have undergraduate training in economics, mathematics, and statistics. Applicants must also submit a full record of prior university experience, three letters of reference, and scores on the Graduate Record Examination (GRE) General Test. International applicants must also submit scores for the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination.

The department admits students only for the Fall Quarter of each academic year. The deadline for submitting the *UCLA Application for Graduate Admission* is December 15.

## Master's Degree

For major fields, see Doctoral Degree.

The M.A. degree is offered through the comprehensive examination plan. The degree requires nine courses in economics, seven of which must be graduate-level courses.

## Doctoral Degree

Major fields include economic theory; econometrics; information and uncertainty; mathematical economics; monetary theory; economic history; public finance; labor economics; industrial organization; international economics; and development economics.

In order that the program can be tailored to an individual student's background and interests, there are no formal course requirements in the Ph.D. program. In their first year however, students normally enroll in the standard first-year graduate core sequences in microeconomic theory, macroeconomic theory, and quantitative methods. Also, there are required departmental workshops and proseminars.

Written and oral qualifying examinations are required. Written qualifying examinations are offered in a number of specialty areas, with specific preparatory courses, as outlined in *Program Requirements*. Students must pass qualifying examinations in three doctoral elective fields (or two fields plus a breadth option consisting of three graduate-level courses for one of the elective fields).

A written paper requirement must be completed by the end of the student's third year. The materials of this paper may be used as the basis for presentation in a departmental workshop, as well as the basis for the dissertation. Students are required to present a paper in a departmental workshop before taking the University Oral Qualifying Examination, which focuses on, but is not limited to, the dissertation proposal.

## Economics

### Lower Division Courses

**1. Principles of Economics. (4)** Lecture, three hours; discussion, one hour. Not open to students with credit for 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 the price system.

**2. Principles of Economics. (4)** Lecture, three hours; discussion, one hour. Not open to students with credit for 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.

**5. Introductory Economics. (4)** Lecture, three hours. Not open to students with credit for course 1, 2, or 100. Principles of economics as tools of analysis. Presentation of a set of concepts with which to analyze a wide range of social problems that economic theory illuminates. May not be used to fulfill entrance requirements for any Economics Department major.

**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.

**M40. Introduction to Statistical Methods for Business and Economics. (5)** (Same as Statistics M11.) Lecture, three hours; discussion, one hour; laboratory, one hour. Not open to students with credit for Anthropology M80, Geography M40, Mathematics 170A, 170B, Organismic Biology M22, Sociology M18, Statistics 10, M12, M13, 100A, 100B, or 100C. 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.

**41. Theory and Practice of Econometrics. (4)** (Formerly numbered 103C.) Lecture, three hours; discussion, one hour. Requisite: course M40 or Statistics 10. Introduction to theory and practice of econometrics to provide sufficient knowledge of statistical and econometric theory to make one an effective consumer and producer of empirical research in economics. Emphasis on intuitive understanding rather than rigorous argument and on applications. P/NP or letter grading.

## Upper Division Courses

**100. Economic Principles and Problems. (4)** Lecture, three hours. Designed for juniors/seniors. Not open to students with credit for course 1, 2, or 5. Principles of economics with application to current economic problems. May not be used to fulfill entrance requirements for any Economics Department major.

**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.

**102. Macroeconomic Theory. (4)** Lecture, three hours. Requisite: course 101. Theory of income, employment, and price level. Analysis of secular growth and business fluctuations; introduction to monetary and fiscal policy.

**103. Introduction to Econometrics. (5)** Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 11. 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.

**104. Managerial Economics. (4)** Lecture, three hours; discussion, one hour. Requisite: course 11. Enrollment priority to Business Economics majors. Application of economic principles to business decisions. Allocating joint costs. Implicit costs of capacity constraints. Problems in capital budgeting, financing, and pricing. Role of interest rates in business decisions. P/NP or letter grading.

**105AH. Topics in Microeconomics (Honors). (4)** Lecture, three hours. Requisite: course 101. Designed for departmental honors program students. Introduction to Walrasian and Nash equilibrium. Modeling of selected applied topics such as peak load pricing, pricing of externalities, strategic pricing.

**105BH. Topics in Macroeconomics (Honors). (4)** Lecture, three hours. Requisite: course 101. Designed for departmental honors program students. Imperfect information-based models of monetary business cycles: theory and evidence. Real business cycle models: role of shocks and interindustrial technology structure in explaining fluctuations. Policy analysis and policy intervention in a world with rational maximizing agents: recent perspectives.

**106. Special Topics in Business Economics. (4)** Lecture, three hours. Requisite: course 101. Enrollment priority to business economics students. Application of economic analysis to contemporary business. Course may be organized around individual industries or topics of current relevance to business. Alternatively, course may examine problems in major fields of economics (e.g., international, macroeconomics, finance) and their implications for business. May be repeated for credit with topic change.

**107. History of Economic Theory. (4)** Lecture, three hours. Requisite: course 1 or 100. Survey of economic analysis from Grecian antiquity to the early 20th century, concentrating on the 18th and 19th centuries; special attention to selected writers, including Aristotle, mercantilists, Physiocrats, Hume, Smith, Malthus, Ricardo, Marx, marginalists, and Marshall.

**110. Economic Problems of Underdeveloped Countries. (4)** Lecture, three hours. Requisite: course 1 or 100. Limited to non-Economics Department majors. Not open for credit to students with credit for course 111 or 112. Survey of major issues of development economics. Economic structure of low-income countries and primary causes for their limited economic growth. Economic goals and policy alternatives open to their leaders. Possible roles of developed countries. May not be applied toward any Economics Department major.

**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 the market, economic planning in less developed areas.

**112. Policies for Economic Development. (4)** Lecture, three hours. Requisite: course 102 or 111. Suggested strategies for economic development: inflation, balanced growth, industry vs. agriculture, import substitution, export-oriented expansion, foreign aid, and others. Selected case studies.

**120. 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 an urban setting. Topics include urbanization and urban growth, housing markets, location decisions of households and firms, transportation, urban labor markets, and local public sector.

**130. Public Finance. (4)** Lecture, three hours; discussion, one hour. Requisites: courses 11, 101. Role of government in a 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 an open economy. Properties of public choice mechanisms. P/NP or letter grading.

**133. State and Local Finance. (4)** Lecture, three hours. Requisites: courses 101, 130. Division of functions and revenues between state and local governments; revenues, expenditures, and indebtedness of these governments. Analyses of state and local tax systems.

**134A. Environmental Economics. (4)** (Formerly numbered 134.) Lecture, three hours; discussion/quiz, one hour. Requisites: courses 11, 101. Application of economic theory to natural and environmental resources problems. Topics include sustainability and natural resource scarcity, steady-state models for renewable resources (land and water, fisheries, forests), externalities and pollution (including use of incentives for pollution control), and nonrenewable resources (minerals). P/NP or letter grading.

**134B. Economics of Environmental Regulation. (4)** Lecture, three hours; discussion, one hour. Requisite: course 134A. Social choice theory, efficiency and markets, public goods and externalities, property rights, Pigovian fees, marketable permits, legal solutions, risk and uncertainty, international and interregional competition, economy-wide effects of environmental regulations, and formal environmental demand theory. 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.

**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.

“Early on I was struck by the enormity of the problem of managing environmental scarcity in sensible, yet equitable ways,” confides Trudy Ann Cameron, professor of economics. But when the native of rural British Columbia moved to Los Angeles in the early 1980s, she really confronted the scarcity of environmental amenities. “Where I grew up, rivers had riverbanks. Here, they have walls and floors.”

That sensitivity has fueled a remarkable career teaching students about economic issues as they relate to the environment and to different types of allocation problems. “I strive for tangible examples that are relevant to my students,” she says, adding, “I believe they need to see the power of statistical techniques to support high-stakes arguments.”

For Cameron, the emphasis is on doing. “When I teach introductory regression analysis,” she states, “I eschew the mathematical underpinnings of the subject as much as possible, focusing on the three-dimensional geometrical intuition. I build data sets that are

contrived to clearly illustrate a point, then move to real data where the source of the problem may be confounded by other issues.”

As part of her teaching technique, Cameron likes to tell a story and then weave in why it is important to a specific economic issue. The impact can have a far-reaching impact on the lives and careers of her students. As she sees it, “the need to make sensible decisions regarding the allocation of scarce resources—of any kind—among competing end uses is almost universal.”

While she recognizes that few of her undergraduate students will go on to Ph.D. programs in economics, Cameron maintains that economics offers at least a dozen key insights that can fundamentally change the way that anybody thinks about choices. Whether students go on to pursue an M.B.A. or elect to study law, “a carefully selected curriculum in economics can prepare a student for a very wide range of careers.”



**Trudy Ann Cameron,**  
Economics Department

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*The need to make sensible decisions regarding the allocation of scarce resources—of any kind—among competing end uses is almost universal. A carefully selected curriculum in economics can prepare a student for a very wide range of careers*

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**141A. Mathematical Finance A. (4)** Lecture, three hours; computer laboratory, one hour. Requisites: course 11, Mathematics 33A, Statistics 110A. Economics of financial markets, competitive equilibrium with time and uncertainty, one period security market model, market completeness. P/NP or letter grading.

**141B. Mathematical Finance B. (4)** Lecture, three hours; computer laboratory, one hour. Requisite: course 141A. Capital asset pricing model, multiperiod discrete-time security market model, efficient markets, dynamic spanning and market completeness, mathematical models of options, futures, and derivatives. P/NP or letter grading.

**141C. Mathematical Finance C. (4)** Lecture, three hours; computer laboratory, one hour. Requisite: course 141B. Models of term structure of interest rates, interest rate derivatives, optimal consumption and investment. Equity premium puzzle, bubbles. P/NP or letter grading.

**142. Probabilistic Microeconomics. (4)** Lecture, three hours. Requisites: courses 11, 101. Combination of basic probability introduced in course M40 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.

**143. Applied Regression Analysis. (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 103. Not open to students with credit for course 147A or 147B. Estimation and inference in multiple regression model; violations of assumptions of classical model (heteroskedasticity, unobserved heterogeneity, measurement error); introduction to limited dependent variable and time-series models. Emphasis on applications of regression analysis and interpretation. P/NP or letter grading.

**144. Introduction to Mathematical Methods in Economics. (4)** Lecture, three hours. Requisite: course 101. Introduction to use of mathematics in economic analysis. Topics include partial differentiation, optimization, integration, and differential and difference equations, with applications to theory of the household and the firm, capital theory, and economic dynamics.

**145. Topics in Mathematical Economics. (4)** Lecture, three hours. Requisites: courses 101, 144. Possible topics include game theory; competitive equilibrium analysis; examination of market failure and role for market intervention.

**146. Linear Models in Economics. (4)** Lecture, three hours. Preparation: one linear or matrix algebra course. Not open for credit to students with credit for Mathematics 164 or Electrical Engineering 136. Possible topics include duality theory of linear programming and simplex algorithm, input/output analysis, and two-person zero-sum games.

**147A. Introduction to Econometric Theory. (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: course 103, Mathematics 115A. Introduction to econometric theory using linear algebra; estimation and inference in classical regression, generalized classical regression model; introduction to time series and simultaneous equations models. Emphasis on theoretical analysis and computer programming skills. P/ NP or letter grading.

**147B. Applications of Econometrics. (4)** Lecture, three hours. Requisite: course 147A. Econometric models and data; forecasting, policy analysis, estimation of simultaneous equations models, applications of econometrics. Major original econometric paper required.

**148. Introductory System Theory. (4)** Lecture, three hours. Requisites: Mathematics 33A, 33B. Introduction to modeling and analysis of dynamic systems, with emphasis on examples from social and life sciences. Linearity, impulse responses, stability, state variables, algorithms for filtering and control.

**150. Wage Theory. (4)** Lecture, three hours; discussion, one hour. 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. Labor, Wages, and Income. (4)** Lecture, three hours. Requisites: courses 101, 150. 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.

**152. Trade Unions and Professional Associations. (4)** Lecture, three hours. Comparative behavior of unions and professional associations; criteria for wage maximization; quantification of gains; analysis of legal framework applying to such organizations.

**M158. International Political Economy of Work and Gender. (4)** (Same as Women's Studies M123.) Lecture, three hours. Requisite: course 1 or 5 or 100. Analysis of women's economic status in world economy by taking account of interdependencies between household and market activities and between economic systems and legal and political institutions. Introduction of alternative theoretical approaches in social sciences; presentation of empirical evidence. Letter grading.

**160. Money and Banking. (4)** Lecture, three hours. Requisite: course 102. Principles of money and banking in the U.S.; legal and institutional framework; money supply process; instruments, effects, and practice of monetary policy.

**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.

**170. Monopoly and Competition. (4)** Lecture, three hours. Requisite: course 11. Comparison of economic and legal treatments of the 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.

**171. Industrial Organization: Theory and Tactics. (4)** Lecture, three hours. Requisite: course 11. Study of pricing and output decisions of firms under conditions of less than perfect competition or monopoly; theories of oligopoly and monopolistic competition; information costs and advertising; examination of pricing practices such as price discrimination, tie-in selling, predatory pricing, and resale price maintenance.

**172. Economic Analysis of Laws and Legal Institutions. (4)** Lecture, three hours. Requisite: course 11. Application of economic theory to legal rule formulation: study of economic nature and consequences of alternative legal arrangements, with special reference to property rights. Application of economic theory to analysis of effects of laws relative to property contracts, torts, crimes, taxation, and constitutional issues. Analysis of legal process.

**173. Centralized Markets. (4)** Lecture, three hours. Requisite: course 11. Enrollment priority to Business Economics majors. Organization and function of stock, bond, commodity, and foreign exchange markets. Theory and evidence related to efficiency of these markets in evaluating information, to their role in facilitating risk-bearing and capital allocation. Interrelationship between business finance and organized capital markets.

**174. Organization of the Firm. (4)** Lecture, three hours. Requisite: course 11. Enrollment priority to Business Economics majors. Role of the firm in traditional economic theory and modern developments in the theory of the firm. Functions of ownership and management in face of risk and opportunism. Internal organization of the firm. Problem of separation of ownership from control in the modern corporation. Determinants of firm size, vertical integration, and degree of specialization of activities of firms. Decision making within the firm in a democratic setting.

**175. Economics of Transportation. (4)** Lecture, three hours. Requisite: course 11. Economic characteristics of transport; functions of the different agencies; pricing and resource allocation in transport; public regulation of transport; urban transport; modern transport problem.

**176. Business and Government. (4)** Lecture, three hours. Requisite: course 101. Several aspects of interaction between business and government, including regulation of prices, entry, working conditions, natural resource use, policies of taxation, and subsidy of business.

**177. Contractual Arrangements in Business. (4)** Lecture, three hours. Requisite: course 101. Enrollment priority to Business Economics majors. Economic and legal determinants of contractual arrangements adopted by business. Franchise contracts, rights-of-first refusal, and tie-in contracts. Legal constraints and efficiency of different contractual arrangements.

**180. Comparative Systems: Transformation of Socialist Economies. (4)** Lecture, three hours. Requisite: course 101. Comparative analysis of capitalist and socialist economies. Models of transition from centrally planned to free market economies. Analysis and critique of actual implementation. Future prospects.

**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.

**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 the 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 the Gerschenkron hypothesis.

**182. Centralized Economics Systems. (4)** Lecture, three hours. Requisite: course 101. Introduction to theory of centralized systems and examination of some centralized economies. Considerable attention to economy of the U.S.S.R.; some attention to other economies selected in light of the centralized model and with view to the march of current events.

**183. Development of Economic Institutions in the U.S. (4)** Lecture, three hours. Requisite: course 11. Study of changing economic conditions in the U.S. from Colonial times to the early 20th century and effects of these changes on American society. Letter grading.

**184. History of Enterprise and Entrepreneurship in the American Economy. (4)** Lecture, three hours. 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.

**M188A. Political and Economic Issues in Proliferation of Nuclear Weapons. (4)** (Formerly numbered M103A.) (Same as Political Science M139A.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Interdisciplinary approach to problem of nuclear proliferation. Economic aspects of acquisition of nuclear weapons and economic aspects of nuclear energy treating technological, bargaining, and stability issues. Letter grading.

**188B. Economics of Energy. (4)** (Formerly numbered 103B.) Seminar, three hours. Requisite: course 102. Topics include pricing and taxation of exhaustible resources, interactions between energy and the economy, institutions such as OPEC and oil price controls, oil debt and balance of payments, energy conservation, and future technologies. Letter grading.

**188C-188Z. Upper Division Research Seminars: Applications of Economic Theory. (4 each)** (Formerly numbered 188A-188Z.) Seminar, three hours. Requisite: course 11. Limited enrollment seminars in which students usually write a research paper on a topic selected in consultation with instructor. P/NP or letter grading.

**M188M. Marketing, Advertising, and Human Nature. (5)** (Same as Communication Studies M148.) Seminar, four hours. Limited to Communication Studies and Economics majors. 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.

**M189. Asian Pacific Americans in the U.S. Economy. (4)** (Same as Asian American Studies M123.) Lecture, three hours. Examination of several dimensions of Asian American participation, from labor market experience to use of government services to entrepreneurial activity. Attention to linking understanding of Asian American experience to public policies available to address problems of economically disadvantaged. P/NP or letter grading.

**190. International Economics. (4)** Lecture, three hours. Requisite: course 1 or 100. Limited to non-Economics Department majors. Not open to students with credit for course 191 or 192. General introduction to international economics, based on examination of theory of trade and the means and significance of balance of payments adjustments, with analysis of major issues of international commercial and monetary policy confronting national and international agencies. May not be applied toward any Economics Department major.

**191. International Trade Theory. (4)** Lecture, three hours; discussion, one hour. Requisite: course 101. Not open to students with credit for course 190. 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.

**192. International Finance. (4)** Lecture, three hours; discussion, one hour. Requisite: course 102. Not open to students with credit for course 190. Emphasis on interpretation of the balance of payments and adjustment to national and international equilibria through changes in price levels, exchange rates, and national income. Other topics include making international payments, determination of exchange rates under various monetary standards, capital movements, exchange controls, and international monetary organization. P/NP or letter grading.

**193. Research in International Area Studies Seminar. (4)** Seminar, three hours. Limited to senior Economics/International Area Studies majors. Students prepare research paper on economy of the country or region of specialization.

**195H. Honors Thesis Seminar. (4)** Seminar, three hours. Limited to senior departmental honors program students. Seminar in which students present results of their senior theses.

**199. Special Studies in Economics. (2 or 4)** Requisites: courses 11, 101. Limited to juniors/seniors. May be repeated but may be applied only once toward the major requirements.

## 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 microeconomics, 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 or letter grading.

#### 201A-201B-201C. Microeconomics. (4-4-4) Lecture, three hours. S/U or letter grading:

**201A.** Theory of the 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) (Formerly numbered 201C.) Lecture, three hours. Nash equilibrium and subgame perfection. Games with incomplete information. Models of strategic market behavior. Screening and signaling. Bargaining models. Theory of the firm. S/U or letter grading.

**201C.** General Equilibrium and Welfare Economics. (4) (Formerly numbered 201B.) 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:

**202A.** Dynamics and Growth Theory. 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.

**202B.** Business Cycles. 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.

**202C.** Topics in Macroeconomics. 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.

#### 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:

**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 and S/U or letter grading.

**205. Economic Modeling. (4)** Lecture, three hours. Development of modeling skills by considering a 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 the 1870s, including contributions of major figures of the marginalist revolution, the socialist controversy, and history of welfare economics. S/U or 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. Preparation: calculus, introductory probability. Price searching, queueing, Brownian motion, martingales, and applications to the theory of the firm.

**212B.** Applied Game Theory. Preparation: calculus, introductory probability. Use of theory of Bayesian games to study bargaining, monetary theory, and oligopoly. Use of theory of mechanisms to study auction design and imperfectly competitive markets.

**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. Requisite: course 201C. Core convergence theorem, cooperative and non-cooperative approach to competitive equilibrium theory, perfectly competitive equilibria, the no-surplus condition, and applications to mechanism theory and incomplete market models.

**M214B.** Game Theory. (Same as Mathematics M261 and Political Science M208A.) Lecture, three hours. Designed for graduate economics, mathematics, and political science students. Bargaining theory, the core, the value, other solution concepts. Applications to oligopoly, general exchange and production economies, and allocation of joint costs.

**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 pre-dissertation 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 or letter grading.

**219A-219B-219C. Workshops: Economic Theory and Mathematical Economics. (4-4-4)** Lecture, three hours. Workshops for pre-dissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U or letter 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.** Requisites: courses 202A, 202B, 202C. Dynamic methods in business cycles and economic growth. Multi-period 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.

**221B.** 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.

**221C.** 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.

**221D.** Requisites: courses 202A, 202B, 202C. Emphasis on applied macroeconomics, with topic change each year. Students select a particular data set to study. Each week class studies an article from recent work in applied macroeconomics or applied econometrics which teaches a technique or suggests a theoretical restriction on the data. Subgroups of students report back to class using the technique on their selected data set.

**222A-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:

**M222A.** Control and Coordination in Economics. (4) (Same as Computer Science M222.) Lecture, three hours. Recommended preparation: appropriate mathematics course. Designed for graduate economics and engineering students. Stabilization policies, short- and long-run dynamics and stability analysis; decentralization, coordination in teams; certainty equivalence and separation theorems; stochastic and learning models. Bayesian approach to price and output rate adjustment. S/U or letter grading.

**228A-228B-228C. Proseminars: Monetary Economics. (4-4-4)** Seminar, three hours. Workshops for pre-dissertation 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 or letter grading.

**229A-229B-229C. Workshops: Monetary Economics. (4-4-4)** Lecture, three hours. Workshops for pre-dissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U or letter 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.

**232A-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. (Same as Political Science M208E.) Subjective probability, introduction to decision theory, Bayesian analysis of regression, sensitivity analysis, simplification of models, criticism.

**232B.** Time Series. Stationary stochastic processes, Box/Jenkins methods, spectral analysis, forecasting, rational expectation models, analysis of macroeconomic data.



**239A-239B-239C. Workshops: Econometrics. (4-4-4)** Lecture, three hours. Workshops for pre-dissertation 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 the agricultural revolution, demography, industrial revolution, imperial expansion, and decline of Britain. S/U or letter grading.

**242. Economic History of the U.S. (4)** Lecture, three hours. Seminar on American economic history. Onset of industrialization, relative economic backwardness of the South, slavery, technological change, rise in industrial concentration, women in the 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.

**248A-248B-248C. Proseminars: Economic History. (4-4-4)** Seminar, three hours. Quarterly seminars for pre-dissertation 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 Grep Workshops: History of Entrepreneurship in the 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.** 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.

**261B.** 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.

**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.

**268A-268B-268C. Proseminars: Labor and Population. (4-4-4)** Seminar, three hours. Quarterly seminars for pre-dissertation 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 pre-dissertation 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.** Major economic aspects of property rights system. The firm and the 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.

**271B.** 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.

**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.

**278A-278B-278C. Proseminars: Industrial Organization and Regulation. (4-4-4)** Seminar, three hours. Quarterly seminars for pre-dissertation 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)** Workshops for pre-dissertation 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 the methods. S/U or letter grading.

**285A-285B-285C. Workshops: International Economics. (4-4-4)** Lecture, three hours. Workshops for pre-dissertation 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.

## 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. Economic history of Latin America. The great depression, import substitution and industrialization, inflation and growth, free market experiments, and economic integration.

**287B.** Economic Development in East Asia. 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 the U.S., in area's economic development.

**287C.** Topics in Economic Development. Designed for graduate students. Topics in monetary and exchange rate policy in developing countries. Students expected to develop analytical tools and underlying policy issues.

**288A-288B-288C. Proseminars: International and Development Economics. (4-4-4)** Seminar, three hours. Quarterly seminars for pre-dissertation 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. Prerequisite: 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.

## Special Studies

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

**596. Individual Study. (2 to 8)** Directed individual study or research. S/U grading.

**597. Individual Study: Graduate Examinations. (2 to 8)** 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)** 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

Office of Student Services:

UCLA  
1009 Moore Hall  
Box 951521  
Los Angeles, CA 90095-1521

(310) 825-8326  
<http://www.gseis.ucla.edu/oss.html>

Daniel G. Solorzano, Ph.D., Chair  
Noreen M. Webb, Ph.D., *Vice Chair*

### Professors

Marvin C. Alkin, Ed.D.  
Alexander W. Astin, Ph.D. (*Allan Murray Cartter Professor of Higher Education*)  
Helen S. Astin, Ph.D.  
Eva L. Baker, Ed.D.  
James E. Bruno, Ph.D.  
James S. Catterall, Ph.D.  
Arthur M. Cohen, Ph.D.  
Sol Cohen, Ph.D.  
Aimée Dorr, Ph.D., *Dean*  
Frederick Erickson, Ph.D. (*George F. Kneller Professor of Education and Anthropology*)  
Ronald Gallimore, Ph.D., *in Residence*  
Sandra Graham, Ph.D.  
Kris D. Gutierrez, Ph.D.  
Sandra Harding, Ph.D.  
John N. Hawkins, Ph.D.  
Charles C. Healy, Ph.D.  
Robert M. Hodapp, Ph.D.  
Carollee Howes, Ph.D.  
Dean T. Jamison, Ph.D.  
Connie L. Kasari, Ph.D.  
Douglas Kellner, Ph.D. (*George F. Kneller Professor of Education and Philosophy*)  
Marilyn L. Kourilsky, Ph.D.

Harold G. Levine, Ph.D.  
Reynaldo F. Macias, Ph.D.  
Peter L. McLaren, Ph.D.  
Bengt Muthén, Ph.D.  
Don T. Nakanishi, Ph.D.  
Jeannie L. Oakes, Ph.D., *Associate Dean*  
Mike Rose, Ph.D.  
Val D. Rust, Ph.D.  
Ronald Stevens, Ph.D.  
Romeria Tidwell, Ph.D.  
Carlos A. Torres, Ph.D.  
Noreen M. Webb, Ph.D.  
Amy S. Wells, Ph.D.  
Wellford Wilms, Ph.D.

### Professors Emeriti

Gordon L. Berry, Ed.D.  
Nicholas Blurton Jones, Ph.D.  
Burton R. Clark, Ph.D.  
Charlotte A. Crabtree, Ph.D.  
Donald A. Erickson, Ph.D.  
Lawrence W. Erickson, Ed.D.  
Norma D. Feshbach, Ph.D.  
Simon González, Ed.D.  
John I. Goodlad, Ph.D., L.H.D., LL.D.  
Wendell P. Jones, Ph.D.  
Evan R. Keislar, Ph.D.  
Barbara K. Keogh, Ph.D.  
Frederick C. Kintzer, Ed.D.  
Dorothy M. Leahy, Ph.D.  
John D. McNeil, Ed.D.  
David O'Shea, Ph.D.  
C. Robert Pace, Ph.D.  
Rosemary Park, Ph.D., LL.D., Litt.D., L.H.D.  
W. James Popham, Ed.D.  
Harry F. Silberman, Ed.D.  
Rodney W. Skager, Ph.D.  
Lewis C. Solmon, Ph.D.  
Louise L. Tyler, Ph.D.  
Carl Weinberg, Ed.D.  
Richard Williams, Ph.D.  
Charles Z. Wilson, Ph.D.  
Merlin C. Wittrock, Ph.D.

### Associate Professors

Alison L. Bailey, Ed.D.  
Megan L. Franke, Ph.D.  
Patricia M. McDonough, Ph.D.  
Robert A. Rhoads, Ph.D.  
Michael H. Seltzer, Ph.D.  
Daniel G. Solorzano, Ph.D.  
James W. Trent, Ph.D.  
Concepción Valadez, Ph.D.

### Assistant Professors.

Mitchell J. Chang, Ph.D.  
Robert Cooper III, Ph.D.  
Noel D. Enyedy, Ph.D.  
Tyrone C. Howard, Ph.D.  
Yasmin B. Kafai, Ed.D.  
Renee Smith Maddox, Ph.D.  
Heinrich A. Mintrop, Ph.D.  
Edith S. Mukudi, Ph.D.  
Jennifer E. Obidah, Ph.D.  
William A. Sandoval, Ph.D.  
Linda J. Sax, Ph.D., *in Residence*  
Yeow Meng Thum, Ph.D.

### Adjunct Professors

Jamal Abedi, Ph.D.  
Jane S. Permaul, Ed.D.  
Harold L. Pruett, Ph.D.  
Eugene Tucker, Ed.D.

### Adjunct Associate Professor

Philip Ender, Ph.D.

### Adjunct Assistant Professor

Bruce Barbee, Ed.D.  
Diane Durkin, Ph.D.  
Linda P. Rose, Ph.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

For information on the special certificate program through which students may waive the Multiple Subject Assessment for Teachers (MSAT) in California, see the Diversified Liberal Arts Program (DLAP) and contact a DLAP counselor in the College of Letters and Science, A316 Murphy Hall, (310) 206-6681.

## 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) help understand the complex interactions between the legal, social, political, and economic forces which 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 32 units 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/default.html>. Applicants are expected to have a real commitment to inquiry into issues vital to education.

### *Required Upper Division Courses (28 units):*

Two policy and issues courses from Education 181A through 181D, with grades of C+ or better; two behavioral and social sciences perspective courses from Education M108, 180, C191A through 191H; two elective courses from M102, 125A, 140, M148; and one professional topics course from 197A through 197Z.

In addition to or in lieu of electives, students may select a concentration in community education leadership by completing three courses from Education 190, 192A through 192E, 193A through 193F, 194A, 194B, 194C.

Students with a 3.0 grade-point average may, after acceptance of a separate application, also select a concentration in advanced studies by taking Education 197X and 199 in addition to the course requirements for the minor.

All minor courses must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Education offers the 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, and Doctor of Philosophy (Ph.D.) degree in Special Education (with California State University, Los Angeles).

## Admission

### M.A. in Education

The M.A. in Education is an academic master's degree designed to meet the needs of individuals preparing for careers in basic research or for advanced graduate study.

Qualifications for admission to a program of study in education, in addition to the University requirements for admission, are (1) scores on the quantitative, verbal, and analytical sections of the Graduate Record Examination (GRE) and (2) at least three letters of recommendation documenting qualifications and/or professional experience.

Acceptance into a particular division is dependent on the availability of openings in that division and the applicant's desired emphasis area; preference is given to applicants with relevant background and experience. No screening examination (other than described above) and no specific coursework are required for admission to a degree program.

Applicants must complete a departmental application form in addition to the *UCLA Application for Graduate Admission*. Application forms and departmental brochures are available from the Office of Student Services, Graduate School of Education and Information Studies.

### Master of Education

The M.Ed. is a professional degree program designed for individuals preparing for mid-level professional positions in schooling or for advanced professional graduate study. Qualifications for admission to a program of study in education, in addition to the University requirements for admission are (1) scores on the quantitative, verbal, and analytical sections of the Graduate Record Examination (GRE) and (2) at least three letters of recommendation

documenting qualifications and/or professional experience.

The following requirements are applicable in accordance with selected emphases:

*Administrative and Policy Studies in Education.* Possession of a valid instructional credential is preferred. Applicants with a demonstrated commitment to improving American schooling are particularly encouraged to apply.

*Bilingual/Cross-Cultural Education.* Completion of an approved program of professional preparation leading to a preliminary instructional credential is required, as is classroom experience (as a teacher or aide) for at least two years, at any level of schooling. Evidence of professional competence and conscientiousness, as well as the necessary second-language proficiency, are also required.

*Counseling in Student Affairs.* This is a one-year full-time program. Students proceed through the program as a cohort. The program prepares its graduates for entry-level professional programs in student affairs.

*Curriculum and the Study of Schooling.* Applicants with above-average capabilities and interest in curriculum and instruction are particularly encouraged to apply. Experience as a practitioner in the emphasis field is advantageous.

*Teacher Education.* This is a two-year program leading to qualification for a Multiple or Single Subject Instructional Credential and a Master of Education degree. Applicants with the highest qualifications in all subject areas, particularly mathematics, science, and the humanities, are particularly encouraged to apply. Experience in working with children is advantageous.

### Certificate (Credential) Programs

The California Commission on Teacher Credentialing has authorized the Department of Education to offer professional programs that lead to the (1) Multiple Subject Instructional Credential with the Cross-Cultural Language and Academic Development (CLAD)/Bilingual Cross-Cultural Language and Academic Development (BCLAD) emphasis, (2) Single Subject Instructional Credential with the CLAD/BCLAD emphasis, and (3) Administrative Services Credential. Credential programs 1 and 2 are taken concurrently with the M.Ed. in teacher education; credential program 3 is taken with the M.Ed. in administrative and policy studies in education.

### Education M.Ed./Latin American Studies M.A.

The Department of Education and the Latin American Studies Program offer an articulated degree program that allows students to combine study for the M.A. in Latin American Studies and the M.Ed., with an emphasis in curriculum. Articulated programs do not allow course credit to be applied toward more than one degree. The program is not currently accepting applications.

## Ph.D. in Education

The Ph.D. in Education is a strongly research-oriented academic degree designed for individuals preparing for careers in basic research or college-level instruction. Major foci include theory, research methodology, basic studies, and in-depth knowledge in education and an approved cognate field.

To be admitted to the Ph.D. program, students must have a bachelor's degree or equivalent. Applicants must also have demonstrated academic excellence and the potential for scholarly research. Students are admitted by a division and must formally apply for a change of division.

Qualifications for admission to a program of study in education, in addition to the University requirements for admission, are (1) scores on the quantitative, verbal, and analytical sections of the Graduate Record Examination (GRE) and (2) at least three letters of recommendation documenting qualifications and/or professional experience.

Acceptance into a particular division is dependent on the availability of openings in that division and the applicant's desired emphasis area; preference is given to applicants with relevant background and experience. Admission to an initial advanced degree program occurs simultaneously with admission to graduate standing and to the department. No screening examination (other than described above) and no specific coursework are required for admission to a degree program.

The department has an application form which must be completed in addition to the *UCLA Application for Graduate Admission*. Application forms and departmental brochures are available from the Office of Student Services, Graduate School of Education and Information Studies.

### Ph.D. in Special Education, UCLA/CSULA

A joint Ph.D. program in Special Education is offered by UCLA and California State University, Los Angeles. The goals of the joint program are (1) the stimulation and preparation of research workers of high competence in the various fields of special education, (2) improved preparation for potential teachers of exceptional individuals, and (3) improved preparation of personnel for research and in policy formation in the public schools of California. Students seeking information regarding emphases and requirements should consult the joint doctoral adviser at UCLA (1029B Moore Hall) or the chair of the Department of Special Education at CSULA.

### Doctor of Education

The Ed.D. is a professional degree designed to meet the needs of individuals preparing for careers of leadership and applied research in the schools and community educational programs. Major foci include practice, applied studies, and knowledge related to professional skills.

The major foci of the Educational Leadership Program include innovation and change in schools, postsecondary education, and related areas.

To be admitted into the Ed.D. program, applicants must have a bachelor's degree or the equivalent; at least two years of successful professional experience in education or the equivalent (may be completed prior to advancement to candidacy for all divisions except the administration, curriculum, and teaching studies division which requires the experience as a requisite to admission); and demonstrated evidence of potential for professional leadership. Students are admitted by a division or program and must formally apply for a change of division or program.

The only program currently accepting applications for the Ed.D. degree is the Educational Leadership Program.

### **Education Graduate Degree/Law J.D.**

The Department of Education and the School of Law offer a concurrent degree program that allows students to design a program of study leading to the J.D. and any advanced degree in education (M.Ed., M.A., Ed.D., or Ph.D.). If the program meets the degree requirements in both schools, students are awarded both degrees on its completion. The program is not currently accepting applications.

## **Master's Degrees**

### **M.A. in Education**

The M.A. emphases in divisions 2 through 5 are the following:

#### **Psychology Studies in Education**

Developmental studies in education and learning, and instruction

#### **Higher Education and Organizational Change**

Education training, public policy analysis, research in higher education, and teaching in higher education

#### **Social Research Methodology**

Applied statistics and psychometrics, quantitative and qualitative research, evaluation methodology, and economic analysis

#### **Social Sciences and Comparative Education**

Social sciences, comparative and international education

The M.A. degree is offered through the comprehensive examination and thesis plans. A minimum of nine courses are required, six of which must be in the graduate series. Two research methods courses are required. Additional courses to complete the 36-unit requirement may be selected from offerings in education and/or other departments. Contact the Office of Student Services regarding faculty member(s) to be consulted with respect to enrollment and research opportunities and/or

course sequencing in each division or emphasis field.

### **Master of Education**

Areas of study include administrative and policy studies in education, bilingual/cross-cultural education, counseling in student affairs, curriculum and the study of schooling, and teacher education.

The M.Ed. degree is offered through the comprehensive examination plan. A minimum of nine courses are required, five of which must be in the professional education series. Information regarding specific course requirements in a selected M.Ed. emphasis may be obtained from the Office of Student Services.

Field experience is required for all students. The type of field experience varies depending on the specialization. Examples of the required field experience include observation and participation in K-12 classrooms and administrative offices, student teaching, and internships in student affairs settings at the postsecondary level.

## **Doctoral Degrees**

### **Ph.D. in Education**

Major fields include all divisions: urban schooling; psychological studies in higher education; higher education and organizational change; social research methodology; social sciences and comparative education.

A program of study for a Ph.D. student is determined by the student and the faculty adviser and must conform to division and department requirements. A minimum of 18 courses is required, 10 of which must be in the 200 series. Required coursework includes a research practicum, courses in the student's selected division, courses from other departments related to the student's proposed area of research (the cognate), research methods courses, and electives. Students in the social sciences and comparative education division are required to demonstrate reading competence in a language other than English.

Written and oral qualifying examinations are required. The written qualifying examination tests the core knowledge of the division and the student's emphasis, and the questions reflect a research and theoretical orientation.

Following successful completion of the written examination, students take the University Oral Qualifying Examination, which covers topics from both education and the cognate discipline(s) that are related to the written research proposal.

### **Doctor of Education**

The Ed.D. is offered for emphases in divisions 1 through 4 and in the Educational Leadership Program. Administration, curriculum, and teaching studies emphases are offered for school, postsecondary, and continuing education administrators, education policy analysts, program and curriculum developers, and teacher educators. Educational psychology

emphases are offered for those interested in practical issues related to special education, educational technology, and computer-assisted instruction. Higher education and work emphases focus on administration in relation to corporate or proprietary education and training, community colleges, and continuing education. Social research methodology emphases are applied measurement and evaluation leadership. Educational leadership emphases are kindergarten through postsecondary educational reform and systemic change.

The only program currently accepting applications for the Ed.D. degree is the Educational Leadership Program.

A program of study for an Ed.D. student is determined by the student and faculty adviser and must meet division or program and department requirements. A minimum of 18 courses is required for all areas except the Educational Leadership Program, which requires 21 courses. Required coursework includes research methods courses, education courses, supplemental courses outside the field of emphasis (not for students in the Educational Leadership Program), leadership capacity-building courses (for students in the Educational Leadership Program), a field practicum, and practicums on the development of the culminating project (for students in the Educational Leadership Program).

A doctoral written screening examination is required after completion of appropriate coursework determined by the division. The examination is concerned with central topics in the selected division and field of emphasis. Questions are comprehensive in nature and are designed to measure the breadth and depth of knowledge, as well as to focus that knowledge on specific problems. All students admitted to a doctoral program without a master's degree and all students in the Educational Leadership Program are required to take the doctoral screening examination.

Written and oral qualifying examinations are required. The written qualifying examination tests the core knowledge of the division and the student's emphasis, and the questions reflect a professional orientation.

Following successful completion of the written examination, students take the University Oral Qualifying Examination, which covers topics from education that are related to the written dissertation proposal.

## **Education**

### **Upper Division Courses**

**M102. The Mexican American and the Schools.** (4) (Same as Chicana and Chicano Studies M102.) Review of research and teaching strategies. Analysis of school policies and practices and their effect on development of Mexican American and Chicano youth and communities.

**M108. Sociology of Education. (4)** (Same as Sociology M175.) Requisite: Sociology 1. Study of social processes and interaction patterns in educational organizations; relationship of such organizations to aspects of society, social class, and power; social relations within school, college, and university; formal and informal groups, subcultures in educational systems; roles of teachers, students, and administrators. Fieldwork may be required.

**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.

**125A. Education of Exceptional Individuals. (4)** Requisite: Psychology 10. Introduction to the field of special education, with emphasis on psychology of individual differences, learning characteristics of exceptional individuals, and application of research and theory to special education problems.

**140. Time and Behavior in Educational Organizations. (4)** Designed for juniors/seniors. Overview of role that time plays in understanding behavior in school and social organizations, with specific emphasis on understanding management of change process. Exploration of behavioral issues such as gang membership, midlife crisis, school reform, teacher burnout, and student at-risk behaviors.

**M148. Women in Higher Education. (4)** (Same as Women's Studies M148.) Lecture, three hours. Designed for juniors/seniors. Education and career development of women in higher education. Specifically, emphasis on undergraduate and graduate women; women faculty and administrators; curricula, programs, and counseling services designed to enhance women's educational and career development, affirmative action, and other recent legislation. P/NP or letter grading.

**180. Social Psychology of Higher Education. (4)** Overview of significant studies in social psychology of higher education. Focus on institutional characteristics and students' interpersonal and intrapersonal processes, with special emphasis on identifying and explaining effects of college experience on student development and achievement.

**181A. Early Childhood Education. (4)** (Formerly numbered 91A.) Lecture, four hours. Variety of issues pertaining to young children and their education. Identification of theoretical approaches to understanding development: psychosocial, cognitive-developmental, and behavioral. Integration of theory into best practices in early childhood programs. Letter grading.

**181B. Introduction to K-12 Issues in American Education. (4)** (Formerly numbered 91C.) Lecture, four hours. Critical inquiry into policies, issues, and changing technologies that define K-12 education and consequent need for reform. Letter grading.

**181C. Perspectives on the American College. (4)** (Formerly numbered 91E.) Lecture, four hours. Examination of historical conditions that have shaped American higher education and consequent differential characteristics, trends, and practices that bear on dynamics and impacts of contemporary colleges. Emphasis on interrelated research, academic, social, and policy issues underlying diverse system of American higher education. Letter grading.

**181D. The Teaching Profession. (4)** (Formerly numbered 91D.) Lecture, four hours. Exploration of role of teacher/professor, continuing professional development, traditional and "challenged" pedagogues, and public responses to teachers teaching and students learning. Coverage of teachers in K-college in terms of credentialing issues, "master-teacher" programs, subject-matter knowledge, use of educational technology, and teachers as political entities in American history. Letter grading.

**183A. Contextual Leadership for Education and Community Service. (4)** (Formerly numbered 197M.) Conceptual, case study, and experiential investigation of leadership within educational environments and the community. Investigation of how context and environment influence leaders, what leadership effectiveness means, and how to become effective leaders.

**183B. Problem Solving for Leadership and Change. (4)** (Formerly numbered 197E.) Study of concepts and tools that contribute to creative problem solving and its relationship to leadership and change, drawing from both life and social sciences disciplines as well as professional studies of education and related fields.

**183C. Strengths-Based Learning. (4)** (Formerly numbered 197E.) Conceptual analysis of theories that point to improved learning and academic achievement. Relevant theory and research from cognitive psychology provide context. Practical applications of theory through classroom activities and experiential assignments.

**190. Community Service Learning for Academic Achievement. (2)** (Formerly numbered 193A.) Lecture, one hour; discussion, one hour. Must be taken prior to or concurrently with courses 193A through 193F. 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. Letter grading.

**C191A. Philosophy of Education: Ethics and Values. (4)** Study of ethics and value theory in teaching and learning, educational organization and policy, and curriculum design and validation. Concurrently scheduled with course C206D.

**191B. Issues in Education: Historical Perspective. (4)** Lecture, three hours; discussion, one hour. Exploration of such controversial issues in American education as access, diversity, parental choice, cultural literacy, teacher empowerment, and role of popular media in historical perspective.

**C191C. Economics of Education. (4)** Introductory course in microeconomic and macroeconomic techniques applied to education. Methodologies illustrated principally in context of current issues in American education. Concurrently scheduled with course C244.

**C191D. Politics of Education. (4)** Political dimensions of education institutions as organizations. Relationships between education institutions and political institutions in society. Political theory as a foundation for public policy analysis; interest groups in education policy formation and implementation. Concurrently scheduled with course C207.

**C191E. Educational Anthropology. (4)** Recommended preparation: Anthropology 9. Study of education through research and method of the cultural anthropologist. Interdependence of culture and education, with emphasis on cross-cultural studies of enculturation, schooling, values, cognition, language, and cultural change. Concurrently scheduled with course C203.

**191F. Educational Psychology. (4)** 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.

**191G. Adolescent Psychosocial Development: Problems and Potentialities. (4)** Adolescence as developmental stage involving construction of personal identity, a narrative dialogical mental structure underlying meaning and direction, life choices, and integration of values and commitments. Current prevention approaches to youth deviance and dysfunction.

**191H. Education and Law. (4)** (Formerly numbered 197L.) Exploration of American legal system and how it influences education. Introduction to legal reasoning and analysis and examination of past and current controversies to discover patterns and synthesize policy implications.

**192A. Theory and Practice of Teaching and Learning Function. (4)** (Formerly numbered 192.) Lecture, three hours. Requisite: course 180. Analysis of learning theory and teaching practice in light of research on student characteristics, learning environments, student/instructor interaction, and outcomes of instruction. Application of theory and research to practice.

**192B. Teaching Practicum in Social Psychology of Higher Education. (4)** (Formerly numbered 181.) Lecture, three hours. Requisite: course 192A. Examination of intellectual and personal development of college students through differential environments and instructional experiences. Students assist in teaching and preparation of instructional materials for course 180.

**192C. Dynamics of Peer Teaching. (4)** (Formerly numbered 197N.) Proficiency in learning principles and procedures relevant to peer teaching in a variety of circumstances provided and undergraduates trained to present College of Letters and Science academic support workshops to their peers with intent of enhancing academic and career perspectives.

**192D. Development of Academic Workshops. (4)** (Formerly numbered 197N.) Requisite: course 192C. Survey of issues in bilingualism and language assessment, study of language, linguistic competence/proficiency, biliteracy, review of current language assessment instruments. Preparation and analysis of naturalistic data using concepts developed through readings and discussion.

**192E. Evaluation of Peer Teaching. (4)** (Formerly numbered 197N.) Requisite: course 192D. Continuation of course 192D. Survey of issues in bilingualism and language assessment, study of language, linguistic competence/proficiency, biliteracy, review of current language assessment instruments. Preparation and analysis of naturalistic data using concepts developed through readings and discussion.

**193A-193F. Community Service Outreach for Academic Achievement. (4 each)** Discussion, two hours; fieldwork, four hours. Requisite or corequisite: course 190. Focus on service areas treated in general fashion in course 190. Concentration on theory and practice pertaining to outreach, tutoring, counseling, and various K-12 internships. Each course may be repeated for a maximum of 24 units. Letter grading. **193A.** Learning in Community Service (LINCS); **193B.** Community-Based Outreach Programs (CBOP); **193C.** America Reads; **193D.** Community Service; **193E.** Peer Counseling; **193F.** Teaching Internship (UES).

**194A. Language, Literacy, and Human Development. (6 to 8)** Lecture, three hours; laboratory, two hours (when scheduled); field practicum, two hours. Provides opportunities to combine theory and practice in study of human development in educational contexts. Use of ethnographic methods to document learning. Focus on relationship between theories of development, culture, and language. May be taken independently for credit. Letter grading.

**194B. Culture, Gender, and Human Development. (6 to 8)** Lecture, three hours; laboratory, two hours (when scheduled); field practicum, two hours. Provides opportunities to combine theory and practice in study of human development in educational contexts. Use of ethnographic methods to document learning. Focus on relationship between theories of development, culture, and gender. May be taken independently for credit. Letter grading.

**194C. Culture, Communications, and Human Development. (6 to 8)** Lecture, three hours; laboratory, two hours (when scheduled); field practicum, two hours. Provides opportunities to combine theory and practice in study of human development in educational contexts. Use of ethnographic methods to document learning. Focus on relationship between theories of development, culture, and technologies. May be taken independently for credit. Letter grading.

**195. Philosophical Foundations of Education. (4)** (Formerly numbered 197A.) Lecture, four hours. Variable topics course organized on selected current issues integrating field observations and readings through seminar discussions. Letter grading.

**197A-197Z. Current Issues in Education. (4 each)** Lecture, three to four hours. Limited to juniors/seniors. Variable topics course organized on selected current issues basis, integrating field observations and readings through seminar discussions. Consult *Schedule of Classes* for topics and instructors. Letter grading:

**197D. 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.

**197F. Laboratory in Education of Exceptional Individuals. (4)** Lecture, one hour; laboratory, six to eight hours. Requisite: course 125A. Six to eight hours per week of observation, research, and teaching of children with severe behavioral/emotional disorders and/or mental retardation in UCLA Neuropsychiatric Institute and Hospital School.

**197G. Advanced Laboratory in Education of Exceptional Individuals. (4)** Lecture, one hour; laboratory, six to eight hours. Requisite: course 197F. Six to eight hours per week of research, teaching, and multidisciplinary team participation with children with severe behavioral/emotional disorders and/or mental retardation in UCLA Neuropsychiatric Institute and Hospital School.

**197J. 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. P/NP or letter grading.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged with faculty member who directs the study. P/NP or letter grading.

## Graduate Courses

**200A. Historical Research and Writing. (4)** 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.

**200B. Survey Research Methods in Education. (4)** Requisite: course 210A. Problems of conceptualization, organization, and gathering nonexperimental and quasi-experimental quantitative and qualitative data.

**200C. Analysis of Survey Data in Education. (4)** Lecture, three hours; laboratory, two hours. Requisite: course 200B. Introduction to techniques of processing and analyzing nonexperimental and quasi-experimental quantitative data.

**M201C. History of American Education. (4)** (Same as History M264.) History of educational thought and of social forces impinging on American education from the 1880s to the present. Analysis of relation between these ideas and forces, and aims and practices of American education today.

**202. Evaluation Theory. (4)** Prevalent evaluation theories, systems for categorizing these theories, and process of theory development in educational evaluation.

**C203. Educational Anthropology. (4)** Recommended preparation: Anthropology 9. Study of education through research and method of the cultural anthropologist. Interdependence of culture and education, with emphasis on cross-cultural studies of enculturation, schooling, values, cognition, language, and cultural change. Concurrently scheduled with course C191E.

**204A. Introduction to Education and the Social Sciences. (4)** Interdisciplinary course intended to introduce students to study of educational issues, texts, and movements of thought through social sciences and comparative perspectives.

**204B. Introduction to Comparative Education. (4)** Examination of conceptual and methodological questions underlying comparative education. Particular attention to development of the field and to styles of social analysis which may be applied to comparative and cross-national studies in education.

**204C. Education and National Development. (4)** 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 the world.

**204D. Minority Education in Cross-Cultural Perspective. (4)** 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.

**204E. International Efforts in Education. (4)** Designed for graduate students. Critical analysis of complex world of "development cooperation," with particular reference to bilateral and multilateral efforts in education.

**204F. Nonformal Education in Comparative Perspective. (4)** 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.

**205. Computers in the Educational Process. (4)** 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.

**206A. Philosophy of Education: Introduction. (4)** Systematic introduction to the field, indicating ways in which philosophy serves to elucidate educational aims, content, methods, and values.

**206C. Introduction to Conceptual Analysis. (4)** Conceptual analysis of recurrent and contemporary themes in the field. Emphasis on development of logical and linguistic skills used in analysis of educational problems and issues.

**C206D. Philosophy of Education: Ethics and Values. (4)** Study of ethics and value theory in teaching and learning, educational organization and policy, and curriculum design and validation. Concurrently scheduled with course C191A.

**C207. Politics of Education. (4)** Preparation: one approved research methods course required for master's or doctoral degree. Political dimensions of education institutions as organizations. Relationships between education institutions and political institutions in society. Political theory as a foundation for public policy analysis; interest groups in education policy formation and implementation. Concurrently scheduled with course C191D.

**208A. Perspectives on the Sociology of Education. (4)** 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.

**208C. Explanation in the 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.

**209A. History of Higher Education. (4)** Examination of development of postsecondary education in the U.S., with attention to social context and to scope and variety of institutions.

**209C. Problems in Research and Evaluation in Higher Education. (4)** Critical review of research and evaluation studies of higher education, with special attention to need for studies of new programs and problems, and to design and methodology of evaluative research.

**209D. System of Higher Education. (4)** 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.

**210A-210B. Education as a Profession: Theory, Research, and Practice. (2-2)** 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. In Progress and letter grading.

**211A. Measurement of Educational Achievement and Aptitude. (4)** 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.

**211B. Measurement in Education: Underlying Theory. (4)** Requisite: course 211A. Measurement theory as applied to testing, focusing primarily on classical test theory; implications of theories for test construction and selection; current status of validity and reliability theory.

**211C. Item Response Theory. (4)** Requisites: courses 211B, 230C. Item response theory, applications to educational achievement tests, item bias, test information, test equating, computerized adaptive testing. S/U or letter grading.

**212A. Learning and Education. (4)** Models of learning, modeling, reinforcement, motivation, encoding, memory, transfer, individual differences, and instruction.

**212B. Motivation and Affect in Educative Process. (4)** Requisites: courses 212A, 230A. Review of theoretical and empirical literature on motivational factors in school settings and conditions for acquisition of affective outcomes. S/U or letter grading.

**212C. Cognition and Creativity in Education. (4)** Requisite: course 212A. Review of theoretical and empirical literature on cognitive processes in school learning, including knowledge acquisition, comprehension, metacognition, and creativity.

**213C. Group Counseling Theory and Process. (4)** Lecture, three hours; discussion, one hour. Requisites: courses 213A, 214A, 214B. 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.

**213D. Assessment in Counseling and Student Affairs. (4)** 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.

**214A. Counseling Theory and Practice. (4)** 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.

**214E. Substance Abuse and Addiction. (4)** Theory and practice of prevention and intervention in substance abuse and addiction from perspective of counseling and educational practice.

**214F. Student Problems: Social Context. (4)** Designed to assist students in understanding the configuration of social forces that lead to student dysfunctions. Consideration of a number of contemporary social problems that are of concern to school counselors, educators in general, and behavioral scientists.

**M215. Personality, Motivation, and Attribution. (4)** (Same as Psychology M239.) 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.

**216. Counseling Models from a Cross-Cultural Perspective. (4)** Requisite: course 213A. Research related to psychological, educational, and sociological characteristics of counseling clients within a cross-cultural perspective and implications for counseling models. Evaluation of counseling practices through analysis of school, community, and mental health settings.

**M217A. Social Development and Education. (4)** (Same as Psychology M242D.) Seminar, four hours. Biological and familial, school, and other influences on the child; 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)** Designed for graduate students. Critical review of theories and research in cognitive development, focusing on work of Piaget and Vygotsky, and relation of this work to issues in educational practice.

**M217C. Personality Development and Education. (4)** (Same as Psychology M245.) 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.

**217D. Language Development and Education. (4)** Research and theory on how children develop their first language; sociolinguistic and psycholinguistic issues in preschool and primary years; bilingual and dialectal issues.

**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 the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the relevant public agencies. Letter grading.

**219. Laboratory: Advanced Topics in Research Methodology. (4)** 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.

**220A. Inquiry into Schooling: Organization and Change. (4)** 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.

**220B. Inquiry into Schooling: Curricular Problems and Policy Issues. (4)** Inquiry into curriculum of schooling. Critical analysis of relationship of curricular decision making to social system and contextual variables.

**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.

**M222A. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4)** (Same as Anthropology M236Q, Psychiatry M235, and Psychology M295.) Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Discussion of some uses of observations and their implications for research in social sciences. Students expected to integrate observational work into their current research interests.

**222B. Design Issues in Naturalistic Research. (4)** Lecture, three hours; discussion, one hour. Requisite: course M222A. Issues in conceptualization and design of naturalistic research studies, particularly within educational settings. Specific topics include problem definition and focus, units of observation, sampling, controlled comparisons and meaningful variation, and reliability/validity concerns in observational research. Special attention to ethnographic studies.

**222C. Qualitative Data Reduction and Analysis. (4)** Lecture, two hours; discussion, two hours. Requisite: course M222A or 222B. Theory of and practice in qualitative data reduction and analysis. Discussion of data storage and retrieval systems, data manipulation techniques such as typologies and attribute spaces, and specific analytic perspectives. Interfacing qualitative and quantitative data.

**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 the Curriculum. (4)** Lecture, two hours; discussion, two hours. Examination of various ideas and theories in aesthetics and application of these in schooling contexts.

**224. Problems and Issues in Bilingual and Multicultural Education. (4)** Introduction to development and implementation of bilingual and multicultural programs in the U.S. Analysis of program goals, models, typologies, and effectiveness.

**225A. Issues in Education of Exceptional Individuals. (4)** Designed for graduate students. Analysis of major research regarding contemporary trends, issues, and programs for the exceptional; consideration of commonalities and differences among exceptional individuals.

**225B. Advanced Issues in Education of Exceptional Individuals. (4)** 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.

**226. Seminar: Special Topics in Writing, Rhetoric, and Educational Methodology. (4)** 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.

**227A. Research on Learning Characteristics of Exceptional Individuals. (4)** Requisite: course 225B. Overview of research and theory regarding learning characteristics of exceptional individuals and discussion of application of this work to educational practice.

**227B. Research on Cognitive and Language Characteristics of Exceptional Individuals. (4)** 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.

**227C. Research on Behavioral and Social Characteristics of Exceptional Individuals. (4)** Requisite: course 227B. Analysis of social and emotional development of exceptional individuals and development of social competence in special education programs.

**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)** 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.

**230A. Introduction to Research Design and Statistics. (4)** 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.

**230B-230C. Linear Statistical Models in Social Science Research. (4-4)** Lecture, four hours. Requisite: course 230A or passing score on screening examination. Integrated and unified approach to applications of linear statistical models in regression, analysis of variance, and experimental and quasi-experimental designs. In Progress and letter grading (credit to be given only on completion of course 230C).

**230X. Applied Research Design and Statistics for Social Sciences. (4)** Requisite: course 230A or passing score on screening examination. Introduction to commonly used statistical methods in social sciences, including regression, analysis of variance, contingency tables. Emphasis on application and interpretation.

**231A. Multivariate Analysis. (4)** Requisites: courses 230B, 230C. Review of multiple regression analysis, analysis of covariance. Introduction to matrix algebra. Introduction to multivariate normal distribution. Multivariate analysis of variance. Linear discriminant function. Analysis of repeated measurements. Canonical correlation. Principal components.

**231B. Factor Analysis. (4)** Requisites: courses 211B, 231A. Exploratory factor analysis, rotations, confirmatory factor analysis, multiple-group analysis.

**231C. Analysis of Categorical and Other Nonnormal Data. (4)** 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.

**231D. Advanced Quantitative Models in Nonexperimental Research: Multilevel Analysis. (4)** 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.

**M231E. Statistical Analysis with Latent Variables. (4)** (Formerly numbered 231E.) (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.

**232. Instructional Analysis. (4)** 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.

**233A. Professional Writing in Education. (4)** Designed for first- and second-year doctoral students and 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.

**233B. Professional Writing in Education. (4)** Designed for students at proposal or dissertation stage, with focus on development, organization, and coherence of these scholarly documents, their conceptualization and method, and issues of audience and style.

**234. Education and Social Stratification. (4)** 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.

**236. Human Abilities. (4)** 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)** (Formerly numbered 229.) Lecture, four hours. Examination of recent legal controversies that may impact ability of urban educators to meet needs of students in a 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)** 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.

**239. Organization and Governance of Educational Systems. (4)** 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.

**240. Cultural Foundations of U.S. Education: Policy and Practice. (4)** Designed for graduate students. Cultural foundations of persistent and troubling issues and tensions in American educational policy-making and practice.

**241. Research Methodology in School Administration. (4)** Examination of research problems and strategies in school administration.

**242. Quantitative Foundations for Educational Policy and Planning. (4)** Introductory research course focusing on quantitative foundations for descriptive, tactical, and strategic policy analysis in education.

**C244. Economics of Education. (4)** Introductory course in microeconomic and macroeconomic techniques applied to education. Methodologies illustrated principally in context of current issues in American education. Concurrently scheduled with course C191C.

**245. Seminar: Cost-Benefit Analysis in Education. (4)** Conceptual and theoretical underpinnings of cost-benefit analysis, critical analysis of current cost-benefit studies, and procedures for conduct of cost-benefit studies.

**246A. Decision Analysis and Advanced Computer Methods for Educational Policy and Planning. (4)** 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.

**247. Special Topics in Law and Educational Policy. (4)** (Formerly numbered 447.) 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.

**249B. Seminar: Institutional Research and Program Evaluation. (4)** 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.

**250A. Organizations and Systems of Higher Education. (4)** Designed for graduate students. Two-course sequence designed to orient new students to issues, ideas, and literature that constitute the division, with emphasis on underlying social and political issues that shape higher education and organizational change.

**250B. Topical Issues in Higher Education. (4)** Designed for graduate students. Two-course sequence designed to orient new students to issues, ideas, and literature that constitute the division, with emphasis on underlying social and political issues that shape higher education and organizational change.

**250C. Theoretical Frameworks of Higher Education. (4)** 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.

**251A. Seminar: Philosophy of Education, Epistemology. (4)** Seminar, four hours. S/U or letter grading.

**251C. Seminar: Philosophy of Education, Social Science Problems — Methodological Perspectives. (4)** Requisite: course 206C.

**251D. Seminar: Philosophy of Education, Problems in Ethics and Values. (4)** Requisite: course C206D.

**251E. Seminar: Philosophy of Education, Selected Issues. (4)** Seminar, four hours. S/U or letter grading.

**252A. Seminar: Educational Organizations. (4)** Requisite: course 208A.

**252B. Seminar: Education and Social Change. (4)** Requisite: course 208A.

**M252C. Human Resources and Economic Development. (4)** (Same as Community Health Sciences M251.) Lecture, four hours. Examination, in context of developing countries, of interactions among economic development, population growth, levels of health and nutritional status, and educational investments. S/U or letter grading.

**253A. Seminar: Current Problems in Comparative Education. (4)** Seminar, four hours. S/U or letter grading.

**253B. Seminar: African Education. (4)** 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.

**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)** 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 nonsocialist nations.

**253G. Seminar: The Asian American and Education. (4)** Basic issues and topics related to Asian Americans in the field of education. Examples of issues and topics include Asian Americans and the community, socioeconomic status, education-to-work transition, language and culture question.

**253H. Seminar: The Chicano/Hispanic and Education. (4)** Basic issues and topics related to the Chicano 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).

**253I. Education and Social Change in the Middle East and Islamic World. (4)** 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 the Middle East and Islamic world (including Pacific Rim, South and Central Asia).

**254. Seminar: History of Education. (4)** Requisite: course M201C. Study of current movements in historiography of education and critical reading of texts in history of education.

**255A-255B-255C. Seminars: Special Topics. (4-4-4)** May be repeated for credit. **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)** In-depth analysis of selected research approaches/areas in counseling psychology.

**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)** 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.

**260. Seminar: Principles of Curriculum and Instruction. (4)** Seminar, four hours. S/U or letter grading.

**261F. Seminar: Cognitive and Personal Development of College Students. (4)** Examination of cognitive development of college students; issues of personal and social development, including leadership, and interpersonal relations and skills.

**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.

**263. Seminar: Higher Education. (4)** Seminar, four hours. S/U or letter grading.

**264. Seminar: Teacher Education. (4)** 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.

**265. Higher Education Policy. (4)** Requisites: courses 250A, 250B. Understanding public policy for higher education requires understanding of both issues and policy process. Review of major topics on which the U.S. government is active, as well as key actors and their influence.

**266. Feminist Theory and Social Sciences Research. (4)** 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, a distinctive critical theory methodology now widely used in social sciences.

**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.

**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).

**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 a goal of cultural studies. Letter grading.

**271A. Proseminar: Educational Psychology. (2)** Introduction to a variety of research issues in the 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)** Use of case-study methods in educational 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.

**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 an institutional system wherein federal, state, and local policy, school administration, curriculum theory and design, and teaching are inextricably connected in the delivery of education.

**273B. Social Foundations of Education. (4)** 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 a diverse number of anthropological, sociological, educational curricula and literatures.

**274. Science, Technology, and Social Research after Eurocentrism. (4)** A philosophy of natural sciences for social scientists which 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 ethnohistory movements, and new theories of knowledge and how to do maximally objective research emerging from these literatures.

**275. Race and Education. (4)** Designed for graduate students. Examination of role of race in educational policy-making. Exploration of a 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.

**276. Contemporary Theories of Writing. (4)** 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 a broader intellectual history.

**277. Language in the Classroom. (4)** Seminar/fieldwork. 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.

**278. Social Contexts of Literacy Learning. (4)** Survey of range of sociocultural theories of learning and literacy, in particular, theories of literacy and language socialization, cultural historical theories of human development, and their relevance to school-based literacy.

**280A. Seminar: Selected Topics in Special Education. (2 to 6)** Focus on research and clinical problems in special education. Introduction to a range of clinical services and research strategies. Exploration of current topics in the field.

**280B. Seminar: Exceptional Individuals. (4)** Limited to doctoral students.

**282. Students at Risk: Reconsideration. (4)** 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.

**283. Social Research in a Multicultural and Postcolonial World. (4)** A 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 a 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.



**288. Research Apprenticeship Course. (2)** Discussion, two hours. Course facilitates a 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.

**290. Educational Policy Analysis: Research, Theory, and Practice. (4)** Broad overview of development of educational policy from the 1950s to the present. Examination of current issues and debates within educational policy in the U.S. through different theoretical lenses. Exploration of major bodies of research on educational policy and alternative paradigms.

**291. Organizational and Leadership Theory in Education. (4)** 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.

**292. Curriculum Theory, Research, and Practice. (4)** 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 the U.S.

**293. Teaching Studies: Research and Theory into Practice. (4)** 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 the U.S.

**296A-296F. Seminars: Research Topics in Education. (2 each)** Discussion, 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.

**299A-299B-299C. Research Practicum: Education. (4 to 8 each)** May be repeated for credit.

**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 a 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.

**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 psychoactive 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. (4)** (Formerly numbered 309A.) Lecture, two hours; discussion, two hours. Limited to credential program students. Pedagogy for bilingual and English development instruction. Topics include legal foundations of bilingual programs, educational issues, organizational approaches, and communicative approach; strategies and activities. Discussion of competencies needed by all content area teachers of English language, including strategies for teaching in and through English. Letter grading.

**310. Professional Communication for Graduate Students in Education. (2)** 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 which allows students to demonstrate skills discussed. S/U grading.

**312. Basic Principles of Curriculum and Instruction. (4)** Analysis and practice of basic principles and concepts for planning, conducting, and evaluating units of curriculum and instruction. Emphasis on study and utilization of a variety of instructional strategies and their application in elementary and secondary schools.

**314A. Principles and Methods for Curriculum, Instruction, and Leadership in Mathematics. (6 to 12)** Problem solving, curriculum development, implementation of California Mathematics Framework, strategies for encouraging women and minorities into mathematics, and leadership development. S/U grading.

**315A-315B. Principles and Methods for Teaching Reading for Multiple Subject Instruction. (2-2)** Course 315A is requisite to 315B. 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.

**316A-316B. Principles and Methods for Teaching Reading for Single Subject Instruction. (2-2)** 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-318B-318C. Principles and Methods for Multiple Subject Instruction. (2-2-2)** Lecture, two hours; laboratory, one hour. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Focus on subjects commonly taught in elementary schools. S/U grading.

**320A-320B. Principles and Methods for Single Subject Instruction. (2-2)** Course 320A is requisite to 320B. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Focus on subjects commonly taught in secondary schools. Observation and participation in schools. 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-330C. Student Teaching. (4-6)** Site-based fieldwork, 40 and 60 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 in course 330C. S/U grading.

**330D. Classroom Residency and Teaching. (8)** Site-based fieldwork, 10 to 15 hours. Students are employed by local school districts to teach as residents in school sites with racially, culturally, and linguistically diverse student populations. Students also work in collaborative teams through the Teacher Education Program to initiate a change project in their local school and/or complete a case study on the project. S/U grading.

**360A-360B-360C. Novice Seminars. (2-2-2)** (Formerly numbered 360.) Seminar, two 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 conduct ethnographic inquiry of the local community of their designated demonstration school. S/U grading.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**400. Foundations of Education Policy Analysis. (4)** Principles of decision making and policy formation, implementation, and analysis in context of the educational system. Critical perspectives include effectiveness and equity of educational delivery systems and programs, and complex nature of educational governance in contemporary America.

**401. Structure and Functions of Schools as Complex Organizations. (4)** 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.

**402. Curriculum Principles and Practices. (4)** Critical analysis of major concepts, underlying assumptions, policy issues, and processes in development and implementation of curriculum in the educational setting. Problems in formulation of purposes, selection of learning experiences, organization of curriculum, and curriculum evaluation.

**403. Teaching: Principles and Problems. (4)** 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.

**406A-406B-406C. Social Foundations and Cultural Diversity in American Education. (2-2-2)** 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.

**407A-407B. Psychological Foundations of Education. (2-2)** 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.

**408A-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. **408A.** Spanish BCLAD Emphasis; **408B.** Latino/Latina Emphasis; **408C.** Asian American Emphasis; **408D.** African American Emphasis. **408U.** General Topics.

**409. Language Structure, Acquisition, and Development. (4)** (Formerly numbered 409A.) Lecture, four hours. Limited to credential program students. Theoretical foundations of language structure and first and second language acquisition, with focus on major themes of current research that provide a 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)** Two-course sequence providing overview of higher education systems. **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 effect 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 Problems in Evaluation. (4)** (Formerly numbered 411B.) 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.

- 413A. Methodology for Primary Language Instruction. (3)** Lecture, two hours; discussion, one hour. Offered and required for Spanish and Korean 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.
- 413B. Culture of Emphasis. (3)** Lecture, two hours; discussion, one hour. Offered and required for Spanish and Korean BCLAD credential. Conducted in Spanish and Korean. 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.
- 414A. Student Affairs Practice and Theory. (4)** (Formerly numbered 213A.) 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 a knowledge base for developing theories of practice. Ongoing involvement in a cooperative learning project to examine these issues both as team members and as individuals. Letter grading.
- 414B. Legal and Ethical Issues in Student Affairs. (4)** (Formerly numbered 213B.) Lecture, two hours; discussion, two hours. Examination of legal and ethical issues that affect student affairs practices in higher education. Letter grading.
- 414C. Advanced Counseling Theory and Practice. (4)** (Formerly numbered 214B.) Lecture, two hours; discussion, one hour; laboratory, one hour. Overview of intervention and prevention strategies for student affairs professionals, with emphasis on campus-as-community concept with crisis theory as a model, providing conceptual model for understanding counseling role of student affairs in higher education. Letter grading.
- 414D. Career Development and Interventions in Colleges. (4)** (Formerly numbered 214D.) Lecture, two hours; discussion, one hour; laboratory, one hour. Examination of challenges faced by college students of all ages in preparing for careers in a dynamic multicultural world economy and interventions for assisting them. Emphasis on understanding development and evaluation of interventions. Letter grading.
- 414E. Administration of Student Affairs. (4)** Overview of general knowledge and processes essential to effectively administer a program or service under student affairs. Examination of relationship between environmental factors and strategies for governing, planning, and managing student affairs programs and services.
- 415A. Assessment in Counseling Psychology. (4)** Requisites: courses 211A, 230A. Overview of rationale for and procedures used by counseling psychologists for assessing individuals in a 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)** Requisite: 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.
- 420A. Principles of Curriculum. (4)** Critical examination of basic concepts underlying determination of objectives, selection and organization of learning experiences, and evaluation process.
- 421A. Programs and Research in Early Childhood Education. (4)** 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.
- 421D. Parents and Community Agents in Child Development. (4)** 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 the community.
- 421F. Issues in Application of Child Development and Educational Research to Social Policy. (4)** 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.
- 422. Inquiry into Schooling: Basic Issues. (4)** 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.
- 423. The Humanistic Curriculum. (4)** Consideration of philosophical and cultural foundations of humanistic curricular strategies. Review of techniques and procedures of affective education with a view to their place in overall theory of teaching and learning.
- 424A. Social Studies in the Curriculum. (4)** 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.
- 424B. Reading in the Curriculum. (4)** Requisite: 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)** 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.
- 425. Principles for Teaching Exceptional Individuals. (4)** Approaches for teaching exceptional individuals in special and regular education programs. Principles and assumptions underlying alternative approaches. Emphasis on individualizing curriculum and classroom management. Field observation in local schools. Letter grading.
- 431A. Administration in Higher Education. (4)** 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.
- 431B. Curriculum and Instruction in Higher Education. (4)** 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.
- 432. Seminar: Professional Topics in Higher Education. (4)** Seminar, four hours. S/U or letter grading.
- 433A. Instructional Product Development. (4)** Examination of procedures employed in systematic development of instructional products. Students acquire competencies associated with those procedures.
- 433B. Technological Development in Educational Media. (4)** Requisite: course 433A. Theory, current problems, and anticipated trends in instrumentation and systems development for instructional applications and research, including computer-aided instruction, communication satellites, and other advanced systems; theory and laboratory practice with instrumentation in educational research.
- 440C. Administration of the Instructional Program. (4)** 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.
- 441A. Instructional Supervision A. (4)** 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.
- 441B. Instructional Supervision B. (4)** 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.
- 442B. Legal Aspects of Educational Management and Practice. (4)** Examination of structures and kinds of law governing educational systems in the 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.
- 443. Policy Analysis in Education. (4)** 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).
- 444B. Equality of Educational Opportunity through Desegregation and Finance Case Law. (4)** Requisite: course 442B. Concentrated review of definition of equality of educational opportunity as it is being developed by the courts in cases concerning desegregation and educational finance.
- 447. Seminar: Educational Policy and Planning, Special Studies. (1 to 4)** S/U or letter grading.
- 448A. Urban School Leadership. (4)** Analysis of problems of urban school leadership. Emphasis on changing nature of the urban principalship, with considerable attention to role of other school and community agencies that interact with the urban school leader.
- 448B. Urban Leadership Laboratory. (4)** Analysis of and opportunity to practice human and technical skills requisite for success as an urban school leader. Topics include negotiations, conflict resolution, applied computer technology, and effective communication. Activities include gaming, simulation, computer programming, and group dynamics.
- 450A. 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 one of Educational Leadership Program to help students with their communication and leadership capacities. Letter grading.
- 450B. 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 Ed.D. 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.
- 454. Introduction to Action Research. (2)** Lecture, two hours; discussion, two hours. Limited to Educational Leadership Program students. Elements of organization research, including diagnosis forming partnerships, gathering and analyzing data, and designing interventions. Letter grading.
- 455A-455B-455C. Education, Inquiry, and Writing. (2-2-2)** Discussion, one hour; laboratory, one hour; lecture/workshop, eight hours per month. Limited to Educational Leadership Program Ed.D. students. 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-458D. Practicum: Culminating Project. (2 each)** Discussion, two hours. Preparation: completion of first- and second-year courses. Limited to Educational Leadership Program students. Development of culminating project (Ed.D. dissertation) and its implementation to improve educational practice. S/U grading.

**460. Seminar: Special Issues in Evaluation. (4)** Topics and instructors vary each term. Recent emphases included evaluation utilization and cost-effectiveness evaluation.

**462. Seminar: Community College. (4)** Topics include problems and practices in community college formation, instruction, student flow, administration, and/or evaluation.

**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 the Classroom. (4)** 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.

**489. Instructional Strategies in Education. (4)** Methods for academic instruction, including research and active participation in the adversary approach, forms of debate, role playing, interaction process analysis, and feedback instruments. Practical emphasis on social sciences and humanities instruction, K-12.

**490A. Instructional Decision Making. (4)** 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.

**491. Curricular Decision Making. (4)** (Formerly numbered 491A-491B.) 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)** Relationship between appraisal instruments and information required for making decisions about teachers, pupils, and materials. Recent developments in evaluation of teaching and learning; use of modern appraisal techniques in classroom settings.

**495A-495B-495C. Resident Seminars. (6-6-6)** Seminar, four 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 for CLAD/BCLAD, and preparation of M.Ed. portfolio and for M.Ed. defense included. Letter grading.

**498A-498B-498C. Directed Field Experience. (2 to 8 each)** Clinic, to be arranged. Field experiences designed to increase understanding of student fields of study. S/U or letter grading.

**499A-499B-499C. Advanced Directed Field Experience. (4 to 8 each)** May be repeated for credit.

**501. Cooperative Program in Special Education. (2 to 8)** 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. (6 to 12)** Individual study or research for graduate students. May be repeated for credit.

**597. Preparation for Master's Comprehensive Examinations or Doctoral Qualifying Examinations. (6 to 12)** 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. (6 to 12)** Research for and preparation of master's thesis. May be taken for a maximum of 12 units. S/U grading.

**599. Dissertation Research. (6 to 12)** 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*

UCLA  
58-121 Engineering IV  
Box 951594  
Los Angeles, CA 90095-1594

(310) 825-2647  
<http://www.ee.ucla.edu/>

Yahya Rahmat-Samii, Ph.D., *Chair*  
Gregory J. Pottie, Ph.D., *Vice Chair*  
Oscar M. Stafsudd, Ph.D., *Vice Chair*  
John D. Villasenor, Ph.D., *Vice Chair*

### Professors

Asad A. Abidi, Ph.D.  
Abeer A.H. Alwan, Ph.D.  
A.V. Balakrishnan, Ph.D.  
Elliott R. Brown, Ph.D.  
Frank M.C. Chang, Ph.D.  
Harold R. Fetterman, Ph.D.  
Warren S. Grundfest, M.D., FACS  
Tatsuo Itoh, Ph.D. (*TRW Professor of Electrical Engineering*)  
Stephen E. Jacobsen, Ph.D., *Associate Dean*  
Rajeev Jain, Ph.D.  
Bahram Jalali, Ph.D.  
Chandrashekhar J. Joshi, Ph.D.  
William J. Kaiser, Ph.D.  
Nhan Levan, Ph.D.  
Jia-Ming Liu, Ph.D.  
Warren B. Mori, Ph.D.  
Dee-Son Pan, Ph.D.  
C. Kumar N. Patel, Ph.D.  
Gregory J. Pottie, Ph.D.  
Yahya Rahmat-Samii, Ph.D.  
Behzad Razavi, Ph.D.  
Vwani P. Roychowdhury, Ph.D.  
Izhak Rubin, Ph.D.  
Henry Samueli, Ph.D.  
Oscar M. Stafsudd, Ph.D.  
John D. Villasenor, Ph.D.  
Chand R. Viswanathan, Ph.D.  
Kang L. Wang, Ph.D.  
Paul K.C. Wang, Ph.D.  
Alan N. Willson, Jr., Ph.D., *Associate Dean*  
Jason C.S. Woo, Ph.D.  
Ming-C. Wu, Ph.D.  
Eli Yablonovitch, Ph.D.  
Kung Yao, Ph.D.

### Professors Emeriti

Frederick G. Allen, Ph.D.  
Francis F. Chen, Ph.D.  
Robert S. Elliott, Ph.D.  
Ellis F. King, M.S.  
Richard E. Mortensen, Ph.D.  
H.J. Orchard, M.Sc.  
Frederick W. Schott, Ph.D.  
Gabor C. Temes, Ph.D.  
Donald M. Wiberg, Ph.D.  
Jack Willis, B.Sc.

### Associate Professors

Babak Daneshhrad, Ph.D.  
Ali H. Sayed, Ph.D.  
Mani B. Srivastava, Ph.D.  
Lieven Vandenberghe, Ph.D.  
Ingrid M. Verbauwhede, Ph.D.

### Assistant Professors

Jack W. Judy, Ph.D.  
William H. Mangione-Smith, Ph.D.  
Fernando G. Paganini, Ph.D.  
Richard D. Wesel, Ph.D.  
C.-K. Ken Yang, Ph.D.

### Adjunct Professors

Nicolaos G. Alexopoulos, Ph.D.  
Donald Arnush, Ph.D.  
Giorgio Franceschetti, Ph.D.  
Paul T. Greiling, Ph.D.  
Brian H. Kolner, Ph.D.  
Neville C. Luhmann, Jr., Ph.D.  
Joel Schulman, Ph.D.  
Pyotr Y. Ufimtsev, Ph.D.

### Adjunct Associate Professors

Nicholas Bambos, Ph.D.  
Bijan Houshmand, Ph.D.  
Kenneth W. Iliff, Ph.D.  
Helen R. Na, Ph.D.  
Kristofer S.J. Pister, Ph.D.

### Adjunct Assistant Professors

Charles Chien, Ph.D.  
Robert J. Greenberg, Ph.D.

## Scope and Objectives

The Electrical Engineering Department emphasizes teaching and research in the fields of communications and telecommunications, control systems, electromagnetics, engineering optimization/operations research, integrated circuits and systems, operations research, photonics and optoelectronics, plasma electronics, signal processing, and solid-state electronics. In each of these fields, the department has state-of-the-art research programs exploring exciting new concepts and developments. Undergraduate students receive a B.S. degree in Electrical Engineering. Graduate research and training programs leading to the M.S. and Ph.D. degrees are also offered.

Laboratories are available for research in the following areas: analog and digital electronics, hybrid integrated circuits, integrated semiconductor devices, microwave and millimeter wave electronics, solid-state electronics, fiber optics, lasers and quantum electronics, and applied plasma physics. The department is associated with the Center for High-Frequency Electronics and the Institute of Plasma and Fusion Research, two research centers at UCLA.

## Undergraduate Study

### Electrical Engineering B.S.

The ABET-accredited electrical engineering curriculum gives an excellent background for either graduate study or employment. The two main objectives are to provide (1) a deep and fundamental education in electrical engineering as well as in basic sciences and mathematics and (2) specialized education in one branch of electrical engineering so that students develop expertise in it.

## The Major

Course requirements are as follows (189 minimum units required):

1. One engineering breadth course from Materials Science and Engineering 14, Mechanical and Aerospace Engineering 102, 103, M105A (or Chemical Engineering M105A)
2. Electrical Engineering 10, M16 (or Computer Science M51A), 101, 102, 103, 110, 110L, 113, 115A, 115AL, 121B, 131A, 132A, 141, 161, 172, Mathematics 113 or 132, Mechanical and Aerospace Engineering 192A
3. Any five major field elective courses selected from those offered by the Electrical Engineering Department, including at minimum 4 units of laboratories and one design course. With approval of the adviser, two may be selected from courses related to electrical engineering in other departments
4. Chemistry and Biochemistry 20A, 20B, 20L; Computer Science 32; Electrical Engineering 1, 2, 5C (or Computer Science 31); Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 4AL, 4BL
5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details. Electrical Engineering majors are also required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements

## Biomedical Engineering Option

Course requirements are as follows (196 minimum units required):

1. Electrical Engineering 10, M16 (or Computer Science M51A), 101, 102, 103, 110, 110L, 113, 114D, 115A, 115AL, 121B, 131A, 132A, 141, 161, Mathematics 113 or 132, Mechanical and Aerospace Engineering 103, M105A, 192A
2. Life Sciences 1 (satisfies HSSEAS GE life sciences requirement), 2, 3
3. Three technical electives, including one course selected from Electrical Engineering 115B, 115C, 142, 172; the remaining two courses may be selected from the above list and/or from Biomedical Engineering C101, CM102, CM103, Chemical Engineering CM133, Computer Science M196B, CM196L, Electrical Engineering 176
4. Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL; Electrical Engineering 1, 2, 5C (or Computer Science 31); Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 4AL, 4BL
5. HSSEAS general education (GE) course requirements. See the College and

Schools section of this catalog for details. Electrical Engineering majors are also required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements

## Computer Engineering Option

Course requirements are as follows (190 minimum units required):

1. One engineering breadth course from Materials Science and Engineering 14, Mechanical and Aerospace Engineering 102, 103, M105A (or Chemical Engineering M105A)
2. Computer Science 111, 180, Electrical Engineering 10, M16 (or Computer Science M51A), 101, 102, 103, 110, 110L, 113, 115A, 115AL, 115C, 116B, M116C (or Computer Science M151B), M116D (or Computer Science M152B), M116L (or Computer Science M152A), 121B, 131A, Mathematics 113 or 132, Mechanical and Aerospace Engineering 192A
3. Three technical elective courses, with at least one from item a and one from item b: (a) Electrical Engineering 132A, either Computer Science 118 or Electrical Engineering 132B; (b) Electrical Engineering 114D, 115B, 115D, 141, 142
4. Chemistry and Biochemistry 20A; Computer Science 32, 33; Electrical Engineering 1, 2, 5C (or Computer Science 31); Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 4AL, 4BL
5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details. Electrical Engineering majors are also required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Electrical Engineering offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Electrical Engineering.

## Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. program are required to take the General Test of the Graduate Record Examination (GRE).

Students entering the Engineer or Ph.D. program normally should have completed the requirements for the master's degree with at least a 3.25 grade-point average and 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 the M.S. degree.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs in *Program Requirements for UCLA Graduate Degrees*.

Applicants are encouraged to apply online. Application forms, including a departmental supplement to the application, may be found at <http://www.ee.ucla.edu> or by writing to the Electrical Engineering Department, 56-125B Engineering IV, UCLA, Box 951594, Los Angeles, CA 90095-2647 or to the Office of the Associate Dean for Academic and Student Affairs, Henry Samueli School of Engineering and Applied Science, 6426 Boelter Hall, UCLA, Box 951601, Los Angeles, CA 90095-1601.

## Master's Degree

For fields, see Doctoral Degree.

The M.S. degree is offered through the comprehensive examination and thesis plans, except for the fields of integrated circuits and systems and solid-state electronics which are thesis plan only. At least nine courses are required, five of which must be graduate courses. A majority of the courses must be in or related to electrical engineering and belong to one of the specialized major fields, as outlined in *Program Requirements for UCLA Graduate Degrees*, the school's *Announcement*, and departmental material. Some fields require special requisites, more than five graduate courses, and special conditions for use of 500-series courses.

## Doctoral Degree

Fields include communications and telecommunications; control systems; embedded computing systems; electromagnetics; engineering optimization/operations research; integrated circuits and systems; photonics and optoelectronics; plasma electronics; signal processing; solid-state electronics.

There is no formal course requirement for the Ph.D. degree, and students theoretically may substitute coursework by examinations. Normally, however, students take courses to acquire the knowledge needed for the written and oral preliminary examinations. The basic program of study for the Ph.D. degree is built around one major field and two minor fields. The major field has a scope corresponding to a

body of knowledge contained in six courses, at least four of which are graduate courses, plus the current literature in the area of specialization. Each major field is described in a Ph.D. major field syllabus. Each minor field normally embraces a body of knowledge equivalent to three courses, at least two of which are graduate courses. If students fail to satisfy the minor field requirements through coursework, a minor field examination may be taken. The minor fields are usually selected to support the major field and are usually subsets of other major fields.

For information on completing the Engineer degree, see Engineering Schoolwide Programs in *Program Requirements for UCLA Graduate Degrees*.

Written and oral qualifying examinations are required. The written qualifying examination is known as the Ph.D. preliminary examination. After mastering the body of knowledge defined in the major field, students take the preliminary examination, which typically consists of both written and oral parts (the oral part may not be required in some major fields).

Following successful completion of the preliminary examination, students take the University Oral Qualifying Examination. The nature and content of the examination are at the discretion of the doctoral committee, but ordinarily include a broad inquiry into the student's preparation for research, as well as a review of the dissertation prospectus.

## Electrical Engineering

### Lower Division Courses

**1. Physics for Electrical Engineers. (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Mathematics 32B, 33B, Physics 1A, 1B. Introduction to modern physics and electromagnetism with an 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)** (Not the same as course 2 prior to Winter Quarter 1999.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 1. Introduction to modern physics necessary to understand solid-state devices, including elementary quantum theory, Fermi energies, and concept of electrons in solids. Derivation of electrical properties of holes and junctions. Letter grading.

**3. Principles and Advances in Electrical Engineering. (4)** (Formerly numbered 2.) Lecture, three hours; outside study, nine hours. Open to freshmen and sophomores outside the School of Engineering and Applied Science. Designed to meet general education requirements of nonengineering students. Particularly intended for humanities and arts students. Topics include elementary treatment of fundamental concepts and advances in electrical engineering. Letter grading.

**5C. Introduction to UNIX and C. (4)** Lecture, three hours; discussion, one hour; laboratory, five hours; outside study, three hours. Introduction to UNIX environment and C programming language. UNIX basics: file structure and manipulation. Technical document preparation. C-shell programming. Elementary C language concepts: input/output, variable types, operators, statements, arrays, and functions. Letter grading.

**10. Circuit Analysis I. (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 1 or Physics 1C. Corequisite: Mathematics 33A. 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. Requisite: Physics 1C. 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, three hours; discussion, one hour; outside study, 11 hours. Requisites: course 5C or Computer Science 31 or Civil Engineering 15 or Mechanical and Aerospace Engineering 20, Mathematics 33B. Introduction to numerical analysis and computing techniques: root finding, matrix computations for systems of linear equations, systems of nonlinear equations, numerical methods for ordinary differential equations, least squares, eigenvalue/eigenvector problem, applications to engineering problems. 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 10 or 100. 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, three hours; discussion, one hour; outside study, nine hours. Requisites: courses 102, 110. 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.

**113L. Digital Signal Processing Laboratory. (2)** Laboratory, four hours; outside study, two hours. Requisite: course 113. Recommended: Computer Science M151B. 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. Letter grading.

**114D. Speech and Image Processing Systems Design. (4)** (Formerly numbered 114.) 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, three 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, three hours; discussion, one hour; outside study, eight hours. Requisites: course 115A, Computer Science M51A. Recommended: courses 115B, 121A. Transistor-level digital circuit analysis and design. Modern logic families (TTL, ECL, NMOS, CMOS), integrated circuit (IC) layout, MSI digital circuits (flipflops, registers, counters, PLAs, etc.), computer-aided simulation of digital circuits. Letter grading.

**115D. Design Studies in Electronic Circuits. (4)** Lecture, four hours; outside study, eight 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.

**116B. VLSI System Design. (4)** Lecture, three hours; discussion, one hour; laboratory, four hours; outside study, four hours. Requisites: courses 115C, M116C (or Computer Science M151B), M116D (or Computer Science M152B). Familiarity with digital circuit, logic design, and computer architecture assumed. VLSI design from a system perspective, with focus on (1) core VLSI architecture concepts such as datapath design, clocking, power, speed, area trade-off, input/output packaging, etc. and (2) behavioral, register-transfer, logic, and physical-level structured VLSI design using CAD tools and hardware description languages such as VHDL. Letter grading.

**M116C. Computer Systems Architecture. (4)** (Formerly numbered 116C.) (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. Machine organization and design, formal descriptions, comparative study of machine instruction sets and formats, data representation and floating-point, addressing structures, mechanization of procedure calls, memory organization and management, microprogramming, input/output (I/O) processing and interrupts, and reliability aspects. Letter grading.

**M116D. Digital Design Project Laboratory. (4)** (Same as Computer Science M152B.) Laboratory, four hours; discussion, two hours; outside study, six hours. Requisite: course M116C or Computer Science M151B. Design and implementation of complex digital sub-systems 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.

**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.

**121A. Physical Principles of Semiconductor Devices. (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: course 2 or Physics 1C, Materials Science 14. Introduction to physics of semiconductors; survey of equilibrium and nonequilibrium electronic processes in semiconductors; principles of operation and design of p-n junction devices. Fabrication of semiconductor devices. Letter grading.

**121B. Principles of Semiconductor Device Design. (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 121A. Introduction to principles of operation of bipolar and MOS transistors, equivalent circuits, high-frequency behavior, voltage limitations. Letter grading.

**122AL. Semiconductor Devices Laboratory. (4)** Lecture, one hour; laboratory, six hours; outside study, five hours. Requisites: courses 121A, 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.

**129D. Semiconductor Processing and Device Design. (4)** Lecture, two hours; laboratory, four hours; outside study, six hours. Requisites: courses 121A, 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 the tools. Using CAD tools, a 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, 131A. Properties of signals and noise. Baseband pulse and digital signaling. Bandpass signaling techniques. Communication systems: digital transmission, frequency-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. Queueing 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; outside study, eight 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.

**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.

**M150L. Introduction to Micromachining and Microelectromechanical Systems Laboratory. (4)** (Formerly numbered 151A.) (Same as Biomedical Engineering M150L and Mechanical and Aerospace Engineering M180L.) Lecture, three hours; laboratory, four hours; outside study, five hours. Requisites: course 1 or Physics 1C, Chemistry 20A. Introduction to micromachining technologies and microelectromechanical systems (MEMS). Methods of micromachining and how these methods can be used to produce a variety of MEMS, including microstructures, microsensors, and microactuators. Students fabricate set of basic MEMS structures in hands-on microfabrication laboratory. Letter grading.

**151DL. Microelectromechanical Systems Design. (4)** Lecture, two hours; laboratory, two hours; outside study, eight hours. Requisites: courses 115A, 115B. Microelectromechanical systems design, combining lecture and laboratory instruction on microsensor and microactuator fundamental operating principles and high-resolution electronic measurement methods for transducers. Emphasis on design of transducers and interface systems using device and system-level tools. 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.

**162B. Antenna Design II. (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 162A. Radiation patterns of horns, slots, and microstrip antennas. Equivalent source representations. Synthesis of sum and difference patterns. Dolph/Chebyshev excitation. Design of slot arrays with mutual coupling. Design of traveling wave antennas, reflectors, and lenses. 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. Requisites: courses 121A, 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.

**164AL. Microwave Wireless Laboratory I. (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.

**164BL. Microwave Wireless Laboratory II. (2)** Lecture, one hour; laboratory, two hours; outside study, three hours. Requisite: course 161. Application of contemporary analytic design techniques to development of microwave amplifiers and oscillators incorporating state-of-the-art commercially available microwave transistors (silicon bipolar and GaAs MESFET). 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, Computer Science 171. 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, three hours; discussion, one hour; outside study, eight 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.

**173DL. Photonics and Communication Design Laboratory. (4)** (Formerly numbered 173L.) Laboratory, 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, three hours; discussion, one hour; outside study, eight 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.

**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.

**190D. Systems Design. (4)** Lecture, two hours; laboratory, two hours; outside study, eight hours. Requisites: courses 113, 132A, 141. 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.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Limited to seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Only 2 units may be applied toward degree; the 2 units must be approved by petition and can be used only as a replacement for a regular electrical engineering laboratory course. Students may take additional 199 courses, but they may not be applied toward degree. Letter grading.

## Graduate Courses

**201A. VLSI Architectures and Design Methodologies. (4)** Lecture, four hours; outside study, eight hours. Requisite: course M216A or Computer Science M258A. In-depth study of VLSI architectures and VLSI design methodologies for variety of applications in signal processing, communications, networking, embedded systems, etc. VLSI architectures choices range from ASICs, full custom approach, and special purpose processors to general purpose microprocessors. VLSI design methodologies take design specifications to implementation with aid of modern computer-aided design tools. Letter grading.

**202A. Embedded and Real-Time Systems. (4)** Lecture, four hours; outside study, eight hours. Designed for graduate computer science and electrical engineering students. Methodologies and technologies for behavioral synthesis, system synthesis, and real-time issues in embedded systems. Topics include behavioral synthesis, hardware/software codesign, interface synthesis, scheduling, real-time constraints, real-time specification and modeling, transformation and estimations during synthesis and design optimization, concurrency, real-time OS, and embedded processors. Design for low power, verification, and debugging. Letter grading.

**204A. Advanced Compilers. (4)** Lecture, four hours; outside study, eight hours. Requisites: Computer Science 132, 251A. Designed for graduate computer science and electrical engineering students. Efficient allocating of shared resources (buses, function units, register files) is one of most important areas of research in modern computer architecture and compilation research. Consideration of instruction selection and scheduling, register assignment, and low-level transformation in context of concurrent microarchitecture (e.g., VLIW, superscalar, and most DSP). Topics include mapping to specific intro-processor communications buses, making effective use of hardware caches, and targeting special-purpose function units. Letter grading.

**206A. Mobile and Wireless Networked Computing Systems. (4)** Lecture, four hours; outside study, eight hours. Designed for graduate computer science and electrical engineering students. Interdisciplinary course covering mobile computing, wireless networking, and multimedia processing techniques for computing systems capable of ubiquitous transport and processing of multimedia information. Topics include wireless and cellular fundamentals, network mobility management, low-power portable node architecture, mobile IP, wireless TCP, middleware and operating system issues, and context-aware adaptive applications. Letter grading.

**M208A. Analytical Methods of Engineering I. (4)** (Same as Mechanical and Aerospace Engineering M291A.) Lecture, four hours; outside study, eight hours. Requisites: Mathematics 131A, 132. Application of abstract mathematical methods to engineering problems. Review of elements of measure and integration,  $L_2$  theory — linear spaces and operators. Eigenvalue problems. Introduction to spectral theory — elementary distribution theory. Applications to problems in engineering. Letter grading.

**M208B. Analytical Methods of Engineering II. (4)** (Same as Mechanical and Aerospace Engineering M291B.) Lecture, four hours; outside study, eight hours. Requisite: course M208A or Mechanical and Aerospace Engineering M291A. Application of modern mathematical methods to engineering problems. Review of spectral theory. Green's functions and eigenvalue problems for second-order ordinary differential equations and their adjoints. Discrete and continuous spectra for ordinary and partial differential equations. Initial and boundary value problems. Letter grading.

**208C. Semigroups of Linear Operators and Applications. (4)** 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. Applications. Letter grading.

**210A. Adaptive Filtering. (4)** (Formerly numbered 210.) 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-recursive (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  $H_\infty$  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; outside study, nine 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. Requisites: courses 212A, M216A. 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)** (Formerly numbered 214A.) (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; outside study, eight hours. Requisite: course 115B. Analysis and design of analog integrated circuits. MOS and bipolar device 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, three hours; outside study, nine hours. Requisites: courses 115C, M216A. Analysis and comparison of modern logic families (CMOS, bipolar, BiCMOS, GaAs). MSI digital circuits (flipflops, registers, counters, PLAs). VLSI memories (ROM, RAM, CCD, bubble memories, EPROM, EEPROM) and VLSI systems. 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.

**M216A. LSI in Computer System Design. (4)** (Same as Computer Science M258A.) Lecture, four hours; laboratory, four hours. Limited to graduate computer science and electrical engineering students. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on a chip. Letter grading.

**M216B-M216C. LSI in Computer System Design. (4-4)** (Same as Computer Science M258B-M258C.) Lecture, four hours; laboratory, four hours. Requisite: course M216A. LSI/VLSI design and application in computer systems. In-depth studies of VLSI architectures and VLSI design tools. In Progress and S/U or letter grading.

**M217. Biomedical Imaging. (4)** (Formerly numbered 217.) (Same as Biomedical Engineering M217.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisite: course 114D or 211A. Mathematical principles of medical imaging modalities: X-ray, computed tomography, positron emission tomography, single photon emission computed tomography, magnetic resonance imaging. Topics include basic principles of each imaging system, image reconstruction algorithms, system configurations and their effects on reconstruction algorithms, specialized imaging techniques for specific applications such as flow imaging. Letter grading.

**219A. Special Topics in Circuits and Signal Processing. (4)** Lecture, three hours; outside study, nine hours. Advanced treatment of topics selected from research areas in circuit theory, integrated circuits, or signal processing. Letter grading.

**221A. Physics of Semiconductor Devices I. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 121A. Physical principles and design considerations of junction devices. Letter grading.

**221B. Physics of Semiconductor Devices II. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 121A. 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. Requisite: course 121A. 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 metalization. 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. Superlattices and Quantum Wells. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 223. Theoretical methods for circulating electronics and optical properties of semiconductor quantum wells, superlattices, and tunnel structures. Quantum size effects and low-dimensional systems. Application to semiconductor 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 a tutorial topic and on a 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; outside study, eight 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 modulation 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; outside study, eight 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; outside study, eight 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 which 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.

**233B. Wireless Communications Systems. (4)** 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.

**233C. Mobile Multimedia Information Systems. (4)** Lecture, four hours; outside study, eight hours. Requisites: course 232C, Computer Science 218. Interdisciplinary course covering mobile networked computing, wireless communication, and multimedia processing for systems capable of ubiquitous transport and processing of multimedia information. Topics include radio propagation, wireless channels, cellular systems, network mobility management, low-power portable node architecture, middle ware, OS, and application issues. 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. Nonlinear Programming. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 236A. Basic graduate course in nonlinear programming. Convex sets and functions. Engineering applications and convex optimization. Lagrange duality, optimality conditions, and theorems of alternatives. Unconstrained minimization methods. Convex optimization methods (interior-point methods, cutting-plane methods, ellipsoid algorithm). Lagrange multiplier methods and sequential quadratic 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.

**237. Dynamic Programming. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 232A, 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.

**239AS. Topics in Communication. (4)** Lecture, four hours; outside study, eight hours. Topics in one or more special aspects of communication systems, such as phase-coherent communication systems, optical channels, time-varying channels, feedback channels, broadcast channels, networks, coding and decoding techniques. May be repeated for credit with topic change. Letter grading.



**239BS. Topics in Operations Research. (4)** Lecture, four hours; outside study, eight hours. Treatment of one or more selected topics from areas such as integer programming; combinatorial optimization; network synthesis; scheduling, routing, location, and design problems; implementation considerations for mathematical programming algorithms; stochastic programming; applications in engineering, computer science, economics. May be repeated for credit with topic change. Letter grading.

**M240A. Linear Dynamic Systems. (4)** (Formerly numbered 240A.) (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)** (Formerly numbered 240C.) (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. Fundamentals and applications of second-order theory stochastic processes. Correlation and spectral density. Gaussian process, processing by dynamic systems, Bayes rule and conditional expectation; mean-square estimation and Kalman filtering. Letter grading.

**241B. Kalman Filtering. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses M240A, 241A. Statistical estimation theory, estimation of signal parameters in additive noise. Kalman filter theory: basic theory, steady state and frequency domain analyses, on-line estimation and colored noise. Likelihood ratios, Gaussian signals in Gaussian noise. Letter grading.

**241C. Stochastic Control. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 240B, 241B. Estimation and control of linear discrete-time and continuous-time stochastic systems; separation theorem and applications; Kalman filtering. Letter grading.

**M242A. Nonlinear Dynamic Systems. (4)** (Formerly numbered 242.) (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. Liapunov 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-infinity 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.

**249S. Topics in Control. (4)** Seminar, four hours; outside study, eight hours. Thorough treatment of one or more aspects of control theory and applications, such as computational methods for optimal control; stability of distributed systems; identification; adaptive control; nonlinear filtering; differential games; applications to flight control, nuclear reactors, process control, biomedical problems. May be repeated for credit with topic change. Letter grading.

**M250A. Microelectromechanical Systems (MEMS) Fabrication. (4)** (Formerly numbered 250A.) (Same as Biomedical Engineering M250A and Mechanical and Aerospace Engineering M280.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course M150L. 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.

**M250B. Microelectromechanical Systems (MEMS) Device Physics and Design. (4)** (Formerly numbered 250B.) (Same as Biomedical Engineering M250B and Mechanical and Aerospace Engineering M282.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course M250A. 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.

**250C. Microsensors and Microinstruments. (4)** Lecture, three hours; laboratory, three hours; outside study, six hours. Requisite: course M250B. Fundamentals of microelectromechanical systems (MEMS) microsensors and microinstruments. Measurement principles for MEMS transducers. Design methods and design constraints for sensitivity and stability. Implementation of control methods for improving measurement sensitivity, linearity, and reproducibility. Design project required, with emphasis on integration of sensors and actuators. Letter grading.

**259S. Seminar: Microelectromechanical Systems. (2)** Seminar, two hours; outside study, four hours. Seminar on microelectromechanical systems (MEMS). Letter grading.

**260A-260B. Advanced Engineering Electrodynamics. (4-4)** 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.

**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. Requisites: courses 162A, 162B. 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 173L 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 preamplifier, quantizer, clock and data recovery, laser driver, and predistortion circuits. Letter grading.

**279S. Special Topics in Quantum Electronics. (4)** Lecture, four hours; outside study, eight hours. Current research topics in quantum electronics, lasers, nonlinear optics, optoelectronics, ultrafast phenomena, fiber optics, and lightwave technology. May be repeated for credit. Letter 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, hydromagnetic 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.

**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.

**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. Letter grading.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**475C. Manufacturing Systems. (4)** Lecture, four hours; outside study, eight hours. Requisite: Mechanical and Aerospace Engineering 475B. 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

*Henry Samueli School of Engineering  
and Applied Science*

UCLA  
6426 Boelter Hall  
Box 951601  
Los Angeles, CA 90095-1601  
(310) 825-2826  
<http://www.seas.ucla.edu/>

### Professors Emeriti

Edward P. Coleman, Ph.D.  
Herbert B. Nottage, Ph.D.  
Allen B. Rosenstein, Ph.D.  
Bonham Spence-Campbell, E.E.

### Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including lan-

guage requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Henry Samueli School of Engineering and Applied Science offers the Master of Engineering (M.Engr.) degree (through the Engineering Executive Program) and the Engineer (Engr.) degree as schoolwide degrees.

### Admission

For information about degree programs in specific engineering majors, consult the departmental listing for that major.

### Master of Engineering

The Engineering Executive Program, leading to the M.Engr. degree, enrolls a limited number of students in a two-year work-study program. It is specifically designed for experienced professionals who intend to go on to high-level executive positions in industry and government.

In addition to the University minimum requirements, the following are required: (1) five years of responsible full-time professional experience in engineering, (2) some formal study in statistics, and (3) the Graduate Record Examination (GRE) General Test and Subject Test in Engineering, Mathematics, Business, or a related field. A screening interview with the coordinator of the Engineering Executive Program is required.

More information can be obtained from the Office of Academic and Student Affairs, Henry Samueli School of Engineering and Applied Science, 6426 Boelter Hall, (310) 825-1704.

### Engineer Degree

For information on admission to the program, see the admission section for the corresponding departmental doctoral program.

### Master's Degree

The field for this degree program is engineering management.

The M.Engr. degree is offered through the comprehensive examination plan. A total of 12 professional (400-series) courses are required for the degree. Students should consult with the graduate adviser for specific courses and departmental requirements and restrictions.

### Engineer Degree

The Henry Samueli School of Engineering and Applied Science 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 in the sense that students in the Ph.D. program may either exit with an Engineer degree or earn the Engineer degree en route to one of the Ph.D. degrees offered by the school. Similarly, students 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 applies toward the minimum residence requirements and to the time limitation for the other program.

### Graduate Certificate of Specialization

A certificate of specialization is available in all areas of specialization offered by the Henry Samueli School of Engineering and Applied Science, except computer science. Requirements for admission are the same as for the M.S. degree. Details regarding the certificate programs may be obtained from each department office.

## Engineering

### Lower Division Courses

**95. Ethical and Professional Issues in Engineering and Computer Science. (4)** Lecture, four hours; discussion, one hour. Selected lectures, discussions, and oral and written reports related to profession of engineering. Lectures by practicing engineers, case studies, and small group projects on issues that involve conflicting demands on society. Letter grading.

**97. Introduction to Engineering Disciplines. (4)** Lecture, four hours; discussion, four hours; outside study, four hours. Introduction to engineering as a professional opportunity for freshman students by exploring difference between engineering disciplines and functions engineers perform. Development of skills and techniques for academic excellence through the team process. Investigation of national need underlying current effort to increase participation of historically underrepresented groups in the U.S. technological work force. P/NP 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.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**470A-470D. The Engineer in the 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. The Engineer in the General Environment. (3-3-1.5)** Lecture, three hours (courses 471A, 471B)/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 grading (course 471A); In Progress and S/U or letter grading (courses 471B, 471C).

**472A-472D. The Engineer in the Business Environment. (3-3-3-1.5)** Lecture, three hours (courses 472A, 472B, 472C)/90 minutes (course 472D). Limited to Engineering Executive Program students. Language of business for the 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 and S/U or letter grading (credit to be given on completion of courses 472B and 472D).

**473A-473B. Analysis and Synthesis of a 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 a goal-oriented technical group. In Progress and S/U grading.

**495. Teaching Assistant Training Seminar. (4)** Seminar, four hours; outside study, eight hours. Preparation: appointment as a 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.

**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

*College of Letters and Science*

UCLA  
2225 Rolfe Hall  
Box 951530  
Los Angeles, CA 90095-1530  
(310) 825-4173  
<http://www.english.ucla.edu>

Thomas R. Wortham, Ph.D., *Chair*  
Charles L. Batten, Jr., Ph.D., *Vice Chair*  
Michael A. North, Ph.D., *Vice Chair*

### Professors

Michael J.B. Allen, Ph.D., D.Litt.  
Blake Allmendinger, Ph.D.  
Christopher C. Baswell, Ph.D.  
Calvin B. Bedient, Ph.D.  
Albert R. Braummüller, Ph.D.  
Joseph E. Bristow, Ph.D.  
Frederick L. Burwick, Ph.D.  
King-Kok Cheung, Ph.D.  
Michael J. Colacurcio, Ph.D.  
Edward I. Condren, Ph.D.  
James E. Goodwin, Ph.D.  
Janet R. Hadda, Ph.D.

N. Katherine Hayles, Ph.D.  
Eric Jager, Ph.D.  
Henry Ansgar Kelly, Ph.D.  
Gordon L. Kipling, Ph.D.  
Jayne E. Lewis, Ph.D.  
Kenneth R. Lincoln, Ph.D.  
Christopher Looby, Ph.D.  
Anne K. Mellor, Ph.D.  
Donka Minkova, Ph.D.  
Joseph F. Nagy, Ph.D.  
Michael A. North, Ph.D.  
Felicity Nussbaum, Ph.D.  
Barbara L. Packer, Ph.D.  
Vincent P. Pecora, Ph.D.  
Jonathan F.S. Post, Ph.D.  
Karen E. Rowe, Ph.D.  
Gregory M. Sarris, Ph.D.  
Mark Seltzer, Ph.D.  
Debra K. Shuger, Ph.D.  
Valerie A. Smith, Ph.D.  
Robert N. Watson, Ph.D.  
Thomas R. Wortham, Ph.D.  
Stephen I. Yenser, Ph.D.

### Professors Emeriti

Paula Gunn Allen, Ph.D.  
Martha Banta, Ph.D.  
Charles A. Berst, Ph.D.  
Vinton A. Dearing, Ph.D.  
Robert W. Dent, Ph.D.  
Reginald A. Foakes, Ph.D.  
Patrick K. Ford, Ph.D.  
Robert A. Georges, Ph.D.  
Gerald J. Goldberg, Ph.D.  
Christopher W. Grose, Ph.D.  
George R. Guffey, Ph.D.  
Jascha Kessler, Ph.D.  
Robert S. Kinsman, Ph.D.  
V.A. Kolve, Ph.D.  
Richard A. Lanham, Ph.D.  
Richard D. Lehan, Ph.D.  
Maximilian E. Novak, D.Phil., Ph.D.  
Waldo W. Phelps, Ph.D.  
Florence Ridley, Ph.D.  
Alan Roper, Ph.D.  
William D. Schaefer, Ph.D.  
Paul R. Sellin, Ph.D.  
Paul D. Sheats, Ph.D.  
Peter L. Thorslev, Jr., Ph.D.  
Alexander Welsh, Ph.D.

### Associate Professors

Charles L. Batten, Jr., Ph.D.  
Ali Behdad, Ph.D.  
Helen Deutsch, Ph.D.  
Lowell Gallagher, Ph.D.  
Albert D. Hutter, Ph.D.  
Gwin Jack Kolb, Ph.D.  
Jinqi Ling, Ph.D.  
Arthur L. Little, Jr., Ph.D.  
David Wong Louie, M.F.A.  
Robert M. Maniquis, Ph.D.  
Claire E. McEachern, Ph.D.  
Harryste R. Mullen, Ph.D.  
Rafael Perez-Torres, Ph.D.  
Kenneth Reinhard, Ph.D.  
Sonia Saldivar-Hull, Ph.D.  
Jennifer A. Sharpe, Ph.D.  
Richard A. Yarborough, Ph.D.

### Assistant Professors

Jennifer L. Fleissner, Ph.D.  
Rachel C. Lee, Ph.D.  
Mark J. McGurl, Ph.D.  
Judith A. Rosen, Ph.D.

### Senior Lecturers S.O.E.

Jerome Cushman, A.B., B.S.L.S., *Emeritus*  
David Stuart Rodas, Ph.D.

### Lecturers

Stephen J. Dickey, Ph.D.  
Christopher M. Mott, Ph.D.

### Adjunct Professors

Russell Leong, M.F.A.  
Carolyn See, Ph.D.

### Adjunct Associate Professor

Keorapetse Kgositile, M.F.A.

## 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 English, 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 Subject A requirement before taking any courses in English (other than English Composition A or 2). For further information regarding Subject A, 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 list-

ings under Foreign Literature in Translation later in this chapter). Italian 46 may not be applied. 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 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, 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

To be admitted as English majors, transfer students 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.

### The Major

*Required:* Twelve upper division English courses, including 141A or 141B, 142A, 142B, 143, at least one course from each of the 150 and 180 series, one course from 160 through 164, and five additional courses of which three must be selected from 140A, 140B, 142C, or 150A through M197D.

Students are encouraged to choose additional electives from courses 140A through M197D. 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 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 190. 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 upper division courses in English or American literature and four upper division courses in foreign literatures (at least one of which must be taught in the original language). The nine courses in English must include 141A, 141B, or 143; 142A and 142B; at least one course from the 150 series; and four electives selected from courses 140A through M197D (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 courses are required for the program itself: English as a Second Language 106, 108, 109; two courses from English 100 through 199; 122; 142A, 142B; and four additional courses from 140A through M197D. 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, 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

To be admitted as American Literature and Culture majors, transfer students 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.

## The Major

*Required:* Twelve upper division courses, including six in American literature selected from English 170A through 179, 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 187, 188, 189, or when treating American topics, 180X; one course from M101A, M101B, M102A, M102B, 103, M104A, M104B, M104C, M105A, M105B, 106, M107A (also 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).

## English/Greek B.A.

See Classics.

## English/Latin B.A.

See Classics.

## 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 180 through 189 sequence, preferably before the senior year. In Spring Quarter of the junior year, they must take course 199HA. During Fall and Winter Quarters of the senior year, they take courses 199HB and 199HC, 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.

## Subject Matter Preparation Program for Single Subject Credential in English

Students interested in obtaining a single subject secondary school credential in English should consult with a departmental counselor regarding the requirements for a waiver from the English Single Subject Assessment Test (SSAT) and the Praxis Examination, both of which are required by the California Commission on Teacher Credentialing. Students should meet with a departmental counselor as early in their undergraduate careers as possi-

ble, because the program does require additional courses beyond the major requirements. Students interested in elementary school education are strongly urged to participate in the Diversified Liberal Arts Program (DLAP), administered by the Letters and Science Counseling Services, A316 Murphy Hall. For additional information on courses leading to the credential, consult the Department of Education at (310) 825-8328.

## 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, 2222 Rolfe Hall, (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 M197D, 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 any other department or program.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of English offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in English.

## Admission

The department only considers applicants whose objective is the Ph.D. Students admitted into the graduate program enter the first phase of the doctoral program, successful completion of which results in the award of the M.A. degree. Those who enter with the master's degree may waive certain course requirements but must pass the first qualifying examination (which also grants admission into the second phase of the doctoral program). Students who choose a terminal M.A. degree must write a thesis.

Admission to the program is based on a thorough review of the applicant's academic record. Ordinarily, holders of the B.A. are expected to meet these minimum requirements: an undergraduate major or program that prepares one for advanced study of literature; a grade-point average in English courses and in the junior and senior years of at least 3.5; and recent scores (taken within the last five years) on the Graduate Record Examination (GRE), including the General Test and the Literature in English Subject Test. Applicants who hold the M.A. are expected to have a grade-point average of at least 3.7 in all graduate courses and a correspondingly higher score on the Subject Test.

Applicants must submit a minimum of three letters of recommendation attesting to their ability to succeed in graduate study. A writing sample is also required. Care should be taken with the statement of purpose and the writing sample, since the quality of thought and argument these exhibit, as well as their style, weigh significantly in admissions decisions.

## Master's Degree

For fields, see Doctoral Degree.

The M.A. degree is offered through the comprehensive examination and thesis plans. The former consists of the first qualifying examination for the Ph.D. Nine 200-series English courses are required for the M.A. degree.

There is a language requirement for this degree.

## Doctoral Degree

Fields include Anglo-Saxon, Middle English, Renaissance, earlier 17th century, Restoration and 18th century, Romantic, Victorian, 20th-century British, earlier American, 19th-century American, 20th-century American. If students wish, a third field may be a genre or a special field: novel, drama, poetry, literary criticism, folklore/mythology, Celtic studies, African American literature, women's writing, history of the language, rhetoric, or Asian American literature.

Fourteen graduate-level courses are required. With special approval, students may take up to three of the courses in departments other than English. Students are required to fulfill breadth and philology requirements.

Written and oral qualifying examinations are required. The first qualifying examination includes written and oral components. Students submit written work from any two seminars. The committee's review of the papers constitutes the first stage of the first qualifying examination. An oral examination in three designated fields constitutes the second stage.

Following successful completion of the first qualifying examination, students prepare a dissertation prospectus and take the University Oral Qualifying Examination, which concentrates on the prospectus and may include discussion of a wide range of works that bear on the proposed dissertation.

There is a language requirement for this degree.

## English

### Lower Division Courses

**4HW. Critical Reading and Writing (Honors). (5)** (Formerly numbered 4H.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for former course 4H. 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 Letters and Science Writing II requirement. Letter grading.

**4W. Critical Reading and Writing. (5)** (Formerly numbered 4.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for former course 4. 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 Letters and Science 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 the 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. Study of selected works of the 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 the Present. (5)** Lecture, three hours; discussion, one hour. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Study of selected works of the 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)** Preparation: submission of creative or expository writing samples to a screening committee. Enforced requisites: satisfaction of Subject A 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.

**70. Major British Authors before 1800. (4)** Enforced requisite: satisfaction of Subject A 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.

**75. Major British Authors, 1800 to the Present. (4)** Enforced requisite: satisfaction of Subject A 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 the present, including works of such writers as Wordsworth, Coleridge, Keats, Tennyson, Dickens, Browning, Yeats, Joyce, and Eliot.

**80. Major American Authors. (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for any courses in the 170 series. Introduction to the 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 Subject A requirement. Not open for credit to English majors or students with credit for any courses in the 170 series. Development, with emphasis on form, of the American novel from its beginning to the 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. (4 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.

**90. Shakespeare. (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Subject A 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.

**95A. Introduction to Poetry. (4)** Enforced requisite: satisfaction of Subject A 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 a selection of representative poems. P/NP or letter grading.

**95B. Introduction to Drama. (4)** Enforced requisite: satisfaction of Subject A 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.

**95C. Introduction to Fiction. (4)** Enforced requisite: satisfaction of Subject A 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. The Short Story in England and America. (4)** Enforced requisite: satisfaction of Subject A requirement. Historical survey of the short story as a genre, from the 19th century to the 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 a particular topic, genre, or subgenre in literature such as satire, biography, parody, or a specialized classification of literature. May be repeated for credit. P/NP or letter grading.

Jayne Lewis first became interested in seven-teenth- and eighteenth-century literature through the inspiration of two professors she had in graduate school. "They helped me see how much of our own world took shape during that time," she reflects, "and to appreciate the imaginative responses of writers as varied as Alexander Pope and Samuel Richardson."

Since 1988, Professor Lewis has herself inspired students in her classes at UCLA.

Teaching the great works of English literature from Milton to Austen, she helps them build bridges between the vexatious world of today and the problems and promise of the past. As she sees it, "Literature has two contradictory functions: to make us feel at home in the world and to destroy our complacency."

As a teacher, Lewis thrives on the challenge of sharing life-building images and ideas with students in the process of building their own lives. And she appreciates the openness and intelligence of UCLA undergraduates who "have buoyant, receptive minds and wonderful senses of humor,

with very few preconceptions and biases."

Lewis' classes range from seminars of 15 students to lectures of 300, and although the mood and pace may differ, she always looks to give insight into the complex symbols humans use to communicate their ideas and desires. For her, the pay off is immeasurable. "Undergraduate English majors have the world at their feet. They can use their writing skills for careers in the film and internet industries, in journalism or publishing. Many go on to law school; some become creative writers. The sky is the limit. [But] whatever an English major does will be profoundly enriched by what comes from studying literary expression—a deeper understanding of what it means to be human."

In addition to her books and articles on Restoration and eighteenth-century English literature, Professor Lewis has received fellowships from the National Endowment for the Humanities and the ACLS as well as a UC President's Fellowship and a Luckman Distinguished Teaching Award.



**Jayne Lewis,**  
English Department

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*English majors have the world at their feet! They can use their writing skills for careers in the film and internet industries, in journalism, publishing, law, or as creative writers. The sky is the limit...*

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**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 the 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.

**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 the fiction of Jewish writers in America, such as Bellow, Malamud, and Roth, focusing on encounter of Jewish ethical ideals and social values with the contemporary environment. P/NP or letter grading.

**M104A. Early Afro-American Literature. (5)** (Same as Afro-American Studies M104A.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Introductory survey of black American literature from the 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 the Harlem Renaissance to the 1960s. (5)** (Same as Afro-American Studies M104B.) Lecture, four hours. 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 the 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 the 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 the 1960s to the 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. Enforced requisite: English Composition 3 or 3H. Survey of Chicana/Chicano literature from the 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. 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.

**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. 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 a period, genre, particular theme, or nonnational literary grouping. P/NP or letter grading.

**108A-108B. English Bible as Literature. (4-4)** Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Principal literary monuments of the Old and New Testaments in King James Version. P/NP or letter grading. **108A.** Old Testament; **108B.** New Testament.

**108C. English Bible as Literature: Special Topics. (4)** Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of the English Bible, with attention to particular literary themes, motifs, and genres. Possible discussion of influence of the 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. 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 the work of a single poet, dramatist, prose writer, or novelist. May be repeated for credit. P/NP or letter grading.

**M111A. Literature of Myth and Oral Tradition. (4)** (Same as Folklore M111.) Requisite: satisfaction of Subject A requirement. Study of myth, dramatic origins, oral epic, folktale, and ballad, emphasizing Indo-European and Semitic examples.

**M111C. British Folklore and Mythology. (4)** (Same as Folklore M121.) Requisite: satisfaction of Subject A requirement. Designed for juniors/seniors. Survey of folklore of the peoples of Britain, with attention to their history, function, and regional differences.

**M111D. Celtic Mythology. (4)** (Same as Folklore M122.) Lecture, three hours; discussion, one hour. Survey of early materials, chiefly literary, for study of mythic traditions of the Celtic peoples, ranging from ancient Gaul to medieval Ireland and Wales.

**M111E. Survey of Medieval Celtic Literature. (4)** (Same as Folklore M112.) Requisite: satisfaction of Subject A requirement. Knowledge of Irish or Welsh not required. General course dealing with Celtic literature from earliest times to the 14th century.

**M111F. Celtic Folklore. (4)** (Same as Folklore M127.) Requisite: Folklore M101. Folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to current techniques of folkloric research.

**M111G. Oral Traditions in Africa. (4)** (Same as Folklore M155.) Designed for juniors/seniors. Survey of African folk traditions: folktale, epic, heroic poetry, and folk song.

**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.

**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 the world, reviewing major genres from several countries and making cross-comparisons with the literatures. Generalizations concerning the nature of the 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 the literature of the 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 the 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, and focusing on cinematic adaptations of literary works. P/NP or letter grading.

**119. Literature of California and the 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 the Western U.S. P/NP or letter grading.

**121. History of the 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 the English language from Indo-European time to the 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 a total of 12 units. No more than 8 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 a total of 12 units. No more than 8 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 the 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 a total of 12 units. No more than 8 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 the kinds of literary research that can be aided by computers. BASIC is taught; students must know how to operate a computer. 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 the value and practical application of the approach, may be required. P/NP or letter grading.

**141A. Chaucer: *The 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, *The 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 *The Book of the Duchess*, *The House of Fame*, *The 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. 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 the 14th and 15th centuries (e.g., the Gawain-poet, Langland, Gower, Malory, miracle and morality plays, prose, and lyrics). The 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 the 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 the 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 the 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 the Restoration to the Licensing Act. P/NP or letter grading.
- 157. The 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. Requisites: courses 10A, 10B, 10C. Study of poetry and prose of the Victorian age from passage of the first Reform Bill through the 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. Requisites: courses 10A, 10B, 10C. Study of poetry and prose of the later Victorian age from Pre-Raphaelitism through the 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. The 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 the 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 the 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 the 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 the 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.
- 169. 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. P/NP or letter grading.
- 170A. American Literature to 1775. (5)** Lecture, four hours. Requisites: courses 10A, 10B, 10C. Historical survey of American literature through the 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. Requisites: courses 10A, 10B, 10C. Historical survey of American literature from Jacksonian era to end of the 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 the Civil War to founding of *Poetry* magazine. P/NP or letter grading.
- 172A. American Literature, 1912 to 1945. (5)** Lecture, four hours. 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. 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. Requisites: courses 10A, 10B, 10C. Study of American fiction (both novels and short stories) from its beginning to end of the 19th century. P/NP or letter grading.
- 173B. American Fiction, 1900 to 1945. (5)** Lecture, four hours. Requisites: courses 10A, 10B, 10C. Study of American novels and short stories from beginning of the 20th century to end of World War II. P/NP or letter grading.
- 173C. American Fiction since 1945. (5)** Lecture, four hours. 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. Requisites: courses 10A, 10B, 10C. Study of American poetry from Puritan period through end of the 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 the 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 the present day. Historical period may vary with instructor. P/NP or letter grading.
- 177. Special Topics in American Literature. (5)** Lecture, four hours. 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.
- 178. 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.
- 179. American Literature in Comparative Context. (5)** Lecture, four hours. Requisites: courses 10A, 10B, 10C. Study of some aspect of American literature and its relationships to other national literature. P/NP or letter grading.
- 180. 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 a specific term. May be repeated for credit. P/NP or letter grading.
- 180X. 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 a specific term. May be repeated for credit. P/NP or letter grading.
- 181. 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 a specific term. May be repeated for credit. P/NP or letter grading.
- 182. 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 a specific term. May be repeated for credit. P/NP or letter grading.
- 183. 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 a specific term. May be repeated for credit. P/NP or letter grading.
- 184. 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 a specific term. May be repeated for credit. P/NP or letter grading.
- 185. 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 a specific term. May be repeated for credit. P/NP or letter grading.
- 186. 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 a specific term. May be repeated for credit. P/NP or letter grading.



**187. 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 a specific term. May be repeated for credit. P/NP or letter grading.

**188. 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 a specific term. May be repeated for credit. P/NP or letter grading.

**189. 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 a specific term. May be repeated for credit. P/NP or letter grading.

**190. Literature and Society. (5)** Lecture, three or four hours. Requisites: courses 10A, 10B, 10C. 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.

**196. 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 ethnic backgrounds living in the U.S. and providing comparative cultural perspectives on living in a multiethnic society. P/NP or letter grading.

**M197A. Topics in Afro-American Literature. (5)** (Same as Afro-American Studies M197A.) Seminar, three hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in Afro-American literature. Topics include the Harlem Renaissance; Afro-American Literature in the Nadir, 1890 to 1914; Contemporary Afro-American Fiction. May be repeated for credit. P/NP or letter grading.

**M197B. Topics in Chicana/Chicano Literature. (5)** (Same as Chicana and Chicano Studies M197B.) 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.

**M197C. Topics in Asian American Literature. (5)** (Same as Asian American Studies M197C.) 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 the Asian American community; and themes related to such problems as generational differences, gender politics, or interethnic encounters. May be repeated for credit. P/NP or letter grading.

**M197D. Special Topics in Lesbian and Gay Literature. (5)** (Same as Lesbian, Gay, Bisexual, and Transgender Studies M197D.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in lesbian and gay literature. Topics focus on a 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.

**199. Special Studies in English. (2 to 4)** Intensive directed research project. To enroll or obtain information, see departmental counselor.

**199HA. Honors Seminar. (5)** Seminar, three hours. Requisite: course 140A. Introduction to research techniques and study of various approaches and applications of critical methodology as it relates to interpretation and evaluation of texts. Letter grading.

**199HB-199HC. Honors Tutorial. (5-5)** Tutorial, to be arranged. Requisite: course 199HA. Tutorial in which students write theses under direction of a faculty member. In Progress and letter grading.

**199I. Independent Studies for Internships. (2 to 4)** Independent studies course to be supervised jointly by Field Studies Office and faculty supervisor. Further supervision to be provided by business for which student is doing internship. P/NP grading.

## Graduate Courses

**200. Approaches to Literary Research. (4)** Bibliographical tools of English and American literary scholarship; introduction to descriptive bibliography and basic methods of research. Periods covered vary.

**201A. Criticism and Interpretation from Classical Era to the 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 the 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.

**202. Enumerative and Descriptive Bibliography. (4)** Problems in bibliography, texts, and editions, with practical application in compiling bibliographies, editing texts, and approaching literature through textual criticism.

**203. Computers and Literary Research. (4)** Prior knowledge in this area not required. Practice in writing and using computer programs for analysis of literary style, content, and authorship.

**204. History of Rhetoric. (4)** 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.

**M205. Perspectives in American Folklore Research. (4)** (Same as Folklore CM205.) Lecture, three hours. Requisite: Folklore M101. Examination of American folklore studies compared and contrasted with investigations in other countries, with emphasis on principal conceptual schemes and research orientations employed in study of folklore in American society.

**210. History of the English Language. (4)** Detailed study of history, characteristics, and changing forms of the language from its origin until about 1900.

**211. Old English. (4)** Study of Old English grammar, lexicon, phonology, and pronunciation to enable students to read the literature silently and aloud. Reading of as much of the more interesting Old English prose and poetry as can be read in a term.

**212. Middle English. (4)** Requisite: course 211. Detailed study of linguistic aspects of Middle English and of representative examples of the better prose and poetry.

**213. Early Modern English. (4)** Detailed study of phonology, morphology, syntax, and vocabulary of English between 1450 and 1750. Description and analysis of changes in the language in relation to intellectual, political, and social characteristics of the period.

**214. Modern English. (4)** Description and analysis of modern English phonology, grammar, and vocabulary, using theory and techniques of contemporary linguistics. Survey of the evolution of American English and account of characteristic phonological and grammatical features of major regional varieties of English around the world.

**216A-216B. Old Irish. (4)** Studies in grammar. Readings in the glosses and other texts. Comparative considerations.

**217A-217B. Medieval Welsh. (4)** Studies in grammar. Readings in the Mabinogi and other texts. Comparative considerations.

**218. Celtic Linguistics. (4)** Survey of salient features of Celtic linguistic stock in its Gaelic and British branches, with reference to position of Celtic within Indo-European languages.

**230. Workshop: Creative Writing. (2 to 4)** Preparation: submission of writing samples in specified genre (poetry, fiction, or drama). May be repeated but may not satisfy more than one of the nine courses required for first qualifying examination nor any of the five courses required for second qualifying examination.

**M235. African Myth and Ritual. (4)** (Same as Folklore M235.) Seminar on methods of analyzing African and African Diaspora myth and ritual.

**240. Studies in History of the English Language. (4)** Individual seminars dealing with any single historical period from Old English period to the present or development of a particular linguistic characteristic (phonology, syntax, semantics, dialectology) through various periods. May be repeated for credit.

**241. Studies in Structure of the English Language. (4)** Topics in various aspects of structure of modern English, especially syntax and semantics. May be repeated for credit.

**242. Language and Literature. (4)** Application of linguistics to literary analysis. Individual seminars dealing with a 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.

**M243A. The Ballad. (4)** (Same as Folklore M243A.) Study of English and Scottish popular ballads and their American derivatives, with some attention to European analogues. May be repeated for credit.

**M243B. Problems in Ballad Scholarship. (4)** (Same as Folklore M243B.) Requisite: course M243A. Intensive investigation of a problem or problems in study of the popular ballad. May be repeated for credit.

**244. Old and Medieval English Literature. (4)** Studies in poetry and prose of Old and medieval English literature; limits of investigation set by individual instructor. May be repeated for credit.

**245. Chaucer. (4)** May be repeated for credit.

**246. Renaissance Literature. (4)** Studies in poetry and prose of Renaissance English literature, exclusive of Shakespeare; limits of investigation set by individual instructor. May be repeated for credit.

**247. Shakespeare. (4)** May be repeated for credit.

**248. Earlier 17th-Century Literature. (4)** Studies in poetry and prose of 17th-century English literature up to the Restoration; limits of investigation set by individual instructor. May be repeated for credit.

**249. Milton. (4)** Studies in poetry and prose of John Milton; limits of investigation set by individual instructor. May be repeated for credit.

**250. Restoration and 18th-Century Literature. (4)** Studies in English poetry and prose, 1660 to 1800; limits of investigation set by individual instructor. May be repeated for credit.

**251. Romantic Writers. (4)** May be repeated for credit.

**252. Victorian Literature. (4)** Studies in English poetry and prose of the Victorian period; limits of investigation set by individual instructor. May be repeated for credit.

**253. Contemporary British Literature. (4)** May be repeated for credit.

**254. American Literature to 1900. (4)** Studies in Colonial and 19th-century American literature; limits of investigation set by individual instructor. May be repeated for credit.

**255. Contemporary American Literature. (4)** Studies in contemporary American poetry and prose; limits of investigation set by individual instructor. May be repeated for credit.

**256. Studies in the Drama. (4)** Studies in drama as a genre from its beginning to the present; limits of investigation set by individual instructor. May be repeated for credit.

**257. Studies in Poetry. (4)** Studies in various themes and forms of poetry from Old English to the present; limits of investigation set by individual instructor. May be repeated for credit.

**258. Studies in the Novel. (4)** Studies in evolution of the genre from its beginning to the present; limits of investigation set by individual instructor. May be repeated for credit.

**259. Studies in Criticism. (4)** May be repeated for credit.

**260. Studies in Literature and Its Relationship to the Arts and Sciences. (4)** Studies in interrelationships of literature, arts, and sciences; limits of investigation set by individual instructor. May be repeated for credit.

**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.

**M262. Studies in Afro-American Literature. (4)** (Same as Afro-American Studies M200E.) 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.

**263. Celtic Literature. (4)** Lecture, three hours. Preparation: knowledge of one of the ancient or modern Celtic languages. 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.

**264. Studies in Rhetoric. (4)** Discussion, three hours. Special topics in classical and modern rhetoric, including substantial practice in rhetorical analysis of literary texts. May be repeated for credit.

**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.

**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.

**272. Current Issues in Teaching English. (4)** Focus on one of a variety of topics of special current interest. May be repeated for credit.

**M298. Interdisciplinary Studies in the 17th and 18th Centuries. (4)** (Same as History M298.) Topics vary according to participating faculty. May be repeated for credit.

**M299. Interdisciplinary American Studies. (6)** (Same as History M299.) Discussion, four hours. Readings, discussion, and papers on a common theme, team-taught by faculty from different departments. Topics vary according to participating faculty. May be repeated for credit with consent of instructors.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May not be substituted for any departmental enrollment requirements. May be repeated for credit. 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 a research project on a technology topic of their choice. S/U grading.

**496. Publishing the Academic Literary Article. (4)** Discussion, four hours. Structured as a writing workshop and divided into two parts: (1) determination of what a publishable article looks like while students revise work independently and (2) circulation of student papers to class in advance with the writing discussed in seminar room by whole class. 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 4)** 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 grading.

“**S**hakespeare was the lens I tried on that happened to fit my prescription: lots of lovely and terrifying things suddenly came into focus,” reveals Robert Watson, former chair of the English Department and of the Letters and Science faculty. “But others have had the same experience with quantum physics or French Impressionism. So I just try to recognize each student (even in big classes) as a complete and complex individual, and I work for those wonderful moments when a student illuminates: recognizes that she’s actually able to connect to a Shakespearean idea and enjoy it, or that he might actually have something at stake in one of these strange old plays.”

Professor Watson has been creating those moments of illumination for over 20 years, teaching mostly Shakespeare and English Renaissance poetry. Recently, he also began a popular new interdisciplinary GE course on U.S. history and culture from 1963-1974. He serves as head scholar of the Teaching Shakespeare Summer Institute at the Folger Shakespeare Library in Washington, D.C., and has been developing outreach programs to

bring UCLA Shakespeare teachers and students together with their public high school counterparts.

“I want students to discover that intellectual intensity can be pleasurable,” he asserts, and to help students make the breakthrough, he has a way of keeping centuries-old material relevant. “None of that happens if the course is about compulsory reverence for high culture, or (conversely) complacent vilifying of the human past. Ideally, we’re always connecting the past to the present, and finding big lasting ideas in a few well-woven words. I also want students—whatever the topic—always to be aware of the difference between good and bad arguments.”

Watson has won senior research fellowships from the American Council of Learned Societies and the National Endowment for the Humanities, as well as a UC President’s Fellowship. He has written a number of books as well poems, reviews, and scholarly articles on topics ranging from Elizabethan horsemanship to Thomas Pynchon. He received the UCLA Distinguished Teaching Award in 2000.



**Robert Watson,**  
English Department

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*I work for those wonderful moments when a student illuminates: recognizes that she's actually able to connect to a Shakespearean idea and enjoy it, or that he might actually have something at stake in one of these strange old plays*

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**597. Preparation for Ph.D. Examinations. (4 to 12)** 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)** 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)** 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.

## 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-102B. Accelerated Elementary Yiddish (6-6).** Lecture, five hours; laboratory, one hour. Covers material in courses 101A, 101B, 101C in two terms rather than three. P/NP or letter grading.

**104. Advanced Yiddish. (4)** Lecture, three hours. Requisite: course 101C. 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 a wide range of 19th- and 20th-century literature. P/NP or letter grading.

**131A. Modern Yiddish Poetry. (4)** Lecture, three hours. Requisite: course 104. Readings in modern Yiddish poetry. P/NP or letter grading.

**131B. Modern Yiddish Prose and Drama. (4)** Lecture, three hours. Requisite: course 104. 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 a wide range of 19th- and 20th-century literature. P/NP or letter grading.

**199. Special Studies in Yiddish. (2 to 4)** Tutorial, to be arranged. Independent studies course for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite. 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 the 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 the study (see department for I.D. number). S/U grading.

## ENGLISH COMPOSITION (WRITING PROGRAMS)

*College of Letters and Science*

UCLA  
371 Kinsey Hall, *Administration*  
271 Kinsey Hall, *Student Services Office*  
Box 951384  
Los Angeles, CA 90095-1384

(310) 206-6815, *Administration*  
(310) 206-1145, *Student Services Office*  
<http://www.humnet.ucla.edu/humnet/wp/wphome.html>

Cheryl Giuliano, Ph.D., *Director*  
Bruce Beiderwell, Ph.D., *Assistant Director*

### Lecturers

Kathleen Balgley, Ph.D.  
Bruce Beiderwell, Ph.D.  
Wilson Chen, Ph.D.  
William Creasy, Ph.D.  
Richard A. Creese, Ph.D.  
Esha De, Ph.D.  
Randall Fallows, Ph.D.  
Ed Frankel, M.A.  
Rachel Fretz, Ph.D.  
George Gadda, C.Phil.  
Lisa Gerrard, Ph.D.  
Patricia Gilmore, Ph.D.  
Cheryl Giuliano, Ph.D.  
Troy Gordon, Ph.D.  
Susan Griffin, Ph.D.  
Leigh Harris, Ph.D.  
Janette Lewis, Ph.D.  
Bonnie Lisle, Ph.D.  
Sonia Maasik, M.A.  
Susan Mach, Ph.D.  
Sandra Mano, Ph.D.  
Anita McCormick, Ph.D.  
Cynthia Merrill, Ph.D.  
Michele Moe, Ph.D.  
Geraldine Moyle, Ph.D.  
Mitzi Myers, Ph.D.  
Shelby Popham, Ph.D.  
Gregory Rubinson, Ph.D.  
Kim Savelson, Ph.D.  
Emily G. Schiller, Ph.D.  
Scott Sherman, J.D.  
Jennifer Westbay, Ph.D.  
Jeffrey Wheeler, 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 which satisfy the University's Subject A and English Composition requirements, the program offers writing courses linked with courses in other departments, intermediate and advanced courses in exposition, and language and composition courses for teachers. Special programs include the First-Year Intensive Program (FIPW) and the Transfer Intensive Program (TIP).

## Undergraduate Study

### Subject A

Every student who does not satisfy the Subject A requirement by presenting transfer credit or acceptable test scores is required to take, as early as possible during the first year in residence, either English Composition A or 2. Placement in these courses is determined by performance on the Subject A Examination. For more information regarding Subject A, 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 requisite: appropriate score on Subject A Examination. Displaces 4 units on student's Study List but yields no credit toward a degree. First course in reading university-level texts and framing written responses that employ a 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 a grade of C or better or demonstration of minimum competence on Subject A Examination is requisite to course 2.

**2. Approaches to University Writing. (5)** Lecture, four hours. Requisite: course A with a grade of C or better or appropriate score on Subject A 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 a grade of C or better satisfies Subject A requirement. Letter grading.

**3. English Composition, Rhetoric, and Language. (5)** Lecture, three hours. Enforced requisites: satisfaction of Subject A 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 a minimum of 20 pages of revised text. Completion of course with a grade of C or better satisfies Letters and Science Writing I requirement. Letter grading.

**3H. English Composition, Rhetoric, and Language (Honors). (5)** Lecture, three hours. Enforced requisites: satisfaction of Subject A 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 a minimum of 20 pages of revised text. Completion of course with a grade of C or better satisfies Letters and Science Writing I requirement. Letter grading.

**30W. Intermediate Academic Writing: Various Topics. (5)** Lecture, four hours; discussion, one hour. Enforced requisite: course 3 or 3H. 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 Letters and Science Writing II requirement. Letter grading.

## Upper Division Courses

**100W. Interdisciplinary Academic Writing. (5)** (Formerly numbered 100.) Lecture, four hours. Requisite: course 3 or 3H. Not open to students with credit for former course 100. Designed for sophomores/juniors/seniors. Course in academic writing suitable for both lower and upper division students that helps them develop academic papers with a range of complexity and length. Focus on conventions of academic prose and genres across the disciplines. Written assignments include common forms of academic writing such as argument, research paper, and/or critical essay. Satisfies Letters and Science Writing II requirement. Letter grading.

**110. Writing Adjunct. (4)** (Formerly numbered 110W.) Lecture, four hours. Requisites: satisfaction of Subject A requirement, course 3 or 3H. Students must be concurrently enrolled in a 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. Requisite: satisfaction of Subject A 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.

**120B. Language Study for Teachers of English: Secondary School. (4)** Lecture, four hours. Requisite: satisfaction of Subject A 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.

**120C. Language Study for Teachers of Subjects Other Than English: Secondary School. (4)** Lecture, four hours. Requisite: satisfaction of Subject A and English Composition requirements. Introduction for teachers of subjects other than English to basic concepts in language acquisition, dialectology, sociolinguistics, and composition.

**129A-129D. Academic Writing in the 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 the 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 Subject A and English Composition requirements. Preparation for future elementary school teachers of English composition in writing and criticism of the kinds of prose discourse usually taught in primary schools. Letter grading.

**130B. Composition for Teachers: Secondary School. (4)** Lecture, four hours. Requisite: satisfaction of Subject A and English Composition requirements. Preparation for future secondary school teachers of English composition in writing and criticism of the kinds of prose discourse usually taught in secondary schools.

**131A-131D. Specialized Writing. (4 each)** Lecture, four hours. Requisite: satisfaction of Subject A and English Composition requirements. Designed for juniors/seniors. Advanced writing course 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 Subject A 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 a 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 Subject A requirement, course 3. Sequence in practical writing and editing ability specifically designed to prepare students for a career. Analysis of prose and literary styles necessary to the variety of writing in professional, nonacademic fields combined whenever possible with practical experience in a variety of writing internships and training in a wide range of editorial skills. In Progress grading for courses 136A-136B only.

**197F. Rhetoric in Modern American Culture. (4)** Seminar, three hours. Requisite: course 100W. One-term field studies course designed to provide students with academic background in and firsthand knowledge of media writing. P/NP or letter grading.

**199. Independent Studies in Writing. (2 to 4)** (Formerly numbered 199W.) Tutorial, to be arranged. Requisites: satisfaction of Subject A requirement, course 3 or 3H. Independent studies course supervised by faculty member. Fieldwork and/or internship may also be supervised by Center for Experiential Education and Service Learning or organization offering internship. P/NP or letter grading.

**199I. Independent Studies for Internships. (2 or 4)** Tutorial, to be arranged. Requisites: course 3 or 3H, satisfaction of Letters and Science Writing II requirement. P/NP grading.

## 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-495B. Supervised Teacher Preparation. (2-2)** Seminar, one hour; laboratory, 30 minutes. In Progress and S/U grading. **495A.** Required of all applicants for a teaching assistantship in English. Practical concerns of designing a course, creating assignments, grading papers, and holding conferences for English Composition 3 classes. **495B.** Must be taken concurrently with first teaching assignment. Examination of specialized problems which occur in teaching English Composition 3 and introduction to techniques for teaching English Composition 2 and ESL.

**495C. Supervised Teacher Preparation. (2)** Seminar, two hours. Requisites: courses 495A-495B. S/U grading.

# ENVIRONMENTAL HEALTH SCIENCES

*School of Public Health*

UCLA  
56-070 Center for the Health Sciences  
Box 951772  
Los Angeles, CA 90095-1772  
(310) 206-1619  
<http://www.ph.ucla.edu/ehs/>

Curtis D. Eckhart, Ph.D., Chair

### Professors

Richard F. Ambrose, Ph.D.  
Climis A. Davos, Ph.D.  
Curtis D. Eckhart, Ph.D.  
John R. Froines, Ph.D.  
William C. Hinds, Sc.D.  
Shane Que Hee, Ph.D.  
Linda Rosenstock M.D., M.P.H. *Dean*  
Robert H. Schiestl, Ph.D.  
Irwin H. Suffet, Ph.D.  
Arthur M. Winer, Ph.D.

### Professors Emeriti

Arthur K. Cho, Ph.D.  
Robert A. Mah, Ph.D.

### Associate Professors

Michael D. Collins, Ph.D.  
Jon Fukuto, Ph.D.  
Jane L. Valentine, Ph.D.

### Assistant Professors

L. Donald Duke, Ph.D.  
Wendie A. Robbins, Ph.D., M.S.N.

### Adjunct Professor

Steve Colome, S.D.

### Adjunct Assistant Professors

Pablo Cicero-Fernandez, D.Env.  
Nola Kennedy, Ph.D.  
Wen Chen Victor Liu, Ph.D., *in Residence*

### Assistant Field Program Supervisor

Diane M. Perry, Ph.D.

## 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 highly trained 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 which offer specialized study in selected academic areas of environmental health sciences such as air pollution, environmental chemistry, environmental management, environmental toxicology, 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.

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.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Environmental Health Sciences offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Environmental Health Sciences.

## Admission

Applicants to the M.S. program should have a bachelor's (or master's) degree in chemistry, physics, biology, engineering, or other appropriate field. Preparation should include at least three quarters of general chemistry (including quantitative analysis) and two quarters of organic chemistry and/or biochemistry, mathematics through calculus, three quarters of biological sciences, and three quarters of physics. Substitutions for these requirements are considered for applicants with an otherwise superior academic background.

Applicants should see the Master of Public Health (M.P.H.) admission section under Public Health Schoolwide Programs. Admission requirements for the M.S. in Environmental Health Sciences are the same as for the M.P.H. The M.S. program in industrial hygiene is fully accredited by the Related Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET/RAC).

In addition to the University minimum requirements, the Ph.D. program requires (1) a bachelor's degree in chemistry, physics, biology, engineering, or other appropriate field. Preparation should include at least one year of chemistry (including organic chemistry or biochemistry), physics, biology, and mathematics through calculus, (2) a master's degree in a related field with a grade-point average of at least 3.5 for graduate studies, (3) satisfactory performance on the Graduate Record Examination (GRE), and (4) a score of at least 580 (paper and pencil test) or 237 (computer-based test) on the Test of English as a Foreign Language (TOEFL) or an overall band score of 7.0 on the International English Language

Testing System (IELTS) examination for students whose native language is not English.

Alternatively, for students who do not have a master's degree and wish to pursue a doctoral degree, the department requires (1) a junior/senior grade-point average of 3.25 (or other evidence of exceptional scholarship), (2) satisfactory performance on the Graduate Record Examination (GRE), (3) acceptance by a doctoral adviser in the department subsequent to filing the application for admission, and (4) a score of at least 580 (paper and pencil test) or 237 (computer-based test) on the Test of English as a Foreign Language (TOEFL) or an overall band score of 7.0 on the International English Language Testing System (IELTS) examination for students whose native language is not English.

## Master's Degree

For areas of specialization, see Doctoral Degree.

The M.S. degree is offered through the comprehensive examination and thesis plans. A minimum of 10 courses is required, at least five of which must be graduate courses. No more than 18 full courses are required for the degree. There are mandatory core courses in biostatistics, epidemiology, and environmental health sciences. In addition, at least 22 units of elective courses are selected from the student's area of specialization.

## Doctoral Degree

Students may concentrate in one of the following areas of specialization: air quality, environmental biology, environmental chemistry, environmental management, industrial hygiene, toxicology, or water quality.

Students select a course of study after consultation with their guidance committee. There are required introductory and seminar courses. In addition, students are required to enroll in at least 20 units related to their area of specialization. For students who do not have a master's degree in the field of public health, one full course in epidemiology and two full courses in biostatistics are recommended.

Written and oral qualifying examinations are required. Following successful completion of the written examination in the area of specialization, students take the University Oral Qualifying Examination.

## 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.

**199. Special Studies. (2 to 4)** Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to seniors. Individual undergraduate guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Only 4 units may be taken each term. Letter grading.

## Graduate Courses

**200A-200B. 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. Letter grading.

**200A.** Preparation: one year of undergraduate biology, calculus, chemistry, and physics. **200B.** Requisite: course 200A.

**200C. Environmental Health Sciences for Nursing Students. (3)** (Not the same as course 200C prior to Fall Quarter 1999.) Lecture, three hours. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Limited to nursing students. Introduction to physical agents, including noise, thermal environment, ionizing radiation, and nonionizing radiation. Exploration of exposure assessment of air pollution in urban areas, occupational exposure assessment for epidemiological inferences, exposure characteristics, air pollution and excess mortality, assessment of exposure to mixture chemicals, multimedia and ecological exposure assessment. Letter grading.

**201. Seminar: Health Effects of Environmental Contaminants. (2)** Seminar, two hours. Requisites: courses 200A, 200B, 210, 230, 250. 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 200A, 200B, 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.

**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 the environment, wastewater and drinking water microorganisms and treatment, and public health microorganisms. S/U or letter grading.

**211. Science and Politics of Environmental Regulation: Coastal Pollution — Sources and Solutions. (4)** Lecture, three hours. Designed for graduate students. Overview of environmental regulations that protect coastal resources, regulatory agencies that have jurisdiction over coastal resources, past and current coastal pollution problems in the U.S., solving pollution problems through treatment, advocacy, enforcement, restoration, remediation, and watershed management. 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.

**220. Biological Effects of Air Pollution. (4)** Lecture, three hours; discussion, one hour. Preparation: one course each in chemistry and biology. Survey of biological effects and assessment methods of air contaminants present in urban, industrial, and occupational environments. S/U or letter grading.

**225. 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. S/U or letter grading.

**230. Environmental Management. (4)** Lecture, four hours; discussion, one hour. Requisites: Economics 100, Mathematics M112, 115A, Political Science 140A, 142B. Introduction to foundations and principles of environmental management, decision making, and evaluation of environmental policies and programs. Letter grading.

**231. Environmental Decision Systems Analysis. (4)** Lecture, four hours; discussion, one hour. Requisite: course 230. Techniques and models of systems analysis and concepts of general system theory as applied to comprehensive study, planning, evaluation, and management of environmental decision systems. Experimentation with relevant computer programs. S/U or letter grading.

**232. Environmental Policy Decision Making. (4)** Lecture, four hours. Requisites: courses 230, 231. Foundations, principles, and modeling of environmental policy decision making. Critical analysis of normative and behavioral models of action choices for protection and enhancement of environmental health, and development of an alternative model. S/U or letter grading.

**234. Critical Readings in Environmental Policy for Scientists and Engineers. (4)** Lecture, one hour; discussion, three hours. Requisite: course 230 or 235. Designed for graduate science and engineering students. Critical analysis of environmental policies, regulations, and decisions and their scientific basis. Literature revision, classroom presentation, and research paper required. Letter grading.

**235. Quantitative Methods for Environmental Assessment. (4)** Lecture, four hours; discussion, one hour. Preparation: bachelor's degree in science, engineering, or public health, one term of statistics, one year of advanced mathematics. Introduction to quantitative methods for evaluating health effects and environmental impacts of human activities; concepts of environmental assessments and planning. Assignments include statistics analysis, risk assessment, economic methods. Examples from U.S. and California regulations, policy, project environmental assessments. Letter grading.

**M239. Pollution Prevention. (2)** (Same as Urban Planning M262C.) Seminar, one hour. Designed for graduate students. Series of talks by academics, policymakers, industry representatives, and public interest advocates addressing opportunities for and obstacles to adopting principles of pollution prevention, including several case studies of specific policy and industry initiatives in this area. S/U grading.

**240. Fundamentals of Toxicology. (4)** Lecture, four hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Essential aspects of toxicology, with emphasis on the human species. Absorption, distribution, excretion, biotransformation, as well as basic toxicologic processes and organ systems. Letter grading.

**241. Environmental Toxicology: Trace Contaminants. (4)** Lecture, three hours; discussion, one hour. Preparation: one organic chemistry course. Essentials of toxicology in relation to trace contaminants. S/U or letter grading.

**242. Toxicodynamics. (4)** Lecture, two hours; discussion, two hours. Requisite: course 240. Examination of biochemical, cellular, and molecular mechanisms by which chemicals induce toxicity in a wide spectrum of organ systems and in a number of pathological conditions. Letter grading.

**243. Embryology and Teratology. (4)** Lecture, four hours. Requisite: course 240. Description of normal mammalian embryology at whole animal, cellular, and molecular levels and of biological, chemical, or physical perturbations of normal processes which produce congenital malformations. Letter grading.

**244. Reproductive and Developmental Toxicology. (4)** Lecture, four hours. Requisite: course 240. Introduction to current theory and research related to reproductive and developmental toxicology. Letter grading.

**M245. Laboratory in Toxicological Methods. (2)** (Same as 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.

**M249. Toxics Reduction: Science, Engineering, and Policy Issues. (4)** (Same as Chemical Engineering M290U and Urban Planning M262A.) Lecture, three hours. Requisites: Urban Planning 260A, 260B. Public health experts, industrial engineers, and planners are being asked to assess risks biologically active chemicals present and to take such risks into account in planning process. Examination of potential for toxics reduction and current state of government and industry activities in this area. Letter grading.

**250. Introduction to Occupational Safety and Health. (4)** Lecture, four hours. Scientific, legal policy, and historical issues in occupational health. Introduction to various related disciplines (e.g., occupational medicine, nursing, industrial hygiene, toxicology, epidemiology, health education). S/U or letter grading.

**251. Introduction to Occupational Medicine. (3)** Lecture, three hours. Requisite: course 250. Introduction to health effects of occupational exposures, including recognition, evaluation, and prevention of occupational diseases. Emphasis on concepts of disease mechanisms, manifestations, and prevention. Letter grading.

**252D. 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. S/U or letter grading.

**252E. Identification and Measurement of Gases and Vapors. (4)** Lecture, three hours; discussion, one hour; other, two hours. Preparation: one year each of chemistry, physics, and calculus. Requisite: course 250. 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 252D, 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; other, four hours. Requisites: courses 200A, 200B, 250, 252D, 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.

**253A. Physical Agents in Work Environment. (2)** (Formerly numbered 253.) Lecture, two hours. Preparation: one year of physics. Requisite: course 250. Physics, measurement methods, health effects, and control methods for radiation (ionizing and nonionizing), noise, and heat in the workplace environment. S/U or letter grading.

**253B. Physical Agents Laboratory. (2)** Laboratory, two hours. Requisite: course 253A. Hands-on experience in use of survey instruments for evaluation of worker exposure to various physical agents encountered in work environment. Letter grading.

**254. Health Hazards of Industrial Processes. (4)** Lecture, two hours; four field trips. Requisites: courses 250, 255. Industrial processes and operations and occupational health hazards that arise from them. S/U or letter grading.

**255. Control of Airborne Contaminants in Industry. (4)** Lecture, two hours; laboratory, two hours. Preparation: one year of physics. Requisites: courses 250, 252D. 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.

**257. Critical Review of Scientific Basis of Occupational Standards. (4)** Seminar, four hours. Requisites: courses 240, 250, 251, Epidemiology 100. Designed to provide students with opportunity to review scientific basis for association of selected occupational exposures with disease. Special emphasis on critical evaluations of the literature. Attention specifically to interface of science and regulatory standards. 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: courses 250, 252E, Biostatistics 100A. Designed to define, identify, label, and quantify hazardous wastes and how workers should be protected. Provides a 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)** (Formerly numbered 259.) Lecture, four hours. Discussion of design and modification of products and industrial manufacturing processes to eliminate or control hazards arising out of mechanical, electrical, thermal, chemical, and other potential energy sources and ergonomic risk factors. Discussion of case studies in industrial manufacturing, construction, and agriculture. Letter grading.

**259B. Occupational Ergonomics Laboratory. (4)** Laboratory, four hours. Requisite or corequisite: course 259A. Hands-on experience using typical instruments and analytical techniques utilized in professional practice and research in occupational ergonomics. Laboratory exercises cover anthropometry, force and strength measurements, biomechanical modeling and static prediction, energy expenditure prediction, posture and motion analysis, use of goniometer, and computer-aided workstation design. Letter grading.

**259C. Seminar Series: Occupational Ergonomics. (2)** Seminar, two hours. Requisites: courses 250, 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.

**259E. Occupational Safety and Health Program Management. (4)** Lecture, four hours. Designed for graduate students. Introduction to application of management principles and techniques for management of safety and health and loss control programs. Letter grading.

**259F. Accident Investigation and System Safety. (4)** Lecture, four hours. Requisite: course 259D. Introduction to retrospective and prospective safety hazard analysis, system safety, computer-aided hazard analysis, and methodology and process of accident investigation. Letter grading.

**259G. Fire Prevention, Protection, and Facility Design. (3)** Lecture, three hours. Requisite: course 259D. 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.

**M259H. Biomechanics of Traumatic Injury. (4)** (Formerly numbered 259H.) (Same as Biomedical Engineering M259H.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to applied biomechanics of accidental injury causation and prevention; discussion of mechanisms of injury that result in bone and soft tissue trauma; discussion of mechanisms of healing for effective rehabilitation after traumatic injury. Letter grading.

**261. Chemical Behavior of Aquatic Systems. (4)** Lecture, three hours. Requisites: courses 200A, 200B, 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.

**262. Environmental Microbiology. (4)** Lecture, three hours. Preparation: one course each in microbiology and biochemistry. Basic concepts of eutrophication, indicator organisms, aquatic microbes; assessment of biological treatment practices in water reuse and/or purification. S/U or letter grading.

**263. Geochemistry of Groundwater. (2)** Lecture, two hours. Requisites: Biostatistics 100A, Chemistry 20A, 103, Earth and Space Sciences 1. Geochemistry of groundwater as impacted by geologic environment and other natural factors and changes in composition due to water use. Letter grading.

**264. Fate and Transport of Organic Chemicals in the Aquatic Environment. (4)** 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 between phases, biological degradation and accumulation, and chemical reactions. Effect of humic substances on these processes. S/U or letter grading.

**296A-296M. Seminars: 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.** Advances in Environmental Evaluation and Conflict Management.

**296D.** Research Methods in Pollution Prevention Analysis.

**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.

**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 200A, 200B, 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 200A, 200B. 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.

**461. Water Quality and Health. (4)** Lecture, three hours; discussion, one hour. Requisites: courses 200A, 200B, 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.

**462. Environmental Hygiene and Appropriate Technologies. (2)** Lecture, two hours. Environmental sanitation of water supplies in rural and developing areas. Review of water quality problems and solutions for nonurban, developing community. Technical, socioeconomic, and cultural problems associated with maintenance and delivery of high water quality. S/U or letter grading.

**470. Environmental Hygiene Practices. (2)** Lecture, two hours. Requisites: courses 200A, 200B, 230, 401, Epidemiology 100. Field principles and practices of environmental sanitation as applicable to the sanitarian. Topics include theory, code enforcement, and inspection procedures for applicable environmental topic areas. 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 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 8)** Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

## Professors

Birgitte K. Ahring, Ph.D. (*Civil and Environmental Engineering*)  
 Richard F. Ambrose, Ph.D. (*Environmental Health Sciences*)  
 Richard A. Berk, Ph.D. (*Sociology, Statistics*)  
 Trudy A. Cameron, Ph.D. (*Economics, Policy Studies*)  
 Yoram Cohen, Ph.D. (*Chemical Engineering*)  
 William G. Cumberland, Ph.D. (*Biostatistics*)  
 Climis A. Davos, Ph.D. (*Environmental Health Sciences*)  
 Jody Freeman, LL.B., LL.M., S.J.D. (*Law*)  
 John R. Froines, Ph.D. (*Environmental Health Sciences*)  
 Malcolm S. Gordon, Ph.D. (*Organismic Biology, Ecology, and Evolution*)  
 William C. Hinds, Sc.D. (*Environmental Health Sciences*)  
 Raymond V. Ingersoll, Ph.D. (*Earth and Space Sciences*)  
 Antony R. Orme, Ph.D. (*Geography*)  
 Theodore M. Porter, Ph.D. (*History, Statistics*)  
 Shane Que Hee, Ph.D. (*Environmental Health Sciences*)  
 Michael K. Stenstrom, Ph.D. (*Civil and Environmental Engineering*)  
 Irwin H. Suffet, Ph.D. (*Environmental Health Sciences*)  
 Stanley W. Trimble, Ph.D. (*Geography*)  
 Richard Turco, Ph.D. (*Institute of the Environment*)  
 Arthur M. Winer, Ph.D. (*Environmental Health Sciences*)

## Professor Emeritus

Richard L. Perrine, Ph.D. (*Civil and Environmental Engineering*)

## Associate Professors

Michael D. Collins, Ph.D. (*Environmental Health Sciences*)  
 Thomas C. Harmon, Ph.D. (*Civil and Environmental Engineering*)  
 Walter E. Reed, Ph.D. (*Earth and Space Sciences*)

## Assistant Professors

J.R. DeShazo, Ph.D. (*Policy Studies*)  
 L. Donald Duke, Ph.D. (*Environmental Health Sciences*)  
 Peggy Fong, Ph.D. (*Organismic Biology, Ecology, and Evolution*)

## Assistant Field Program Supervisor

Diane M. Perry, 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. As the program enters its third decade, 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 180 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 reme-

diation. 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 24-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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degree

The Environmental Science and Engineering Program offers the Doctor of Environmental Science and Engineering (D.Env.) degree.

## Admission

In general, students entering the D.Env. program should have received a master's degree in some field of the sciences or engineering. Generalist master's degrees in such areas as environmental sciences or public health and master's degrees in the social sciences, or medical degrees may be accepted for admission if the applicant presents a record with appropriate courses in the sciences and mathematics and other special qualifications such as research experience.

In addition to meeting University minimum standards, applicants for the D.Env. degree

# ENVIRONMENTAL SCIENCE AND ENGINEERING

*Interdepartmental Program  
School of Public Health*

UCLA  
46-081 Center for the Health Sciences  
Box 951772  
Los Angeles, CA 90095-1772

(310) 825-9901  
<http://www.ph.ucla.edu/ese>

Richard F. Ambrose, Ph.D., *Director*

must have an excellent scholastic record and must be acceptable to the admissions committee. Generally, applicants must have achieved a grade-point average of at least 3.0 in undergraduate work and 3.5 in graduate work. The overall academic record, including Graduate Record Examination (GRE) scores and Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination scores (for students whose native language is not English), must reflect exceptional verbal and quantitative skills and drive toward academic achievement. The program is also interested in special qualities, awards, and achievements not reflected in the student's academic record. All applicants must file a narrative statement indicating how their professional goals can be met through the D.Env. program and submit three letters of recommendation.

Before being accepted unconditionally into the program, all students must have taken the following courses, which are considered preparation for the program: (1) biology — one year of introductory biology with laboratory, (2) chemistry — one year of general chemistry with laboratory, including analytical methods, and one quarter of organic chemistry, no laboratory required, (3) geology — one course in introductory geology with laboratory, (4) mathematics — one year of calculus plus one course in elementary statistics, (5) physics — one year of introductory physics with laboratory. Any of the courses may be taken after students have arrived at UCLA.

Admission to the program is made through recommendation of a faculty committee that has reviewed the applicant's file, and with the concurrence of the program director and the Graduate Division. Subject to funding availability, the program offers fellowships to eligible first-year students. Prospective students may request a descriptive brochure by contacting the program.

## Doctoral Degree

Specialties within the program include, but are not limited to, the assessment and management of hazardous substances in the air, soil, and water environments; migration of contaminants in groundwater; health risks of toxic substances; mitigation of adverse effects on the biological environment; and environmental problems common to the U.S. and Mexico. Also, students may balance their work with a greater emphasis on either the science/engineering or science/policy side of their specialty.

Sixteen course requirements must be satisfied, at least seven of which must be at the graduate level. The course requirements consist of core, breadth, and problems courses, seminars, and a technical writing course.

Written and oral qualifying examinations are required. The purpose of the examinations is to test the student's understanding of the core and breadth areas, the master's field, current issues in the environmental field, and subjects

covered in problems courses. Following successful completion of the written examination, students take the University Oral Qualifying Examination.

Following advancement to candidacy, students begin an internship in their field of interest at an outside institution. No later than nine months after advancement to candidacy, at the beginning of the internship, candidates are required to present a written prospectus of the dissertation and defend it before the doctoral committee.

## Environmental Science and Engineering

### Graduate Courses

**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 course 400C).

**400B. Environmental Science and Engineering Problems Course. (8)** Discussion, eight hours. Requisite: 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. Requisite: 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. Requisite: 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)** (Formerly numbered 412.) (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

*School of Public Health*

UCLA  
71-254 Center for the Health Sciences  
Box 951772  
Los Angeles, CA 90095-1772  
(310) 825-8579  
<http://www.ph.ucla.edu/epi/>

Ralph R. Frerichs, D.V.M., Dr.P.H., *Chair*

### Professors

Susan D. Cochran, Ph.D., M.S.  
Roger Detels, M.D., M.S.  
Ralph R. Frerichs, D.V.M., Dr.P.H.  
Sander Greenland, Dr.P.H.  
Jess F. Kraus, Ph.D.  
Hal Morgenstern, Ph.D.  
Teresa E. Seeman, Ph.D., *in Residence*  
Zuo-Feng Zhang, M.D., Ph.D.

### Professors Emeriti

Lawrence R. Ash, Ph.D.  
John F. Schacher, Ph.D.  
Barbara R. Visscher, M.D., Dr.P.H.

### Associate Professors

Scott P. Layne, M.D.  
Corinne Peek-Asa, Ph.D., *in Residence*  
Frank Sorvillo, Ph.D., *in Residence*

### Assistant Professors

Eric Hurwitz, D.C., Ph.D., *in Residence*  
Beate R. Ritz, M.D., Ph.D.

### Lecturer

Anne H. Coulson, *Senior Lecturer Emerita*

### Adjunct Professors

John M. Peters, M.D., M.P.H., Sc.D.  
Marc A. Strassburg, Dr.P.H.

### Adjunct Associate Professors

Deborah L. Ackerman, Ph.D.  
George W. Berlin, Ph.D.  
James R. Greenwood, Ph.D., M.P.H.  
Sydney Maureen Harvey, Ph.D.  
David McArthur, Ph.D.  
Paul Simon, M.D., M.P.H.  
Nathan Wong, Ph.D.

### Adjunct Assistant Professors

Michael A. Kelsch, M.A., Ph.D. M.P.H.,  
Roberta M. Malmgren, Ph.D.

## 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 prevention 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 which 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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Epidemiology offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Epidemiology.

## Admission

The department admits to the M.S. program only those applicants who hold a prior M.P.H. or doctoral degree (e.g., M.D., D.D.S., D.V.M., Ph.D., or equivalent) or those applicants whose ultimate degree objective is the Ph.D. degree. The M.S. degree may be earned as part of the process of completing requirements for the Ph.D.

In addition to the University minimum requirements, the department requires (1) satisfactory performance on the Graduate Record Examination (GRE), (2) at least a 3.0 junior/senior

grade-point average and at least a 3.5 grade-point average in graduate studies, and (3) approval by the department admissions committee, an academic adviser, and the department chair.

## Master's Degree

The M.S. degree is offered through the comprehensive examination and thesis plans. Students must complete a minimum of 56 units: 38 units of core courses and 18 units of elective courses. At least 20 units of the coursework must be at the graduate level.

## Doctoral Degree

Students must fulfill the course requirements for the M.S. degree in Epidemiology with an average of no less than 3.3 (B+) in specific core courses in epidemiology. Students must also take one course in theory and methodology and one additional statistics course beyond the M.S. requirements, one course on pathobiology, and at least three quarters of an advanced seminar. The statistics and pathobiology courses must be approved by the department. In addition, students must take at least 12 units of graduate-level courses outside the department.

Written and oral qualifying examinations are required. Following successful completion of the written examination, students take the University Oral Qualifying Examination.

## Epidemiology

### Lower Division Course

**88. Lower Division Seminar: Special Topics in Epidemiology. (4)** Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in epidemiology approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member. Letter grading.

### 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 200. Introduction to epidemiology, including factors governing health and disease in populations. Letter grading.

**199. Special Studies. (2 to 4)** Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to seniors. Individual undergraduate guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Only 4 units may be taken each term. Letter grading.

### Graduate Courses

**200. Epidemiology I. (4)** Lecture, two hours; laboratory, four hours. Preparation: one full biological sciences course. Requisite: Biostatistics 100A (may be taken concurrently). Not open for credit to students with credit for course 100. Introduction to epidemiology, including factors governing health and disease in populations. Letter grading.

**201A-201B. Epidemiologic Methods I, II. (6-6)** Lecture, four hours; discussion, two hours; outside study, 12 hours. Preparation: at least two upper division biology or social sciences courses. Recommended preparation: course 100 or 200. Requisites: Biostatistics 100A, 100B. Comprehensive coverage of concepts, principles, and methods in epidemiology, with emphasis on study design, statistical analysis, and causal inference. Theoretical and quantitative emphasis, focusing on investigation of disease etiology and other causal relationships in public health. Letter grading.

**202A. Epidemiology: Theory and Methodology. (4)** Lecture, four hours. Requisite: course 201B. Advanced principles and methods of epidemiologic analysis. Topics include relating prevalence and incidence, analysis of clustering and seasonality; measures of effect, sources of bias, regression to the mean, estimation and hypothesis testing in epidemiology; models for risk and rates; cohort analysis. S/U or 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)** (Formerly numbered 204.) (Same as Statistics M243.) Lecture, four hours. Preparation: two terms of statistics or probability and statistics. Recommended requisite: course 201B. 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.

**210. Public Health Research Using Available Data. (2)** Lecture, one hour; discussion, one hour. Requisites: courses 100, 410A or Biostatistics 403, Biostatistics 100A. Presentations and discussions of availability, concepts, content, and usefulness of already collected data in public health research. Major emphasis on public data such as National Center for Health Statistics surveys, vital statistics, census, etc. 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 201A, 201B. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in courses 201A and 201B 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)** (Formerly numbered 202B.) (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 201A and 201B 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 200. 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.

**221. Prevalent and Emerging Infectious Diseases in the World. (4)** Lecture, four hours. Requisites: course 100 or 200, Biostatistics 100A, 100B. Designed for graduate students and medical doctors seeking broad knowledge and detail on prevalent and emerging infectious diseases, including influenza/acute respiratory infections, cholera/diarrheal disease, tuberculosis, hepatitis B, malaria, measles, neonatal tetanus, HIV/AIDS, pertussis (whooping cough). S/U or letter grading.

**222. Arthropods as Vectors of Human Diseases.**

(4) Lecture, four hours. Requisites: courses 100 or 200, 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.

**223A. Protozoal Diseases of Man.** (4) Lecture, four hours. May be taken concurrently with course 223B. Comprehensive overview of systematics, morphology, biology, host/parasite relationships, public health problems, and control of protozoa parasitic in man and animals. S/U or letter grading.

**223B. Protozoal Diseases of Man.** (2) Laboratory, four hours. Requisite or corequisite: course 223A. Laboratory methods of diagnosis and microscopic recognition of protozoa parasitic in man and animals. Intestinal protozoa and organisms occurring in blood and tissues of their hosts and pathology associated with these infections. S/U or letter grading.

**224A. Helminthic Diseases of Man.** (4) Lecture, four hours. May be taken concurrently with course 224B. Comprehensive overview of systematics, morphology, biology, host/parasite relationships, public health problems, and control of nematodes, trematodes, and cestodes parasitic in man and animals. S/U or letter grading.

**224B. Helminthic Diseases of Man.** (2) Laboratory, four hours. Diagnosis and practical microscopic recognition of nematodes, trematodes, and cestodes parasitic in man and animals. Pathology produced by these infections. S/U or letter grading.

**226. Public Health Responses to Bioterrorism.** (2) Lecture, two hours. Requisite: course 220 or 221. 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: A Major Public Health Challenge.** (4) Lecture, four hours. Requisites: course 100 or 200, 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.

**M228. Biology of HIV.** (4) (Same as Microbiology and Immunology M275.) 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 the laboratory. Letter grading.

**229. Epidemiology of Foodborne Illnesses.** (2) Lecture, two hours. Requisites: course 100 or 200, Biostatistics 100A. Food poisoning is a 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. Requisite: course 100 or 200. Sexually transmitted diseases; medical/biological aspects, epidemiology and control in developed and developing countries. S/U or 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. Requisite: course 100 or 200. 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 a 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 100 and/or 200, 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.

**245. Epidemiological and Clinical Issues in Research on Aging.** (2) Lecture, two hours. Overview of concepts and current epidemiological and clinical issues in research on aging. Presentations by current epidemiological and clinical researchers at UCLA and coverage of range of current research topics on aging, with focus on conceptual and methodological issues related to each topic area. S/U or letter grading.

**246. Epidemiology of Aging.** (2) Lecture, two hours. Requisite: course 100 or 200. Epidemiologic methods of estimating present and future burdens of aging: morbidity, disability, and dependency. Epidemiology of major disabling conditions affecting the elderly. Evaluation of possible intervention strategies. Methodologic issues in geriatric epidemiology. S/U or letter grading.

**247. Epidemiology of Injuries in the Elderly.** (2) Lecture, two hours. Requisite: course 100. Description of frequency of, risk factors for, and possibilities of preventing injuries in the elderly populations. Comparison of injury outcomes (morbidity and mortality) in younger vs. older populations. Emphasis on methodologic issues of studying elderly people. S/U or letter grading.

**248. Psychiatric Epidemiology.** (2) Lecture, two hours. Requisite: course 100 or 200. 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.

**251. Epidemiology of Nonintentional Injuries.** (4) Lecture, three hours; discussion, two hours. Requisites: course 100 or 200, Biostatistics 100A. Pertinent epidemiologic methods for study of nonintentional trauma, including that from motor vehicle crashes, occupational exposures, falls, and other major external causes, which focus on research approaches, data sources, analytical techniques. Substantive findings on related subproblem areas presented for critical review. Letter grading.

**252. Epidemiology of Assault, Homicide, and Suicide.** (2) Lecture, two hours; discussion, one hour. Requisite: course 100 or 200. Presentation and evaluation of epidemiologic research approaches to study of violent injury, including description of incidence, study design, risk factor analysis, and control evaluation. S/U or 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.

**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 the 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.

**259. Disaster Epidemiology.** (2) Lecture, two hours. Requisites: course 100 or 200, 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, two hours; discussion, two hours. Requisite: course 100 or 200. Methodological problems and approaches of epidemiology for assessing health impact of major types of environmental exposure. S/U or letter grading.

**261. Occupational Epidemiology.** (4) Lecture, two hours; discussion, two hours. Requisite: course 100 or 200. 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. Requisite: course 100 or 200. 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. Requisite: course 100 or 200. 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.

**268. Introduction to Pharmacoepidemiology.** (2) Lecture, two hours. Requisite: course 200. 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. Epidemiology and Health Policy.** (2) Lecture, two hours. Requisites: courses 100, or 201A and 201B, Biostatistics 100B or 110B, Health Services 100. Application of epidemiologic methods and findings in health services research, population health planning, and health policy to provide framework for integrating causal inference with decision making. Emphasis on conceptual and methodologic issues confronting researchers, clinicians, planners, administrators, and legislators. S/U or letter grading.

**280. Parasitic Diseases and Global Health.** (4) Lecture, four hours. Overview of major human parasitic diseases in terms of their biology, occurrence, distribution, and transmission in nature; diseases they cause and impact they have on health of populations; interaction with other disease states; and interventional strategies for their control. S/U or letter grading.

**290. Seminar: Epidemiology — Infectious and Tropical Disease.** (2) Seminar, two hours. Review of research on specific diseases of public health importance. May be repeated for credit. S/U or letter grading.

**291. Seminar: Epidemiology — Methodology.** (2) Seminar, two hours. Requisite: course 100 or 200. 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. Requisite: course 201B. 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. Requisite: course 100 or any other epidemiology course. 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. Requisite: course 100 or 200. 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.

**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.

**401. Database Theory and Practical Applications in Injury Epidemiology. (2)** Lecture, two hours. Prerequisite: course 201A. Exploration of theory and practical strategies for database construction and manipulation, selection, and use of desktop-computing database applications using a variety of examples from epidemiological research. Letter grading.

**402. Advanced Data Analysis in Occupational and Environmental Epidemiology. (4)** Lecture, two hours; laboratory, two hours. Preparation: one data management course. Prerequisites: courses 201A and 201B, or 201A 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.

**M403B. Computer Management and Analysis of Health Data Using SAS. (4)** (Same as Biostatistics M403B.) Lecture, two hours; laboratory, two hours. Prerequisites: Biostatistics 100A, 100B. 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.

**410A. Management of Epidemiologic Data. (2)** Lecture, two hours. Prerequisites: course 100, Biostatistics 100A (one course may be taken concurrently with consent of instructor). Concepts, collection, and management of data, with particular emphasis on databases in chronic infectious diseases. Introduction to personal computers and appropriate software for epidemiologic studies. S/U or letter grading.

**410B. 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. Prerequisites: course 100 or 200, Biostatistics 100A. 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. S/U or letter grading.

**412. Public Health Surveillance. (2)** Lecture, two hours. Prerequisites: course 100 or 200, 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.

**414. Practical Epidemiologic Investigations. (2 to 4)** Lecture, one to two hours; laboratory, one to two hours. Prerequisite: course 100 or 200. Practical approaches to epidemic investigations presented through problem sets based on actual outbreaks. Data collection, analysis, and written presentation of findings. S/U or letter grading.

**415. Epidemiology for Developing Countries. (4)** Lecture, four hours. Prerequisites: courses 100 and/or 200, 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. Prerequisite: course 100. Lectures with discussion on injury prevention strategies and countermeasures, including critical review of effectiveness in the 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)** (Formerly numbered 418.) (Same as Community Health Sciences M418.) Lecture, four hours. Prerequisites: courses 100 and/or 200, 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 the questionnaire, select the sample, process and analyze data, and prepare final report. Letter grading.

**419. Applications in Musculoskeletal Epidemiology. (4)** Lecture, two hours; laboratory, two hours. Prerequisites: course 100 or 200 (may be taken concurrently), Biostatistics 100A. Introduction to principles and practical issues of epidemiologic data analysis for addressing musculoskeletal-related hypotheses. Use of data sets from relevant components of National Health Interview Survey and from musculoskeletal-related epidemiologic studies. Use of SAS programming language, with applications in both UNIX and Windows. 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 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 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 8)** Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

## ETHNOMUSICOLOGY

*School of the Arts and Architecture*

UCLA  
2539 Schoenberg Music Building Annex  
Box 951657  
Los Angeles, CA 90095-1657  
(310) 206-3033  
<http://www.ethnomusic.ucla.edu>

Timothy Rice, Ph.D., *Chair*

### Professors

Kenneth Burrell, B.A.  
Jacqueline C. DjeDje, Ph.D.  
Roger Kendall, Ph.D.  
Steven J. Loza, Ph.D.  
Daniel M. Neuman, Ph.D., *Dean*  
A. Jihad Racy, Ph.D.  
Timothy Rice, Ph.D.  
Hiromi Lorraine Sakata, Ph.D., *Associate Dean*  
Anthony Seeger, Ph.D.

### Professors Emeriti

Peter C. Crossley-Holland, M.A.  
Charlotte A. Heth, Ph.D.  
Mantle L. Hood, Ph.D.  
William R. Hutchinson, Ph.D.  
Nazir A. Jairazbhoy, Ph.D.  
J.H.K. Nketia, B.A.  
James W. Porter, M.A.

### Assistant Professors

Tara Browner, Ph.D.  
Cheryl Keyes, Ph.D.  
Helen Rees, Ph.D.  
Roger Savage, Ph.D.

### Lecturers

George Bohanon  
Garnett Brown, B.S.  
Jeffrey Clayton  
Billy Higgins  
Abhiman Kaushal  
Harold Land  
Tsun Y. Lui, *Emeritus*  
Llew Matthews  
Roberto Miranda, M.M.  
Barbara Morrison  
Ruth Price  
Thomas Ranier, B.A.  
Bobby Rodriguez  
Suenobu Togi, *Senior Emeritus*  
Michele Weir  
Anthony Wilson  
Gerald Wilson  
Ikuko Yuge, B.A., *Emerita*

### Adjunct Professors

Ankica Petrovic, Ph.D.  
Benjamin Suchoff, Ed.D.

### Adjunct Assistant Professors

Francisco Aguabella  
Donald Kim, B.A.  
Kobla Ladzekpo, M.A.  
Chi Li, B.A.  
James Roberson, M.B.A.  
I Nyoman Wenten, Ph.D.

### Visiting Professor

Shujaat Husain Khan

### Visiting Associate Professor

Amy Catlin, Ph.D.

### Visiting Assistant Professors

Jonathon Grasse, Ph.D.  
Jesus Guzman

## Scope and Objectives

Ethnomusicology is a research field that combines the various techniques of musical analysis with the methods of the social sciences and humanities (i.e., the study of cultural systems including music). Although originally focused on folk, tribal, and Asian classical music traditions, ethnomusicology at UCLA includes the study of all styles of music in the world, including popular music, jazz, and even Western classical music when approached from a cultural analysis perspective. The undergraduate and graduate programs in ethnomusicology provide students with broad knowledge of world musics and methods currently used in their study.

The object of systematic musicology, a multidisciplinary field, is to answer fundamental questions on the nature and properties of music, not only as art but as empirical phenomena. At UCLA, this research orientation integrates the perspectives of aesthetics and philosophy, music theory, acoustics, sociology, psychology, organology, and semiotics, any of which can be cross-cultural, focusing on the systems or models discernible through these disciplines.

## Undergraduate Study

### Ethnomusicology B.A.

#### 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

*Required:* Ethnomusicology 10A, 10B, 10C, 20A, 20B, 20C, and 12 units of performance organizations or private instruction in music (courses 91A through 91Z or 92).

#### The Major

##### Ethnomusicology Concentration

*Required:* (1) Group A — Ethnomusicology 175 or 181, M180, 190; (2) group B — seven courses selected from 105 through 121, 128, M131 through 174, C176, C178, C179, C188, 196 through 199S; (3) group C — 12 units from courses 191A through 191Z or 192.

##### Jazz Studies Concentration

*Required:* Ethnomusicology M110A, M111, 120A or 120B, M127, M129A, M129B, M129C, M180 or 181, M186, 12 units of course 171, 12 units of course M177, Music History 150, and three elective courses from Ethnomusicology 105 through 121, 128, M131 through 174, C176, C178, C179, C188, 196 through 199S.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Ethnomusicology offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Ethnomusicology.

#### Admission

Applicants to the M.A. program usually have completed a bachelor's degree in music. Applicants with strong musical backgrounds and bachelor's degrees in other fields are welcome but must provide evidence of their musical training and experience. Dossiers are reviewed by the faculty to assess each applicant's potential as a graduate student in this field and program.

Applicants are required to submit, in addition to the regular Graduate Division requirements, (1) a statement of purpose, (2) three letters of recommendation, and (3) a research paper as a sample of writing and research skill (M.A. thesis, if available). No application can be considered until all of the above materials have been received.

Admission to the Ph.D. program with a specialization in ethnomusicology requires an M.A. in ethnomusicology or in a cognate field such as music, anthropology, or folklore with a significant emphasis in ethnomusicology. Applicants with M.A. degrees but with little or no background in ethnomusicology are encouraged to apply for the M.A. program in ethnomusicology.

Admission to the Ph.D. program with a specialization in systematic musicology requires a master's degree in musicology, music theory, or other cognate discipline.

#### Admission Timetable

December 15 — Application for admission/fellowship is due.

December 30 — Supplementary application materials are due.

February 28 — Late applications received by February 28 are reviewed only if there is space available in the program.

By March 15 — Notice of acceptance or denial is sent.

Applicants for fellowships must adhere to the earlier deadlines; all monies are awarded by March 15. Applicants on a waiting list for admission are notified as soon as a decision is reached. Failure to meet any deadline may result in a delay in action or no action on an application for admission, as well as that for a fellowship or assistantship.

## Master's Degree

For specializations, see Doctoral Degree.

The M.A. degree is offered through the comprehensive examination plan. Students in ethnomusicology are required to complete a minimum of 52 units of upper division and graduate courses (normally 12 courses), of which 36 units (normally eight courses) must be at the graduate level. There are core and elective courses. Students must enroll in a minimum of six quarters of ethnomusicology performance organizations which are not applied to their degree.

Students in systematic musicology are required to complete a minimum of 52 units of upper division and graduate courses (normally 12 courses), of which 36 units (normally eight courses) must be at the graduate level. There are core and elective courses.

There is a language requirement for this degree.

## Doctoral Degree

The department offers the Ph.D. in Ethnomusicology, with specializations in ethnomusicology and systematic musicology.

The Ph.D. degree requires a minimum of 24 units of graduate and upper division courses (normally six courses). A minimum of 12 units (normally three courses) must be in the department, and a minimum of 16 units (normally four courses) must be graduate-level seminars. Students who do not have an M.A. from UCLA may be required to take extra courses to make up deficiencies.

Students in the ethnomusicology specialization must enroll in a minimum of three quarters of ethnomusicology performance organizations which are not applied to their degree.

Written and oral qualifying examinations are required. The written examinations cover four separate areas. In both specializations some examinations may be take-home examinations or papers.

Following successful completion of the written examinations, student take the University Oral Qualifying Examination, which is primarily a defense of the doctoral dissertation proposal, especially its relation to previous research in the area and to theory and method in ethnomusicology.

There is a language requirement for this degree.

## Ethnomusicology

### Lower Division Courses

**1A-1B. Fundamentals of Sound and Music of the World. (2-4)** Lecture, two hours; laboratory, one hour. Acoustical makeup of sound (pitch, tone quality); tuning systems; modes and scales; harmony and polyphony; rhythm and meter; notational systems; relationships of music to culture. Laboratory includes ear training and instrumental techniques.

**10A-10B-10C. World Music Theory and Musicianship. (4-4-4)** Lecture, two hours; discussion, four hours; laboratory, two hours. Limited to Ethnomusicology and World Arts and Cultures majors. Course 10A is requisite to 10B, which is requisite to 10C. 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.

**15. American Life in Music. (4)** Lecture, three hours. Impact of ethnicity, race, gender, and other social processes on American music in the 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 the World. (4-4-4)** Lecture, four hours; discussion, one hour. Survey of musical cultures of the world (excluding Western art music), role of music in society and its relationship to other arts; consideration also to scale structure, instruments, musical forms, and performance standards. **20A.** Europe and the Americas; **20B.** Near East and Africa; **20C.** South Asia, Southeast Asia, and the Far East.

**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 the American Indians; **91B.** Music of Bali; **91C.** Music and Dance of the 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; **91M.** Music of Thailand; **91N.** Music of the Near East; **91P.** Music of African Americans; **91Z.** Open Ensemble.

**92. Private Instruction in Music. (2)** Studio, one hour. Limited to Ethnomusicology majors. Private or semiprivate music instruction with a distinguished community-based musician, which must be arranged by students and approved by course instructor. May be repeated for credit without limitation.

## Upper Division Courses

**105. Music, Musicians, and Music Industry. (4)** Lecture, four hours; outside study, eight hours. Designed for undergraduate nonmajors from wide array of backgrounds and interests. 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. 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 Southeastern 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. (4-4)** Lecture, four hours; discussion, one hour. Course M108A is not requisite to 108B. Survey of traditional and contemporary musical culture. **M108A.** Mexico, Central America, and the 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 the 1880s to the 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. (4-4)** (Same as Afro-American Studies M110A-M110B and Folklore M154A-M154B.) Lecture, four hours; discussion, one hour. Study of African music and its impact on the Americas; survey of development of various African American musical genres from slave era to the present, including traditions in the West Indies and Central and South America.

**M111. Ellingtonia. (4)** (Same as Afro-American Studies M115.) Music of Duke Ellington, his life, and far-reaching influence of his efforts. Ellington's music, known as "Ellingtonia," is one of the largest and perhaps most important bodies of music ever produced in the U.S. Covers the many contributions of other artists who worked with Ellington, such as composer Billy Strayhorn and musicians Johnny Hodges, Cootie Williams, and Mercer Ellington.

**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.

**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 a cross-cultural basis of diverse musical contexts within the vast multicultural metropolis of Los Angeles, with focus on various musical networks and specific experiences of the Chicano/Latino, African American, American Indian, Asian, rock culture, Western art music tradition, and the commercial music industry.

**M116. Chicano/Latino Music in the U.S. (4)** (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 the U.S.

**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. (4)** History of rock from the 1950s to the 1970s. In-depth survey of stylistic trends illustrated by pertinent examples and accompanied by extensive musical analysis.

**M119. Cultural History of Rap. (4)** (Same as Afro-American Studies M107 and Folklore M110.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and allied forms, 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 the U.S.

**121. Cross-Cultural Perspectives in Jazz. (4)** Exploration of assimilation and retention of jazz from the U.S. in various countries, with particular emphasis on cultural and social features which form the basis for new jazz-ethnic music blends.

**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 the 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 the present.

**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 the Sixties.

**M127. Jazz Keyboard Harmony. (1)** (Same as Music M127.) Laboratory, two hours. Study of jazz harmony through use of piano keyboard. Development of basic keyboard skills in order to manipulate essential chord voicings and harmonic passages in jazz music. Instruction in basic jazz theory.

**128. Folk Music of Eastern Europe. (4)** Introduction to forms and styles of traditional music in Eastern Europe (including the Balkans). Historical and ethnological aspects of the music illustrated by numerous recorded examples from major cultural subdivisions of the area.

**M129A-M129B-M129C. Jazz Theory and Improvisation. (2-2-2)** (Same as Music M129A-M129B-M129C.) Lecture, four hours. Elements of jazz theory and improvisation. **M129A.** Basic jazz harmonic constructions, as well as melodic, rhythmic, and harmonic concepts, and how to apply those elements to personal efforts in improvisations. **M129B.** Requisite: course M129A with a grade of C or better. Medium-level jazz harmonic constructions. **M129C.** Requisite: course M129B with a grade of C or better. Advanced-level jazz harmonic constructions.

**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.

**C136A-C136B. Music of Africa. (4-4)** (Formerly numbered 136A-136B.) Concurrently scheduled with courses C236A-C236B. Letter grading. **C136A.** Lecture, four hours. Introduction to music of Africa through general discussion of select topics such as the continent and its peoples, function, the musician, instruments, musical structure and related arts, and contemporary music. **C136B.** Lecture, four hours; discussion, one hour. 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.

**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.

**147. Survey of Classical Music in India. (4)** Examination of melodic, metric, and formal structures of Indian classical music in context of religious, sociocultural, and historical background of the country.

**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 a 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.** (Formerly numbered 156A.) 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)** 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.

**158A-158B-158C. Studies in Chinese Instrumental Music. (4-4-4)** Lecture, three hours; laboratory, one hour. **158A.** Study of literature, major sources, paleography, theory, and philosophy of the Ch'in, including transcription and analysis. **158B.** Study of literature, major sources, paleography, theory, and philosophy of the 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, Tibeto-Burman peoples, Hmong, and indigenous peoples of Taiwan. Concurrently scheduled with course C259. P/NP or letter grading.

**160A. 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.

**160B. Studies in Japanese Court Music. (4)** Lecture, two hours; laboratory, one hour. Preparation: minimal musical ability. In-depth study of Japanese court music, including historical background, with emphasis on understanding the instrumental techniques and notation of various instruments of the court orchestra.

**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.

**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 a maximum of 12 units.

**172A-172B. Cognitive Psychology of Music. (4-4)**

**172A.** Lecture, four hours; discussion, one hour. Designed for nonmajors. Introduction to psychology of music; historical background and the broad field of study, including use of music as a stimulus, tests and measurements, and related modes of musical behavior. **172B.** Requisite: course 172A. Study of psychological factors and problems in music from points of view of listener, performer, and composer.

**173. Experimental Research in Music. (4)** Recommended for Music majors in all specializations. Theories and processes in various modes of musical experimentation: physical, perceptual, psychological, pedagogical, quantificational, statistical procedures.

**174. Aesthetics of Music. (4)** Lecture, four hours; discussion, one hour. Designed for nonmajors. Historical survey of musical aesthetic thought and practice. Selected readings and musical examples.

**175. Sociology of Music. (4)** Designed for Ethnomusicology, Music History, and Music majors. Introduction to sociology of music, its principles and basic concepts, and its critical significance for sociomusicological 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.

**M177. Jazz Combo. (2)** (Same as Music M177.) Small group performance of various styles in ensembles of three to 10 musicians. May be repeated for a maximum of 12 units.

**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)** (Not the same as course C179 prior to Fall Quarter 1999.) 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 C203. Letter grading.

**M180. Analysis of Traditional Music. (4)** (Same as Folklore M180.) Designed for Ethnomusicology, Music History, and Folklore majors. Intensive study of methods and techniques necessary to understand traditional music.

**181. Anthropology of Music. (4)** 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.

**M186. Senior Recital or Research Paper. (No credit)** (Same as Music M186.) Preparation and performance of one-hour senior recital of jazz repertoire or preparation of a senior paper (topic and length to be approved by assigned adviser). P/NP grading.

**C188. Music Industry. (4)** Lecture, four hours; outside study, eight hours. Designed for 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 the 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course C288. Letter grading.

**190. Study of Ethnomusicology. (4)** Lecture, three hours. Requisites: courses 10A, 10B, 10C, 20A, 20B, 20C. Designed for Ethnomusicology majors. Introduction to history of the field, basic fieldwork and analysis methods, and current issues in research.

“In the coming decades, all of us will have to learn to live with a diversity of opinions, ideas, and values,” affirms Ethnomusicology Professor Anthony Seeger. “Students taking ethnomusicology have an opportunity to appreciate those differences while learning how communities create music based on different values and use it for different ends. It’s a good place to appreciate how wonderful difference can be.”

Professor Seeger’s vision of music as a window to many worlds has led to an exciting and far-reaching career that has included service as curator of the Folkways Collection and director of Folkways Recordings at the Smithsonian Institute. His time as an educator and researcher in Rio de Janeiro fostered writings that focus on the Suya Indians of Brazil and issues of land and human rights for Brazilian Indians. Topics of his other publications—including issues of archiving, intellectual property, and music and the law—stem from his experience in the music industry and as an archivist.

**191A-191Z. Advanced World Music Performance Organizations. (2 each)** Activity, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. **191A.** Music and Dance of the American Indians; **191B.** Music of Bali; **191C.** Music and Dance of the Balkans; **191D.** Music of China; **191E.** Music and Dance of Ghana; **191F.** Music of India; **191G.** Music of Japan; **191H.** Music of Java; **191J.** Music of Korea; **191K.** Music of Mexico; **191L.** Music of Persia; **191M.** Music of Thailand; **191N.** Music of the Near East; **191P.** Music of African Americans; **191Z.** Open Ensemble.

**192. Advanced Private Instruction in Music. (2)** Studio, one hour. Preparation: two years of courses 91A through 91Z or 92. Limited to Ethnomusicology majors. Advanced private or semiprivate music instruction with a distinguished community-based musician, which must be arranged by students and approved by course instructor. May be repeated for credit without limitation.

“I hope students come out of my courses able to appreciate the different ways people make music—to be enthusiastic about musical diversity and interested in learning more on their own” he says. “I consider my job to be more like that of a match or fuse: if my course can capture a student’s interest and imagination, they can carry on for the rest of their lives.”

Seeger doesn’t seem to have difficulty igniting a spark in students who take his courses in topics such as Latin American or Amerindian music. And at UCLA, he can draw on remarkable resources. “UCLA has one of the largest and best ethnomusicology programs in the world. There are a number of courses to take, musical ensembles to play in, and special events. The students themselves have broad interests. They are excited about the materials they are exposed to, ask tough questions, and learn a lot from each other. My job is to facilitate their interaction with the sources and with one another. After that, they can go as far as they like with their interests and their passions.”



**Anthony Seeger,**  
**Ethnomusicology**  
**Department**

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*I hope students come out of my courses enthusiastic about musical diversity and interested in learning more on their own. I consider my job to be like that of a match or fuse: if my course can capture a student’s interest and imagination, they can carry on for the rest of their lives*

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**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 the 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.

**197. Special Topics in Ethnomusicology. (4)** Lecture/seminar, three hours. Selected topics in ethnomusicology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

**199E. Special Studies in Ethnomusicology. (2 to 4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average. Limited to seniors. Individual studies in ethnomusicology resulting in research project. May be repeated for a maximum of 8 units.

**199S. Special Studies in Systematic Musicology. (2 to 4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average. Limited to seniors. Individual studies in systematic musicology resulting in research project. May be repeated for a maximum of 8 units.

## Graduate Courses

- 201. History of Ethnomusicology. (4)** (Formerly numbered 201A.) Seminar, three hours; outside study, nine hours. Limited to graduate ethnomusicology students. Basic literature and schools of thought in field of ethnomusicology from the late 19th century to the 1980s. Letter grading.
- 202. Current Issues in Ethnomusicology. (4)** (Formerly numbered 201B.) 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 the 1980s to the present. Letter grading.
- C203. Empirical Foundations in Systematic Musicology. (4)** (Not the same as course C203 prior to Fall Quarter 1999.) 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.
- 207. Seminar: North American Indian Music. (4)** Seminar, three hours. Requisite: course 106A or 106B or 106C. 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.
- 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.
- M211. Seminar: African American Music. (4)** (Same as Afro-American Studies M211.) Seminar, three hours. Requisites: courses M110A, M110B. Designed for graduate students. Intensive investigation of problems, theories, and methods of research related to study of African American music. Emphasis on relationship of problems to representative styles of African American music.
- 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 the Sixties.
- 228. Seminar: Balkan Music. (4)** Seminar, three hours. Requisite: course 128. Major issues in study of Balkan music, including song text analysis, music instruments, dance music, rituals and customs, minorities, and ideology.
- 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 and letter grading.
- C236A-C236B. Music of Africa. (4-4)** Concurrently scheduled with courses C136A-C136B. Letter grading. **C236A.** Lecture, four hours. Designed for graduate students. Introduction to music of Africa through general discussion of select topics such as the continent and its peoples, function, the musician, instruments, musical structure and related arts, and contemporary music. **C236B.** (Formerly numbered C236.) Lecture, four hours; discussion, one hour. 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.
- 237. Seminar: African Music. (4)** Seminar, three hours. Requisite: course C136A or C136B. Intensive investigation of musical style; historical, social, and cultural aspects of indigenous musical traditions and related art forms.
- 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.
- 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.
- 248A-248B. Classical Music of India. (4-4)** Lecture, three hours. Requisite: course 146 or 147. Study of history, theory, and practice of north and south Indian classical music. During first term, emphasis on music history and traditional theory; second term, analysis of present-day forms, styles, techniques, and musical instruments. Concurrent participation in Indian performance group (course 91F) required.
- C250. Music and Politics in East Asia. (4)** Lecture, four hours. Designed for graduate students. Political imperatives have long had a 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.
- 250A-250B. Music of Indonesia. (4-4)** Lecture, three hours. Requisite: course 20C. During first term, emphasis on music and related performing arts of Java. Focus on music and performing arts of Bali and other Indonesian islands during second term. Concurrent participation in one Indonesian performance group (course 91B or 91H) required.
- 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 the American context, with perspectives from archaeology, history, performance theory, applied anthropology, and ethnomusicology.
- C256A. Music in China. (4)** 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.
- 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 the city as cultural entity that affects and is affected by music making and of strategies individuals and groups use to remain musically active in an urban area. 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 the 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.
- 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.
- 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.
- 273. Seminar: Psychology of Music. (6)** Seminar, three hours. Requisite: course 173. 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.
- 275. Seminar: Aesthetics of Music. (6)** Seminar, three hours. Requisite: course 176. 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.
- 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.

**281A-281B. Seminars: Field and Laboratory Methods in Ethnomusicology. (6-6)** Seminar, three hours; laboratory, two hours. Requisites: courses 201A-201B. Fieldwork concepts and methods using technical equipment, conducting interviews, dealing with ethical issues, and designing research projects.

**282. Seminar: Analysis. (6)** Seminar, three hours. Requisite: course M180 or graduate ethnomusicology student. Intensive discussion of techniques used in ethnomusicological analysis, including transcription and notation, with emphasis on analysis of musical performance and music events.

**283. Seminar: Study of Musical Instruments (Organology). (6)** Seminar, three hours. Requisites: courses 201A-201B. Musical instruments studied in terms of their structures, performance contexts, cultural significance, and patterns of change.

**284. Seminar: Anthropology of Music. (4)** Requisites: courses 201A-201B. Analysis of current anthropological paradigms and issues that have major impact on ethnomusicology.

**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 a science of music; its place between cultural values and artistic practice in different civilizations.

**M287. Seminar: Folk Music. (4)** (Same as Folklore M258.) Seminar, three hours.

**C288. Music Industry. (4)** Lecture, four hours; outside study, eight hours. Designed for 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 the 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course C188. 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. Requisites: courses 20A, 20B, 20C, 200, 201A, 201B. May be repeated for credit.

**292A-292Z. Seminars: Special Topics in Ethnomusicology. (4 each)** Designed for graduate students. Utilization of special interests and expertise of regular and visiting faculty; topics of current interest presently offered in ethnomusicology program.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**495A. Teaching Apprentice Practicum. (2)** (Formerly numbered 495.) 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 an electronic teaching portfolio. S/U grading.

**596. Directed Individual Studies. (2, 4, or 6)** Only 4 units may be applied toward M.A. minimum course requirements.

**597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examinations. (2 or 4)** May be repeated for credit. S/U grading.

**598. Guidance of M.A. Thesis. (4, 8, or 12)** May be repeated for credit. S/U grading.

**599. Guidance of Ph.D. Dissertation. (4, 8, or 12)** May be repeated for credit. S/U grading.

## EUROPEAN STUDIES

Interdepartmental Program  
College of Letters and Science

UCLA  
11371 Bunche Hall  
Box 951446  
Los Angeles, CA 90095-1446  
(310) 825-6387  
fax: (310) 206-3555  
e-mail: sdillon@isop.ucla.edu  
[http://www.isop.ucla.edu/euro/BA\\_program.html](http://www.isop.ucla.edu/euro/BA_program.html)

Patrick Coleman, Ph.D., *Chair*

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Jill Anne Kowalik, Ph.D. (*Germanic Languages*)  
Robert M. Maniquis, Ph.D. (*English*)  
Malina Stefanovska, Ph.D. (*French and Francophone Studies*)

### Assistant Professor

Roman J. Koropeckyj, Ph.D. (*Slavic Languages and Literatures*)

## Scope and Objectives

The European Studies Program provides undergraduates with an opportunity to study Europe from the vantage points of several disciplines in the humanities and social sciences. Its primary goals are twofold: to enable students to cross the existing boundaries between and within the humanities and social sciences and to develop approaches to European society and culture consonant with the dramatic changes taking place in that region. Not only has the Cold War model of distinct eastern and western blocs lost the bulk of its explanatory power, but European culture, economy, and social structure have been transformed by immigration, unification, Americanization, and new developments in the intellectual and political realms.

The events of recent years make it clear that the University and its students require new academic approaches to the region. The demise of the Soviet Bloc, the increased ethnic conflict throughout the region, the migration of peoples within Europe and from other parts of the world, the challenges of a rapidly evolving global economic system, and the uncertainties inherent in the process of unification — all these developments call into question the intellectual configurations that have long dominated our thinking. Today the regions of Europe provide a laboratory for examining — and finding solutions for — everything from efforts to integrate people of color to changes in the family and the status of women. They challenge us to consider new philosophical, artistic, and literary approaches and require us to come to grips with the collapse of socialist command economies in the East and the exhaustion of once-successful welfare states in the West.

To enable students to consider these questions, the European Studies major offers an interdisciplinary program leading to the Bachelor of Arts degree. Students are required to (1) study a European language other than English, (2) develop a historical perspective on European issues, (3) examine European culture, society, politics, and economy, and (4) acquire basic analytical and theoretical skills. Central to this effort are a series of core seminars and a senior essay to encourage majors to delve into a research topic of their choice.



## Undergraduate Study

### European Studies B.A.

The curriculum is designed to serve the needs of students who wish to (1) approach the study of Europe from a structured, interdisciplinary perspective, (2) pursue graduate work in disciplines permitting the study of Europe, (3) orient their professional life toward European affairs in fields such as law, business, diplomacy, journalism, and human services, and (4) acquire valuable skills in foreign languages and writing that will assist them in their careers.

#### Admission

Interested students should meet with the program chair no later than the beginning of the sophomore year to discuss requirements and formulate their course of study. Students are expected to declare the major at the end of their sophomore year, following normal UCLA procedures, and must have a minimum grade-point average of 2.5 in all preparation courses. Transcripts and course plans demonstrating that they will have completed all lower division requirements by the end of their junior year must be presented.

#### Foreign Language Requirement

Students must prepare for the major by studying a European language other than English. This language — the declared foreign language — helps to focus the major and determine options for the period of study abroad. Students are expected to fulfill the specific requisites of their selected language department (French, Germanic Languages, Italian, Slavic Languages and Literatures, Spanish and Portuguese) for entrance into upper division courses. Students who wish to study Latin or Greek are also required to demonstrate proficiency in a modern language. In most cases, courses 1, 2, 3, 4, 5, 6, or the equivalent fulfill the requirement (Spanish has slightly different course numbers and requirements). Students must complete the lower division foreign language requirement by the end of the sophomore year.

#### Preparation for the Major

*Required:* (1) *Humanities and the arts* — one course from Philosophy 1, 2, 4, 5A, 6, 7, 8, 21, or 22; one lower division introductory language department course in literature or civilization that focuses on the declared foreign language; one course from Art History 54, 57, Music History 2B, or 13 and (2) *social sciences* — Economics 1 or 5; two courses from History 1A, 1B, 1C; two courses from Geography 3, 5, Political Science 10, 20, 30, 50, Sociology 1, 2, M18, Women's Studies 10.

By carefully selecting courses for the Preparation for the Major, students can fulfill their general education requirements in the social sciences, foreign language, quantitative reasoning, and humanities.

#### Transfer Students

To be admitted as European Studies majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of a foreign language other than English, one language department course in literature or civilization that focuses on the declared foreign language, one philosophy course, one art history or music history course, one semester or two quarters of history of Western civilization, one economics course, and two courses from geography, political science, sociology, or women's studies.

#### The Major

*Required:* (1) At least one upper division course in the literature of the declared foreign language, with instruction and reading assignments in that language (see the list of approved courses below); (2) one course from History 124A, 124B, 125A through 125F, 126A through 126F, 127A, 127B, 127C, 128A, 128B, 128C, 129A, 129B, 129C, 130, 131A through 131D, 132A, 132B, 133A, 133B, 134A, 134B, 141A, 141B, or 141C; (3) European Studies 101 and 199; (4) at least eight electives selected from the list of approved courses, with a minimum of three courses from humanities and three from social sciences. Electives must either continue the regional focus, introduce a theoretical and methodological perspective, or introduce a rationally conceived comparative point of view (sample programs are on file in the program office).

During their senior year students must write an extended paper offering original research on a topic of interest to them. Topics must be approved by a faculty adviser selected by the student and endorsed by the program's executive committee.

Students must consult with the program chair to design their upper division coursework.

#### Study in Europe

The program expects students to spend at least one term — and preferably a full academic year — studying in the European country most relevant to their work. This is normally done under the auspices of the University of California Education Abroad Program; however, alternative arrangements can be made at UCLA if students have financial or personal considerations that may prevent them from going overseas. To obtain UCLA credit after returning to campus, students must have their foreign transcripts evaluated by the program faculty and staff.

## European Studies

### Upper Division Courses

**101. Introduction to European Studies. (4)** (Formerly numbered M101.) Discussion, three hours. Limited to and required of 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.

**102. Special Topics in European Studies. (4)** Discussion, three hours. Variable topics. May be repeated for credit.

**199. Independent Study for Thesis Writers. (4)** Tutorial, to be arranged. Limited to and required of senior European Studies majors. Independent study under supervision of sponsoring professor. Letter grading.

### Course List

All courses are not offered every academic year. Students should contact the individual departments or the European Studies staff for information about the availability of specific courses. Other appropriate courses may be taken by petition.

#### Anthropology

Appropriate courses may be taken by petition.

#### Art History

- 109C. European Art of the 18th Century
- 109D. Art and Architecture of Georgian England
- 110A. European Art of the 19th Century
- 110B. European Art of the 19th Century: Realism and Impressionism
- 110C. European Art of the 19th and 20th Centuries: Postimpressionism to Surrealism
- 150D. Selected Topics in Contemporary Art

#### Bulgarian (Slavic Languages)

- 154. Survey of Bulgarian Literature

#### Classics

Appropriate courses may be taken by petition.

#### Comparative Literature

- 159. Four Modern Dramatists
- C160. Topics in Literature and Visual Arts
- C161. Fiction and History
- C163. Crisis of Consciousness in Modern Literature
- C164. The Modern Continental Novel
- M165. The Holocaust in Literature
- CM170. Alternate Traditions: In Search of Female Voices in Contemporary Literature
- C172. The Postmodern Novel
- M174. Film and Literature of the Spanish-Speaking World

#### Czech (Slavic Languages)

- 155. Survey of Czech Literature from Middle Ages to the Present

#### Dutch (Germanic Languages)

- 100. Modern Dutch Culture and Society
- 113. Modern Dutch and Flemish Literature in Translation
- 120. Introduction to Dutch Studies
- 131. Introduction to Modern Dutch Literature

#### Economics

- 107. History of Economic Theory
- 110. Economic Problems of Underdeveloped Countries
- 181A, 181B. Development of Economic Institutions in Western Europe
- 190. International Economics

#### English

- 142A. Shakespeare: Poems and Early Plays
- 142B. Shakespeare: Later Plays
- 143. Milton
- 151. Elizabethan Literature
- 152A. Drama from Beginning to 1576
- 152B. Drama, 1576 to 1642
- 153. Literature of Early 17th Century, 1600 to 1660
- 154. Literature of Restoration and Earlier 18th Century, 1660 to 1730
- 155. Literature of Later 18th Century, 1730 to 1798
- 156. Drama, 1660 to 1842

- 157. The Novel to 1832
- 160. Earlier Romantic Literature
- 161. Later Romantic Literature
- 162. Earlier Victorian Poetry and Prose
- 163. Later Victorian Poetry and Prose
- 164. The Novel, 1832 to 1900
- 165. 20th-Century British Poetry
- 166. 20th-Century British Fiction
- 167. Drama, 1842 to 1945
- 168. Drama, 1945 to the Present

#### **Folklore and Mythology**

Appropriate courses may be taken by petition.

#### **French**

- 114A-114B-114C. Survey of French Literature
- 115A-115B-115C. Medieval French Literature
- 116A-116B-116C. Renaissance
- 117A-117B-117C. 17th Century
- 118A-118B-118C. 18th Century
- 119A-119D. 19th Century
- 120A-120B-120C. 20th Century
- 130. Special Topics in French and Francophone Cultures
- 132. Contemporary France
- M140. Women's Studies in French Literature
- 141. Cinema and Literature in France
- 153. Studies in 18th-Century Literature
- 154. Studies in 19th-Century Literature
- 155. Studies in 20th-Century Literature
- 156. Studies in Contemporary French and Francophone Literature
- 157. Studies in French Critical Theory and Philosophy
- 158. Studies in History of Ideas
- 162. Modern French Thought in Translation
- 164A-164B-164C. The French Novel in Translation
- 165. Topics in French Literature in Translation

#### **Geography**

- 133. Cultural Geography of the Modern World
- 134. Space, Place, and Nature in Western Thought
- 140. Political Geography
- 142. Population Geography
- 183. Europe
- 184. Russia

#### **German (Germanic Languages)**

- 100B. German History and Culture from 1500 to 1914
- 100C. German History and Culture from 1914 to the Present
- 102A. German Film in Cultural Context: Early German Film
- 102B. German Film in Cultural Context: New German Film
- 106. The Faust Tradition from the Renaissance to the Modern Age
- M108. Love and Sex in German Literary Tradition
- 112. Jewish Writing and Thought in German Culture from 1755 to the Present
- 116. Special Topics in Modern Literature and Culture
- 118. Feminist Issues in German Literature and Culture
- 120. German Folklore
- 140A. Introduction to German Poetry
- 140B. Introduction to German Drama
- 140C. Introduction to German Narrative Prose
- 142. Introduction to 18th-Century Studies
- 144. Introduction to 19th-Century Studies
- 146. Introduction to Modern Literature
- 148. Introduction to Contemporary Literature
- 154. Goethe
- 156. Goethe's *Faust*
- 158. Romanticism

#### **Greek (Classics)**

Appropriate courses may be taken by petition.

#### **History**

- 102. Explorations in Psychoanalysis and History
- 126A-126F. Cultural and Intellectual History of Modern Europe
- 127A-127B-127C. War and Diplomacy in Europe
- 130. Europe in the Age of Revolution, Circa 1775 to 1815
- 135A-135B. Marxist Theory and History
- 136. Topics in European History
- 137A-137B. History of Women in Europe
- M191A-M191B. Survey of Jewish History
- 191E-191F. The Third Reich and the Jews
- 191G. European Jewry from 1881 to the Present
- M192A-M192B. Jewish Intellectual History
- 195A. History of Medicine: Historic Roots of Healing Arts
- 195B. History of Medicine: Foundations of Modern Medicine
- 195C. Historical Perspectives on Gender and Science
- 195D. Science and Technology in the 20th Century
- 195E. Topics in History of Science

#### **Italian**

- 118. Age of Enlightenment
- 119. Italian *Ottocento*
- 120. Literature in the 20th Century
- 121. Literature and Film
- 122. Italian Theater
- M140. Italian Novella from Boccaccio to Basile
- 150. Modern Fiction in Translation
- M158. Women in Italian Culture
- 190. History of the Italian Language

#### **Jewish Studies (Near Eastern Languages)**

- 130. Modern Jewish Religious Movements and Their Ideologies
- 141. Modern Anti-Semitism
- M143. Introduction to Jewish Folklore
- 150B. Hebrew Literature in English: Rabbinic Judaism
- 151A. Modern Jewish Literature in English: Diaspora Literature
- M187. The Holocaust in Literature

#### **Latin (Classics)**

Appropriate courses may be taken by petition.

#### **Music History**

- 133. Bach
- 134. Beethoven
- 135A-135B-135C. History of Opera
- 139. History and Literature of Church Music
- 156. Studies in Musical Genres
- 188. Topics in Music History
- 189A-189B. The Symphony

#### **Philosophy**

Appropriate courses may be taken by petition.

#### **Polish (Slavic Languages)**

- 152A-152B-152C. Survey of Polish Literature

#### **Political Science**

- 111A-111B-111C. History of Political Thought
- 113. Problems in 20th-Century Political Theory
- 116. Marxism
- 127A-127B. Atlantic Area in World Politics
- 128A. U.S./Soviet Relations
- 128B. International Relations of Post-Communist Russia
- 152A-152B-152C. Government and Politics of West European Countries
- 153A-153B. Comparative Government and Politics of Western Europe
- 155. Advanced Pluralist Democracies

- 156A-156D. Government and Politics of Post-Communist States

#### **Portuguese (Spanish and Portuguese)**

- C127. 19th-Century Portuguese Literature
- C128. Post-Romanticism and Naturalism in Portuguese Literature
- C129. 20th-Century Portuguese Literature

#### **Romanian (Slavic Languages)**

- 152. Survey of Romanian Literature

#### **Russian (Slavic Languages)**

- 119. Golden Age and the Great Realists
- 120. Literature and Revolution
- 124C-124T. Studies in Russian Literature
- 125. The Russian Novel in Its European Setting
- M127. Women in Russian Literature
- 128. Russian Science Fiction
- 130A-130B-130C. Russian Poetry
- 140A-140D. Russian Prose Fiction
- M150. Russian Folk Literature

#### **Scandinavian**

Appropriate courses may be taken by petition.

#### **Serbian/Croatian (Slavic Languages)**

- 154. South Slavic Literature

#### **Slavic (Slavic Languages)**

- 125. Interwar Central European Prose
- 126. Postwar Central European Prose
- M179. Baltic and Slavic Folklore and Mythology

#### **Sociology**

- 101. Development of Sociological Theory
- 102. Contemporary Sociological Theory
- 103. Marxist Sociology
- 116. Social Demography
- 117. Sociology of Family Demographic and Economic Behavior
- 127. Mind and Society
- 129. Sociology of Time
- 132. Social Psychology: Sociological Approaches
- 133. Collective Behavior
- 134. Culture and Personality
- 135. Group Processes
- 136. Process and Socialization in the Family
- 156. Ethnic and Status Groups
- 158. Urban Sociology
- 160. Intergroup Conflict and Prejudice
- 182. Political Sociology
- 183. Comparative and Historical Sociology
- 184. Social Change
- 190. Capitalism, Socialism, and Alternative Social Systems

#### **Spanish (Spanish and Portuguese)**

- 124. Golden Age: Poetry and Drama
- 125. Golden Age: Prose
- 127. Golden Age: *Don Quijote*
- 128. The Enlightenment and Romanticism in Spain
- 130. Post-Romanticism, Realism, and Naturalism in Spain
- 132. 20th-Century Spanish Prose
- 133. 20th-Century Spanish Poetry and Drama

#### **Ukrainian (Slavic Languages)**

- 152. Ukrainian Literature

#### **Women's Studies**

- M106. Imaginary Women
- M107B. British Women Writers
- 110A. Feminist Theories in Social Sciences
- 110B. Feminist Theories in the Humanities
- 134. Gender, Science, and Theory
- M154Q. Gender Systems: Global
- M158. Women in Italian Culture
- M162. Sociology of Gender

M165. Psychology of Gender  
 M192. Philosophical Analysis of Issues in Feminist Theory

**Yiddish (English)**

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  
 131A. Modern Yiddish Poetry  
 131B. Modern Yiddish Prose and Drama

**FAMILY MEDICINE**

*School of Medicine*

UCLA  
 50-071 Center for the Health Sciences  
 Box 951683  
 Los Angeles, CA 90095-1683  
 (310) 825-8234  
<http://www.medsch.ucla.edu/som/fammed/>

**Chairs**

Patrick T. Dowling, M.D., M.P.H., *Chair*  
 Charles E. Lewis, M.D., D.Sc., *Vice Chair, Academic Affairs*

**Directors**

Daniel Castro, M.D., *Harbor-UCLA*  
 Jaime Cruz, M.D., *Pomona Valley*  
 Lanyard K. Dial, M.D., *Ventura County*  
 Pamela Davis, M.D. *Acting Director, Northridge Hospital*  
 James H. Hara, M.D., *Kaiser-Sunset*  
 Denise K.C. Sur, M.D., *Santa Monica-UCLA*  
 Richard P. Usatine, M.D., *Predoctoral Program*

**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 health care 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 health care 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 new 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 and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

**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  
<http://www.filmtv.ucla.edu/filmtv/ftvhome.htm>

John Caldwell, Ph.D., *Chair*

**Professors**

Jerzy Antczak, M.A.  
 Nicholas K. Browne, Ed.D.  
 Gilbert Cates, M.A.  
 Teshome H. Gabriel, Ph.D.  
 Gyula Gazdag, M.F.A.  
 Marina Goldovskaya, Ph.D.  
 Lewis R. Hunter, M.A.  
 Stephen D. Mamber, Ph.D.  
 Dan F. McLaughlin, B.A.  
 Robert A. Nakamura, M.F.A.  
 Robert Rosen, M.A., *Dean*  
 Delia N. Salvi, Ph.D.  
 Vivian Sobchack, Ph.D.  
 Richard Walter, M.A.  
 Peter Wollen, B.A.

**Professors Emeriti**

William B. Adams, M.A.  
 John D. Boehm, M.A.  
 Edgar L. Brokaw, B.A.  
 William Froug, B.J.  
 Hugh M. Grauel, M.A.  
 Richard C. Hawkins, M.A.  
 Walter K. Kingson, Ed.D.  
 Barbara Marks  
 Mark McCarty, M.A.  
 William H. Menger, M.A.  
 Jorge R. Preloran, B.A.  
 Darrell E. Ross, M.F.A.  
 Ruth E. Schwartz, Ph.D.  
 Howard Suber, Ph.D.  
 Robert Trachinger  
 John W. Young, M.A.

**Associate Professors**

Janet Bergstrom, Ph.D.  
 John Caldwell, Ph.D.  
 A.P. Gonzales  
 William McDonald, M.F.A.  
 Chon A. Noriega, Ph.D.

**Assistant Professors**

Celia Mercer, M.F.A.  
 C. Fabian Wagmister, M.F.A.

**Lecturers**

Brian Boyl  
 Eric Marin  
 Bruce Yonemoto

**Adjunct Associate Professor**

Myrl Schreiberman, M.F.A.

**Adjunct Assistant Professors**

Harold Ackerman, M.A.  
 Scott Brownlee  
 Dee Caruso, M.A.

Thomas F. DeNove  
 Denise Mann, M.F.A.  
 John Simmons, M.F.A.  
 Becky Smith, M.A.  
 Belinda Starkie, M.F.A.  
 Herb Stein, B.A.

**Visiting Professors**

Peter Guber, LL.M., *Visiting Studio Professor*  
 Cecilia Hall  
 Chris Horak  
 Janet Neipris

**Visiting Associate Professor**

Jonathan Kuntz, Ph.D.

**Visiting Assistant Professors**

Steve Albrezzi  
 Debbie Amelon  
 Bill Barminski  
 Neema Barnette  
 Peter Bart  
 Eric Baum  
 Doug Blush  
 Duncan Burns  
 Vicki Callahan  
 John Di Minico  
 Richard Edwards  
 Steve Fayne  
 Tom Garvin  
 George Gary  
 Geoffrey Gilmore  
 David Greenwalt  
 Diane Haak-Edson  
 Kayo Hatta  
 David Hoberman  
 Richard Hoblock  
 Laurie Hutzler  
 David James  
 Rory Kelly  
 H. Wesley Kenney, B.A.  
 Meg LeFauve  
 Valerie Lettera, M.F.A.  
 Gina Matthews  
 Jeffrey Obrow  
 Sherie Pollack  
 Daniel Pyne, M.F.A.  
 Kristine Ravetto  
 Nancy Richardson  
 Arnold Rifkin  
 Joe Roth  
 Fred Rubin  
 Jeffrey Sconce  
 Chuck Sheetz  
 Tom Sherak  
 Elizabeth Sterner  
 Ken Suddleson  
 Gary Tieche  
 Robert Vianello  
 Glenn Vilppu  
 Linda Voorhees  
 Dug Ward  
 Valerie West  
 Chuan-Ji Zhou  
 Jeremy Zimmer

**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 graduate programs leading to the Master of Arts, Master of Fine Arts, and Ph.D. degrees in Film and Television.

## Undergraduate Study

### Film and Television B.A.

The undergraduate Film and Television major encourages development of a personal vision which 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, contact the Student Services Office, School of Theater, Film, and Television, UCLA, 103 East Melnitz Building, Box 951622, Los Angeles, CA 90095-1622.

### 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 115, 130A, 130B, 150, 154, 163, 185, 192; one critical studies elective (not previously taken as preparation for the major) from 106B, 106C, 107, 108, 112, 113, 114; 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* — courses 165, 176A, 176B, 186 or 187B, 199, (3) *screenwriting* — courses 130C, 135, 199, (4) *animation* — courses 181A, 181B, 181C, (5) *critical studies* — courses 106A, 106B, 106C, 107, 108, 110C, 112, 113, 114, 116, 127, 199.

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.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Film, Television, and Digital Media offers the Master of Arts (M.A.), Master of Fine Arts (M.F.A.), and Doctor of Philosophy (Ph.D.) degrees in Film and Television.

## Admission

### M.A. in Film and Television

Students are admitted in Fall Quarter only. Admission is competitive, and only a limited number of students are accepted each year. Applicants complete the *UCLA Application for Graduate Admission*; there is no additional departmental application, and no screening examination prior to admission is required.

Applicants must submit a sample of scholarly or critical writing, a statement of purpose, three letters of recommendation, and, for international students whose native language is not English, a score on the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination. Other information, such as a résumé or Graduate Record Examination (GRE) scores, may be required to establish the quality of work in the students' specialization.

### M.F.A. in Film and Television

Students are admitted in Fall Quarter only. Admission is competitive, and only a limited number of students are accepted each year. Applicants complete the *UCLA Application for Graduate Admission*; there is no additional departmental application, and no screening examination prior to admission is required.

Applicants must submit a statement of purpose, three letters of recommendation, and, for international students whose native language is not English, a score on the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination. Applicants with diverse backgrounds and undergraduate majors in areas other than film and television are encouraged. Applicants must state clearly the degree objective (M.F.A.) and the area of specialization desired within the program: animation, film/television production, screenwriting, or producer's program.

Applicants who wish to concentrate in film/television production must submit a description of a film or television project that may possibly be undertaken in graduate study. The description

should be in proposal or treatment form, two to three pages in length. This material is nonreturnable.

Applicants who wish to concentrate in writing must submit samples of creative writing such as screenplays, short stories, plays, or poems.

Applicants who wish to concentrate in animation must submit a description of an animation project that may possibly be undertaken in graduate study, preferably in storyboard form. Other creative work may be submitted.

Applicants who wish to concentrate in the producer's program may submit a portfolio of supporting material which shows evidence of creative background, or a substantial statement of purpose and résumé.

### Ph.D. in Film and Television

Students are admitted in Fall Quarter only. Admission is competitive, and only a limited number of students are accepted each year. Applicants complete the *UCLA Application for Graduate Admission*; there is no additional departmental application, and no screening examination prior to admission is required.

Completion of an M.A. or M.F.A. degree equivalent to that offered by the UCLA Department of Film, Television, and Digital Media is required. In exceptional cases, students with an M.A. outside the field are considered for direct admission to the program. Applicants must submit a dossier that includes a letter describing the reasons for wishing to earn the Ph.D., the master's thesis or writing samples that demonstrate a high level of ability to write criticism or historical narrative, three letters of recommendation, and, for international students whose native language is not English, a score on the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination.

## Master's Degrees

### M.A. in Film and Television

The M.A. degree is offered through the comprehensive examination plan. A minimum of nine courses is required, five of which must be 200-level courses in film and/or television history, theory, and criticism.

### M.F.A. in Film and Television

The M.F.A. degree is offered through the comprehensive examination plan. The examination is in the form of a project appropriate to the student's specialization. A total of 18 courses is required for the degree, five of which must be at the graduate level.

Fieldwork and internships are not required but may be taken as courses which may be applied toward the degree.

## Doctoral Degree

Ph.D. students are expected to understand film and television within their social contexts as significant forms of art and communication and

to achieve, by disciplined study, a mastery of film and television history, theory, and criticism.

Each student must take a minimum of 13.5 courses. These include core and other required courses. In addition, a teaching practicum, which counts as the .5 course, is required. Students also select seven additional graduate seminars, at least five of which must be approved critical studies seminars.

Students must create three areas of concentration and take required coursework and seminars related to them. One area is in the specific field of their dissertation. The other two areas are to be composed of three seminars each chosen to indicate focused competence in two areas of expertise. A suggested list of concentrations is as follows: film theory, criticism, narrative studies, film history, American film, European film, non-Western film/television, television studies, media and society, authors, genres, film and the other arts, film and television as a business enterprise, film/television production and new media.

Written and oral qualifying examinations are required. The written examination is a take-home examination. Following successful completion of the written examination, students take the University Oral Qualifying Examination.

There is a language requirement for this degree.

## Film and Television

### 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.

**106A. History of the American Motion Picture. (6)** Lecture/screenings, eight hours; discussion, one hour. Historical and critical survey, with examples, of the American motion picture both as a developing art form and as a medium of mass communication. May be repeated once for credit with consent of department and topic change.

**106B. History of the European Motion Picture. (6)** Lecture/screenings, eight hours; discussion, one hour. Historical and critical survey, with examples, of the European motion picture both as a developing art form and as a medium of mass communication. May be repeated once for credit with consent of department and topic change.

**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 the ethnic significance — of Asian, African, Latin American, and Mexican films.

**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.

**110A. American Television History. (4)** Lecture/screenings, six hours; discussion, one hour. Critical survey of broadcasting here and abroad. Consideration of social responsibilities and educational implications of broadcasting. Letter grading.

**110C. World Media Systems. (4)** Lecture/viewing, four hours; discussion, one hour. Requisite: 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.

**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.

**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.

**114. Film Genres. (6)** Lecture/screenings, eight hours; discussion, one hour. Study of a 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.

**115. Stylistic Studies for the Moving Image: Theory and Practice. (4)** Lecture, four hours; screenings, four to eight hours. Drawing heavily on a wide array of historical examples and using laser disc technologies, examination of many expressive strategies potentially usable in creation of moving image art forms: iconography, editing, composition, kinesthetics, sound, narrative, discourse, and performance.

**116. Film Criticism. (4)** Lecture, four hours; laboratory, to be arranged. Study of and practice in film criticism.

**M117. Chicanos in Film/Video. (6)** (Same as Chicana and Chicano Studies M114.) Lecture/screenings, eight hours; discussion, one hour. Examination of representation of Mexican Americans and Chicanos in four Hollywood genres — silent “greaser” films, social problem films, the Western, and the gang film — which 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*, *The Ballad of Gregorio Cortez*, and *Born in East L.A.* Consideration of shorter, more experimental work that critiques the Hollywood image of Chicanos.

**126. Acting for Film and Television. (4)** Laboratory, six hours. Projects in acting for television, video, and film. May be repeated twice for credit.

**127. Problems and Ethical Issues in Film and Telecasting. (4)** Lecture, three hours; laboratory, eight to 10 hours. Relevant and highly interactive lecture/discussion/workshop. Student production teams create multimedia presentations designed to provide meaningful information, raise consciousness, stimulate discussion, and provoke debate about today’s powerful media messages (i.e., news, advertising, violence, sex, minority representation).

**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 for a maximum of 6 units. Concurrently scheduled with course CM229.

**130A. Screenwriting Fundamentals. (2)** Lecture, one hour. Corequisite for graduate students enrolled in course 431. Examination of screenwriting fundamentals: structure, character and scene development, conflict, locale, theme, history of drama. Review of authors such as Aristotle, Egri.

**130B. Screenwriting Fundamentals Workshop. (4)** Discussion, three hours. Problems in film and television writing.

**130C. Advanced Scene Writing Workshop. (4)** Discussion, three hours. Requisites: courses 130A, 130B. Limited to Film and Television majors. Conception and writing of story, script outline, and first act for feature-length screenplay.

**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)** (Formerly numbered 135.) Laboratory, three hours. Requisite: 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 production 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. 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. Concurrently scheduled with course C245. 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 larger-scale digital media works with advanced software tools and techniques in a small process-oriented, creative workshop environment. Concurrently scheduled with course C248. 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.

**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.

**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 130B, 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 the camera. May be repeated twice for credit.

**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. **175A.** Lecture, four hours; laboratory, eight hours. Writing, preproduction, and production for a short 16mm nonsynch film. **175B.** Lecture, three hours; laboratory, eight hours. Completion of postproduction (editing, creation of nonsynch 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.

**M177. Film and Television Acting Workshop. (2)** (Formerly numbered 177.) (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. Animation Design in Film and Television. (4)** Lecture, three hours; laboratory, three hours. History and use of creative arts used in animation to form effective communication on film.

**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.

**185. Undergraduate Television and Video Production. (8)** Laboratory, six hours (additional hours to be arranged). Limited to Film and Television majors. Instruction and exercises in basic techniques of television and video production.

**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).

**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.

**192. Film and Television Internship. (4 to 8)** Field experience, to be arranged. Limited to senior Film and Television majors. Internship at film and television industry organizations. May be taken for a maximum of 8 units.

**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.

**199. Special Studies in Film and Television. (2 to 8)** Preparation: 3.0 grade-point average in major. Limited to seniors. May be taken for a maximum of 8 units.

## Graduate Courses

**200. Bibliography and Methods of Research in Film and Television. (6)** Discussion, 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 bibliographies, on-line database searching and retrieval and, when appropriate, use of computer/vid-eodisc technology for research.

**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.

**206A. Seminar: European Film History. (6)** Seminar, three hours; film screenings, four to six hours. Requisite: 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. Selected Topics in American Film History. (6)** Seminar, three hours; film screenings, three hours. Recommended preparation: course 106A or 206C. Advanced critical seminar with focus on specific topic or period in U.S. 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.

**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. (4)** 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.

**217A. Seminar: American Television History. (6)** (Formerly numbered 217.) Seminar, three hours; screenings, four hours. Critical survey of U.S. television industry from its inception to the present. Examination of programming and changes within the 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. Culture, Media, and Society. (4)** Lecture, four hours; screenings, to be arranged. Emphasis on "discourse of the other(s)." Thematization 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 the cinematic apparatus in this process and how academization of others is positioned vis-à-vis mainstream critical discourse.

**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. (4)** Seminar, three hours (additional hours as required). Designed for graduate students. Study of ways television forms affect and are affected by social behavior, belief, and value systems; study of technological and economic aspects of the medium. May be repeated once for credit.

**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. (4)** Seminar, three hours; film screenings, two 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. (4)** Survey of computer applications relevant to film study, principally computer-videodisc systems and image capture technology.

**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 for a maximum of 6 units. Concurrently scheduled with course CM129.

**C242. Digital Imagery and Visualization. (4)** (Formerly numbered 242.) 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)** (Formerly numbered 243.) 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)** (Formerly numbered 244.) 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. Concurrently scheduled with course C144. Letter grading.

**C245. Creative Authoring for World Wide Web. (4)** (Formerly numbered 245.) 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. Concurrently scheduled with course C145. Letter grading.

**246. Issues in Electronic Culture. (6)** Discussion, 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.

**247. 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. Letter grading.

**C248. Advanced Digital Media Workgroup. (4)** (Formerly numbered 248.) Discussion, four hours; laboratory, two hours. Designed for students with previous laboratory course experience, course provides opportunity to create larger-scale digital media works with advanced software tools and techniques in a small process-oriented, creative workshop environment. 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 visualization, multimedia, World Wide Web, interactive television, and virtual reality.

**268. Seminar: Short Film. (4)** Seminar, two hours; discussion, two hours. Designed for graduate students. Study of problems presented by conceptualization of form and structure of the short film, with classical and student examples.

**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. (4)** Seminar, three hours (additional hours as required). Designed for graduate students. Analysis of major forms of television production and criticism it has elicited. May be repeated once for credit.

**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.

**274. Seminar: Research Design. (4)** 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 a prospectus for Ph.D. dissertation.

**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. (4)** Seminar, three hours (additional hours as required). Designed for graduate students. Study of writings on theory of narrative structure and their significance for analysis of film forms.

**289A-289B-289C. Current Business Practices in Film and Television. (4-4-4)** Requisite: course 247. Designed for graduate students. Examination of current status of financing/production/distribution agreements, union agreements, music, copyright, etc., necessary to understand the film and television industry. May be taken in any sequence.

**291A-291B-291C. Role of Management in Entertainment Industry. (4-4-4)** Requisite: course 247. Designed for graduate students. Study of artistic, social, and economic criteria for decision making in production and distribution of motion pictures and entertainment programs. May be taken in any sequence.

**292A-292B-292C. Network Television Management and Decision Making. (4-4-4)** Lecture, two hours; discussion, two hours. Requisite: course 247. Designed for graduate students. Study of business structure and economic, social, and artistic criteria currently utilized by network television management. Only 8 units may be taken for credit.

**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.

**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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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 non-narrative 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.

**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 prepurchase 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 non-scripted 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.** On-Line Editing; **408B.** Off-Line 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-410B-410C. Film Production Workshops. (8-12-8)** Lecture/discussion/laboratory, 24 hours; fieldwork, to be arranged. Requisites: courses 405, 409. Limited to and required of first-year M.F.A. production program students. Production workshop spanning three terms, designed to give hands-on experience in all aspects of film production (the tools and a practicum of the medium) as each student writes/directs/edits a six-minute film. 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. Intermediate study of principles of cinematography, with emphasis on exposure, lighting, and selection of film, camera, and lenses. 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, two hours; laboratory, four hours. Advanced study of principles of digital cinematography, with emphasis on electronic exposure control, lighting, formats, cameras, and lenses. 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 135. Advanced problems in writing of original film and television screenplays. May be repeated twice for credit.
- 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. Film and Television Sound Rerecording. (4)** Lecture, three hours; laboratory, three hours. Limited to graduate film and television students. Recording of sprocketed media: basics of mixing 16mm and 35mm film soundtracks to single stripe or three stripe magnetic film. Overview of prepping tracks for final mix. Fundamentals of Automatic Dialogue Replacement and Foley. Rerecording and video/audio postproduction of unsprocketed media: emphasis on multitrack tape and non-linear disk-based recording and editing systems. Includes all track building approaches, from production sound electronic editing, Automatic Dialogue Replacement, Foley, backgrounds, hard FX and MX through final mix. Techniques of combining sprocketed and unsprocketed media in postproduction.
- 454A-454B. Advanced Film Editing. (4-4)** Lecture, three hours; laboratory, to be arranged. Preparation: submission of a 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.
- 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 multicamera 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.
- 468. Creative Location Film Production. (8)** Lecture, four hours; discussion, four hours; laboratory, to be arranged. Requisites: courses 247, 405, 410A, 410B, 410C, 423A, 433. Limited to graduate 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.
- 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.
- 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.
- 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.
- 486. Directed Individual Study: Preparation to Advance 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 media 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: a completed animated film. Requisites: courses 181A, 181C. Instruction in and supervised production of computer animation. May be repeated for a maximum of 16 units.
- 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.
- 496. Practice of Teaching Film and Television. (2)** Discussion. Required once of all teaching assistants or 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 the 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.

## Related Courses

### Communication Studies

187. Ethical and Policy Issues in Institutions of Mass Communication



**Design | Media Arts**

153. Design for Video

**English**

118. Film and Literature

**Italian**

46. Italian Cinema and Culture

121. Literature and Film

## FOLKLORE AND MYTHOLOGY

Interdepartmental Program  
College of Letters and Science

**UCLA**

1037 Public Policy Building  
Box 951459  
Los Angeles, CA 90095-1459

(310) 825-3962

<http://www.humnet.ucla.edu/humnet/folklore/archives/>

Michael Owen Jones, Ph.D., *Chair***Professors**Jesse L. Byock, Ph.D. (*Germanic Languages*)Donald J. Cosentino, Ph.D. (*English*)Jacqueline C. Djedje, Ph.D. (*Ethnomusicology*)Michael Owen Jones, Ph.D. (*History*)Steven Lattimore, Ph.D. (*Classics*)James R. Massengale, Ph.D. (*Scandinavian Section*)Beverly J. Robinson, Ph.D. (*Theater*)**Professors Emeriti**Shirley L. Arora, Ph.D. (*Spanish and Portuguese*)Marianna D. Birnbaum, Ph.D. (*Germanic Languages*)Kees W. Bolle, Ph.D. (*History*)Elsie Dunin, M.A. (*World Arts and Cultures*)Robert A. Georges, Ph.D. (*English*)Nazir A. Jairazbhoy, Ph.D. (*Ethnomusicology*)Marga Cottino-Jones, Ph.D. (*Italian*)Vladimir Markov, Ph.D. (*Slavic Languages and Literatures*)Philip L. Newman, Ph.D. (*Anthropology*)James W. Porter, M.A. (*Ethnomusicology*)Jaan Puhvel, Ph.D. (*Classics*)Allegra Fuller Snyder, M.A. (*World Arts and Cultures*)Donald J. Ward, Ph.D. (*Germanic Languages*)Johannes Wilbert, Ph.D. (*Anthropology*)**Associate Professors**Timothy R. Tangherlini, Ph.D. (*East Asian Languages and Cultures, Scandinavian Section*)Colin Quigley, Ph.D. (*World Arts and Cultures*)**Assistant Professor**Cheryl L. Keyes, Ph.D. (*Ethnomusicology*)**Adjunct Associate Professor**Peter Tokofsky, Ph.D., (*World Arts and Cultures*)

## Scope and Objectives

The interdisciplinary Folklore and Mythology Program, which leads to the Master of Arts and Ph.D. degrees, provides coordinated study of the traditional lifestyles of specific societies and culture areas, on the one hand, and systematic training in the research methods and investigative techniques of cross-cultural study, on the other. Courses focus on the nature, history, and functions of such traditional forms as narrative, music, art, dance, religion, festival, and speech and consider the part they play in human development and cultural existence.

The program examines the ways in which human traditions both reflect and contribute to continuity and consistency in thought and life.

Trained folklorists pursue careers in teaching, research, governmental agencies, museum work and administration, performing groups and arts management, social work, the medical and legal professions, and business. Their responsibilities include documenting cultural and ethnic traditions, introducing traditional artists and their works to interested audiences, describing transformations of traditional processes and forms, and preserving on tape and film the customs and mores of social groups and individuals.

A variety of undergraduate courses offered by departments or by faculty participating in the interdepartmental program is also available to all University students. Those with undergraduate preparation in folklore and mythology studies may continue their work on the graduate level. For planning coursework, students should consult departmental counselors and the chair of the committee that administers the interdepartmental program.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Folklore and Mythology Program offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Folklore and Mythology.

## Admission

Two letters of recommendation from former instructors or other comparable references are required, as well as a writing sample (such as published work, course paper, or report on research/observations). A score on the verbal section of the Graduate Record Examination (GRE) is desirable.

Requirements for admission to the Ph.D. program include completing the requirements for the M.A. degree in Folklore and Mythology (or the equivalent) and the written and oral comprehensive examinations. A writing sample (such as published work, course paper, or report on research/observations) is required of all applicants. Applicants are admitted to the Ph.D. program on the recommendation of the interdepartmental committee. Students may be admitted on a provisional basis in order to complete the admission requirements.

The program is not currently accepting applications.

## Master's Degree

The M.A. degree is offered through the comprehensive examination and thesis plans. The thesis plan includes an oral examination covering the fields of folklore and mythology studies. Ten courses are required, six at the graduate level. All students must complete specific required courses.

## Doctoral Degree

Ph.D. students must develop a competence in a major field of folklore and mythology and in an area of concentration within a related discipline. These areas are selected with the approval of the guidance committee.

Students must complete a minimum of nine courses or seminars in the 200 series (or substitutes recommended by the guidance committee) in a major field of folklore and mythology. At least five of the minimum number of nine courses required for the Ph.D. must be selected from courses carrying folklore prefixes, and at least two must be folklore seminars.

Written and oral qualifying examinations are required. These examinations cover the student's specialization in folklore and mythology and the related area of concentration. Following successful completion of the written examination, students take the University Oral Qualifying Examination.

## Folklore and Mythology

### Lower Division Courses

**M15. Introduction to American Folklore Studies.**

(4) (Formerly numbered 15.) (Same as World Arts and Cultures M22.) Lecture, four hours. Cultural/historical survey of role of folklore in development of American civilization and of influence of the American experience in shaping folklore in American society; attention also to representative areas of inquiry and analytical procedures. P/NP or letter grading.

**88. Poetics of Myth.** (4) Seminar, three hours. Exploration of categories myth and mythology as they have been formulated, applied, and expanded in both Western and non-Western traditions from time of ancient Sumer to the present.

### Upper Division Courses

**M101. Introduction to Folklore.** (4) (Formerly numbered 101.) (Same as World Arts and Cultures M122.) 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 the 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.

**C105. Perspectives in American Folklore Research.** (4) Lecture, three hours. Prerequisite: course M101. Examination of American folklore studies compared and contrasted with investigations in other countries, with emphasis on principal conceptual schemes and research orientations employed in study of folklore in American society. Concurrently scheduled with course CM205.

**C107. Folklore in Urban Environments. (4)** Lecture, three hours. Prerequisite: course M15 or M101. Exploration of expressive and symbolic dimensions of complex urban life, focusing on how immigrants, migrants, residents, and workers shape their experiences through dynamic interplay of community, ethnicity, culture, and religion. Concurrently scheduled with course C207.

**108. Afro-American Folklore and Culture. (4)** Prerequisite: course M101. Study of traditional genres or forms of Afro-American folklore and their cultural functions.

**CM109. Afro-Caribbean Ritual Arts: Vodou and Santeria. (4)** (Same as World Arts and Cultures CM139.) Lecture, three hours. Designed for juniors/seniors. Ethnography of diaspora African religions, including vodou, Santeria, and Candomblé. Lectures, readings, and video material focus on performance of ritual and its expression in religious art. Concurrently scheduled with course CM209. P/NP or letter grading.

**M110. Cultural History of Rap. (4)** (Same as Afro-American Studies M107 and Ethnomusicology M119.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and allied forms, 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.

**M111. Literature of Myth and Oral Tradition. (4)** (Same as English M111A.) Prerequisite: satisfaction of Subject A requirement. Study of myth, dramatic origins, oral epic, folktale, and ballad, emphasizing Indo-European and Semitic examples.

**M122. Survey of Medieval Celtic Literature. (4)** (Same as English M111E.) Prerequisite: satisfaction of Subject A requirement. Knowledge of Irish or Welsh not required. General course dealing with Celtic literature from earliest times to the 14th century.

**113. The Arthurian Tradition. (4)** Survey of traditions related to British King Arthur from medieval times to the present day. Coverage includes both oral traditions and written texts; attention also to modern versions of Arthurian material in other mediums (e.g., opera, film).

**M118. Folk Art and Aesthetics. (4)** (Formerly numbered 118.) (Same as World Arts and Cultures M131.) 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.

**M119. Fairy Tales in Literature and Society. (5)** (Same as German M122.) Lecture, four hours. History and reception of folklore collections in Europe, with particular attention to ideology and influence of Grimm's tales. Interpretation of selected tales and their transformations and appropriation in literature, film, advertising, and pedagogy. Letter grading.

**M121. British Folklore and Mythology. (4)** (Same as English M111C.) Prerequisite: satisfaction of Subject A requirement. Designed for juniors/seniors. Survey of folklore of the peoples of Britain, with attention to their history, function, and regional differences.

**M122. Celtic Mythology. (4)** (Same as English M111D.) Lecture, three hours; discussion, one hour. Survey of early materials, chiefly literary, for study of mythic traditions of the Celtic peoples, ranging from ancient Gaul to medieval Ireland and Wales.

**124. Finnish Folk Art and Technology. (4)** Material manifestations of Finnish folk culture: village layout and architecture, folk technology, arts and crafts, textiles, costumes, and design.

**M126. Baltic and Slavic Folklore and Mythology. (4)** (Same as Slavic M179.) Lecture, three hours. General course for students interested in folklore and mythology and for those interested in Indo-European mythic antiquities.

**M127. Celtic Folklore. (4)** (Same as English M111F.) Prerequisite: course M101. Folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to current techniques of folkloristic research.

**130. North American Indian Folklore and Mythology Studies. (4)** Prerequisite: course M101. Examination of folkloristic and mythological data recorded from various North American Indian peoples within contexts of principal ideological frameworks which have been evolved historically for analysis of such data.

**131. Folklore of India. (4)** Prerequisite: course M101. Survey of folklore of India, with special reference to content and dissemination of oral epics, ballads, legends, and beliefs.

**CM136. Carnival and Festivity. (4)** (Formerly numbered C136.) (Same as World Arts and Cultures CM141.) 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 the carnivalesque and politics of celebration. Concurrently scheduled with course CM236. P/NP or letter grading.

**M138. Urban Legend and Popular Culture. (4)** (Same as World Arts and Cultures M136.) Lecture, four hours. Survey of modern belief tales about ghosts, Bigfoot, conspiracies, food contamination, corporate malfeasance, and crime, with attention to popularity of the genre, history of particular legends, meanings and functions of legend telling, and relationship between orally told legends and mass media. P/NP or letter grading.

**M139. Narrative and Oral Performance. (4)** (Same as World Arts and Cultures M132.) 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.

**M140. Italian Novella from Boccaccio to Basile. (4)** (Same as Italian M140.) Lecture, three hours. Analysis of development of the Italian novella in its structure, historical context, and folk material. Special emphasis on how the Italian novella influenced other European literatures. P/NP or letter grading.

**M142. Introduction to Jewish Folklore. (4)** (Same as Jewish Studies M143.) Nature of Jewish folklore; narrative, folk song, folk art, folk religion, and methods and perspectives used in their analysis.

**CM145. Applied Folklore. (4)** (Formerly numbered C145.) (Same as World Arts and Cultures CM175.) 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 CM245. P/NP or letter grading.

**M149. Folk Literature of the Hispanic World. (4)** (Same as Spanish M149.) Lecture, three hours. Study of history and present dissemination of principal forms of folk literature throughout the Hispanic countries.

**M150. Russian Folk Literature. (4)** (Same as Russian M150.) Lecture, three hours. Lectures and readings in Russian.

**M154A-M154B. African American Musical Heritage. (4-4)** (Same as Afro-American Studies M110A-M110B and Ethnomusicology M110A-M110B.) Lecture, four hours; discussion, one hour. Study of African music and its impact on the Americas; survey of development of various African American musical genres from slave era to the present, including traditions in the West Indies and Central and South America.

**M155. Oral Traditions in Africa. (4)** (Same as English M111G.) Designed for juniors/seniors. Survey of African folk traditions: folktale, epic, heroic poetry, and folk song.

**161. Beliefs and Tales of the Supernatural. (4)** Lecture, five hours. History of beliefs and legends reporting on encounters with creatures of the supernatural world, such as giants, dwarfs, ghosts, wild men, UFOs. Study of firsthand encounters with such beings and analysis of resulting narratives and contexts of their narration. Analysis of social, psychological, and physical states that contribute to such experiences. P/NP or letter grading.

**163. Folklore and Oral History. (4)** Designed for juniors/seniors. Examination of relationships between folk tradition and oral history; how history may be derived from tradition; how traditions are embedded in historical sources; how the folk traditionalize history to reflect their point of view.

**CM165. Film and Folklore. (4)** (Formerly numbered C165.) (Same as World Arts and Cultures CM183.) 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 CM265. P/NP or letter grading.

**M170. Russian Folklore. (5)** (Same as Russian CM170.) Lecture, three hours. Lectures and readings in English. General introduction to Russian folklore, including survey of genres and related folkloric phenomena. P/NP or letter grading.

**172. Folklore in Ethnic Context. (4)** Prerequisite: course M15 or M101. Role of folklore in ethnic relations; processes by which ethnic folklore is generated, transmitted, and maintained by immigrant groups and subsequent generations.

**CM175. Food Customs and Symbolism. (4)** (Formerly numbered C175.) (Same as World Arts and Cultures CM129.) 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 the American diet. Concurrently scheduled with course CM275. P/NP or letter grading.

**M180. Analysis of Traditional Music. (4)** (Same as Ethnomusicology M180.) Designed for Ethnomusicology, Music History, and Folklore majors. Intensive study of methods and techniques necessary to understand traditional music.

**CM182. Japanese Folklore. (4)** (Formerly numbered M182.) (Same as Japanese CM182.) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of the Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course CM282. Letter grading.

**M183. Korean Folklore. (4)** (Formerly numbered 183.) (Same as Korean M183.) Lecture, three hours. 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.

**CM184. Dance and Folklore. (4)** (Same as World Arts and Cultures CM154.) Lecture, four hours. Consideration of vernacular tradition as a 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 CM284. P/NP or letter grading.

**M185. The Hero in the Bible and the Ancient Near East. (4)** (Same as Ancient Near East M194.) Lecture, three hours. Investigation of concepts of the hero/heroine in literatures of ancient Mesopotamia, Canaan, and Israel. Texts include epics of Gilgamesh and Aghat, Hebrew Bible, and New Testament. All texts read in translation.

**190. Selected Topics in Folklore and Mythology Studies. (4)** Prerequisite: course M15 or M101. Proseminar focusing on selected problems, data, or themes in folklore and mythology studies. May be repeated twice for credit.

**199. Special Studies in Folklore. (2 to 4)** Limited to seniors.

## Graduate Courses

**200A. Folklore Bibliography, Theory, and Research Methods. (4)** Lecture, three hours; discussion, one hour. Designed for graduate folklore and mythology students. Basic course in theory, current trends, and bibliography for folklore graduate students, including research techniques in contemporary folkloristics.

**200B. Fieldwork. (4)** Lecture, three hours. Prerequisite: course 200A. Discussion/demonstration of theoretical concepts and practical techniques of data gathering and field research in folklore.

**CM205. Perspectives in American Folklore Research. (4)** (Same as English M205.) Lecture, three hours. Prerequisite: course M101. Examination of American folklore studies compared and contrasted with investigations in other countries, with emphasis on principal conceptual schemes and research orientations employed in study of folklore in American society. Concurrently scheduled with course C105.

**C207. Folklore in Urban Environments. (4)** Lecture, three hours. Prerequisite: course 200A. Exploration of expressive and symbolic dimensions of complex urban life, focusing on how immigrants, migrants, residents, and workers shape their experiences through dynamic interplay of community, ethnicity, culture, and religion. Concurrently scheduled with course C107.

**208. Afro-American Folklore and Culture. (4)** Designed for graduate students. Theoretical and methodological constructs which have contributed to the body of black cultural expression in the U.S.

**CM209. Afro-Caribbean Ritual Arts: Vodou and Santeria. (4)** (Same as World Arts and Cultures CM239.) 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 CM109. S/U or letter grading.

**213. Folk Belief and Custom. (4)** Preparation: one course from M118, M121, M122, 124, M126, M149, M150, Anthropology 156, German 120. Requisite: course M101. Study of beliefs and customs in the folk community: life cycle, calendrical and agricultural customs, and legal antiquities.

**214. Ethnography of Humor. (4)** (Formerly numbered M214.) Lecture, three hours. Designed for graduate folklore and mythology students. Examination and analysis of selected humorous expressions and events in cross-cultural perspective, with emphasis on major psychological and sociocultural approaches to their study and interpretation.

**M215. Legend as Folklore, Culture, and Behavior. (5)** (Formerly numbered 215.) (Same as World Arts and Cultures M215.) Lecture, four hours. Designed for graduate students. Examination of folkloristic, psychological, and sociocultural approaches to legends with special attention to texts versus narrating performance, "truth" and "belief," and meanings and significance of legends and legend telling, as well as applications of legend study to civil society (race and ethnic relations and public policy). S/U or letter grading.

**M216. Analyzing Narrative and Oral Performance. (5)** (Formerly numbered 216.) (Same as World Arts and Cultures M216.) 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 "the 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.

**217. Folk Speech. (4)** Lecture, three hours. Study of ethnography of communication and its relevance to study of social and regional dialects, proverbs, riddles, onomastics, folk poetry and verse, and traditional humor.

**218. Folk Art, Craft, and Aesthetics. (4)** Lecture, three hours. Requisite: course 200A. Examination of research orientations and findings in regard to what has been called folk art, craft, and aesthetics. Major perspectives and areas of inquiry from latter part of the 19th century to the present.

**228. Seminar: Topics in Celtic Folklore and Mythology. (4)** Seminar, three hours. Preparation: coursework in Celtic studies. Requisite: course 200A. Preparation for advanced study of and research in important areas of Irish oral tradition and folklore/mythology scholarship. Possible topics include pagan Celtic Britain/Ireland; comparative Celtic mythology; Celtic origin legends; literary and oral saints' legends; the Irish Fenian (Ossianic) tradition of ballads (*laoidhe/duair*) and prose tales; "fairy" beliefs; collecting and archiving methods of the Irish Folklore Commission; folklore studies and nationalism.

**M230A-M230B. Folk Tradition in Italian Literature. (4-4)** (Same as Italian M230A-M230B.) Lecture, two hours.

**M235. African Myth and Ritual. (4)** (Same as English M235.) Seminar on methods of analyzing African and African Diaspora myth and ritual.

**CM236. Carnival and Festivity. (4)** (Formerly numbered C236.) (Same as World Arts and Cultures CM241.) 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 the carnivalesque and politics of celebration. Concurrently scheduled with course CM136. S/U or letter grading.

**240. Introduction to Jewish Folk Literature. (4)** Designed for juniors/seniors and graduate students. Examination of both historic and generic methods used in study of Jewish folk literature.

**M241. Folklore and Mythology of the Near East. (4)** (Same as Near Eastern Languages M241.) Requisite: course M101.

**M243A. The Ballad. (4)** (Same as English M243A.) Study of English and Scottish popular ballads and their American derivatives, with some attention to European analogues. May be repeated for credit.

**M243B. Problems in Ballad Scholarship. (4)** (Same as English M243B.) Requisite: course M243A. Intensive investigation of a problem or problems in study of the popular ballad. May be repeated for credit.

**CM245. Applied Folklore. (4)** (Formerly numbered C245.) (Same as World Arts and Cultures CM275.) 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 folklife. Concurrently scheduled with course CM145. S/U or letter grading.

**248. Theory and Method in Latin American Folklore Studies. (4)** Historical survey of folklore scholarship in Latin America, with emphasis on theoretical bases, methods, and techniques employed in study and analysis of traditional tales, songs, music, linguistic expression.

**M249. Folk Literature of the Spanish and Portuguese Worlds. (4)** (Same as Portuguese M249 and Spanish M249.) Lecture, three hours. Intensive study of folk literature of the Spanish and Portuguese cultures as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech.

**251. Seminar: Finno-Ugric Folklore and Mythology. (4)** Advanced studies in folk traditions and mythologies of the Finno-Ugric speaking nations.

**M258. Seminar: Folk Music. (4)** (Same as Ethnomusicology M287.) Seminar, three hours.

**259. Seminar: Folklore. (4)** Requisite: course 200A. Seminar focusing on selected topics in folklore and mythology. May be repeated for credit.

**260. Organizational Folklore, Culture, and Symbolism. (4)** Designed for graduate students. Folklore in organizational settings (stories, rituals, rites, metaphors, etc.) and role of folklore in organization development as information source, diagnostic, and intervention to improve personnel practices, climate, and leadership.

**M261. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature. (4)** (Same as Italian M260A.) Lecture, three hours. Open to undergraduates with consent of instructor. The conspicuous diversity animating Italian society articulated through class, gender, and ethnolinguistic groups to be studied across a range of texts, some selected from the literary canon, but others purely oral (tales, songs, proverbs, cures and curses, secular and ritual drama).

**CM265. Film and Folklore. (4)** (Formerly numbered C265.) (Same as World Arts and Cultures CM283.) 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 CM165. S/U or letter grading.

**M270A-M270B. Seminars: Japanese Ritual Arts. (4-4)** (Same as Japanese M270A-M270B.) 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 grading.

**CM275. Food Customs and Symbolism. (4)** (Formerly numbered C275.) (Same as World Arts and Cultures CM229.) 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 the American diet. Concurrently scheduled with course CM175. S/U or letter grading.

**CM282. Japanese Folklore. (4)** (Same as Japanese CM282.) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of the Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course CM182. Letter grading.

**CM284. Dance and Folklore. (4)** (Same as World Arts and Cultures CM254.) Lecture, four hours. Consideration of vernacular tradition as a 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 CM184. S/U or letter grading.

**M286A-M286B. Studies in Hispanic Folk Literature. (4-4)** (Same as Spanish M286A-M286B.) Lecture, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**400A-400B-400C. Directed Professional Activities. (4-4-4)** Directed individual projects in professional editing, bibliography, discography, filmography, festival direction, and other professional activities. May not be applied toward M.A. course requirements. May be repeated for credit. S/U grading.

**495. Teaching Folklore and Mythology. (4)** Seminar, three hours. Requisite: course 200A. Analysis and design of alternative organizational schemes, teaching aids and techniques, and evaluation methods for folklore and mythology courses at the college level, with opportunities for observation and apprentice teaching. 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, program 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 in Folklore. (2 to 6)** S/U or letter grading.

**597A. Preparation for M.A. Comprehensive Examination. (2 to 4)** Limited to graduate folklore and mythology students. S/U grading.

**597B. Preparation for Ph.D. Qualifying Examinations. (4 to 8)** Preparation: successful completion of M.A. comprehensive examination. S/U grading.

**598. M.A. Thesis Preparation. (2 or 4)** S/U grading.

**599. Ph.D. Dissertation Research. (4 to 8)** Preparation: advancement to Ph.D. candidacy. S/U grading.

## Related Courses

### Anthropology

- 133R. Aesthetic Systems
- 156. Comparative Religion
- 233Q. Aesthetic Anthropology
- M272. Indians of South America
- 273. Cultures of the Middle East
- Art History**
- M102A. Minoan Art and Archaeology
- M102B. Mycenaean Art and Archaeology
- C117A. Pre-Columbian Art of Mexico
- C117B. Pre-Columbian Art of the Maya
- C117C. Pre-Columbian Art of the Andes
- 118A. Arts of Oceania
- 118C. Arts of Sub-Saharan Africa
- 118D. Arts of Native North America
- C119A. Advanced Studies in African Art: Western Africa
- C119B. Advanced Studies in African Art: Central Africa
- C203A-C203B. Museum Studies
- 220. Oceanic, Pre-Columbian, African, and Native North American Art

### Classics

- 162. Classical Myth in Literature
- 166A. Greek Religion
- 166B. Roman Religion
- 168. Comparative Mythology

268. Seminar: Comparative Mythology

### English

112. Children's Literature

### Ethnomusicology

- 20A-20B-20C. Musical Cultures of the World  
106A. Traditional North American Indian Music  
106B. Contemporary North American Indian Music  
120A-120B. Development of Jazz  
128. Folk Music of Eastern Europe  
C136A-C136B. Music of Africa  
146. Folk Music of South Asia  
147. Survey of Classical Music in India  
C156A-156B. Music in China  
160A. Survey of Music in Japan  
181. Anthropology of Music  
190. Study of Ethnomusicology  
207. Seminar: North American Indian Music  
237. Seminar: African Music  
241. Music of Iran and Other Non-Arabic-Speaking Communities  
250A-250B. Music of Indonesia  
281A-281B. Seminars: Field and Laboratory Methods in Ethnomusicology  
282. Seminar: Analysis  
283. Seminar: Study of Musical Instruments (Organology)  
290. Seminar: Ethnomusicology

### French

- 115A-115B-115C. Medieval French Literature  
215A-215B. Medieval Literature

### German (Germanic Languages)

120. German Folklore  
262. Seminar: Germanic Folklore

### History

- 193A. History of Religions: Myth

### Italian

- 214D. Studies in Medieval Literature: Boccaccio's *Decameron*  
218C. Studies in 18th-Century Literature: Goldoni

### Music

158. New Orleans Jazz

### Old Norse Studies (Germanic Languages)

- C139. The Saga  
C140. Viking Civilization and Literature  
151. Elementary Old Norse  
152. Intermediate Old Norse  
221. Advanced Old Norse Prose  
222. Advanced Old Norse Poetry

### Russian (Slavic Languages)

- 211A. Literature of Medieval Rus'  
251. Topics in Literature of Medieval Rus'  
291A. Seminar: Literature of Medieval Rus'

### Sociology

156. Ethnic and Status Groups  
186. Latin American Societies  
187. Population and Society in the Middle East

### Spanish (Spanish and Portuguese)

- 262B. Studies in Medieval Spanish Literature

### World Arts and Cultures

- 106B. Dance in Africa and African Diaspora  
108B. Dance in Latin American Cultures  
C109B. Dance in Native American Cultures  
110B. Dance in East Asia  
111B. Dance in South Asia  
112B. Dance in Southeast Asia  
C121. Ethnography of Performance

281A-281B. Advanced Studies in Dance Ethnology

# 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)

114. From Oppressed to Oppressor and Beyond: Literature in Afrikaans from Preapartheid to Postapartheid Era, in English Translation

#### Ancient Near East (Near Eastern Languages)

- 150A. Survey of Ancient Near Eastern Literatures in English: Mesopotamia  
150B. Survey of Ancient Near Eastern Literatures in English: Egypt  
150C. Survey of Ancient Near Eastern Literatures in English: Syria and Palestine

#### Arabic (Near Eastern Languages)

150. Introduction to Arabic Literature and Culture  
151. Survey of Modern Arabic Literature in English

#### Armenian (Near Eastern Languages)

- 150A-150B. Survey of Armenian Literature in English  
152. Modern Armenian Drama as Vehicle for Social Critique  
153. Art, Politics, and Nationalism in Modern Armenian Literature

#### Bulgarian (Slavic Languages)

154. Survey of Bulgarian Literature

#### Chinese (East Asian Languages)

- 150A. 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

40. Survey of Greek Literature in Translation  
41. Survey of Latin Literature in Translation  
41W. Discovering Roman Literature  
140. Topics in History of Greek Literature  
141. Topics in History of Latin Literature  
142. Ancient Epic  
143. Ancient Drama  
144. Topical Studies in Ancient Culture

#### Comparative Literature

All undergraduate courses

#### Czech (Slavic Languages)

155. Survey of Czech Literature from Middle Ages to the Present

#### Dutch (Germanic Languages)

113. Modern Dutch and Flemish Literature in Translation

#### East Asian Languages and Cultures

161. Buddhist Literature in Translation

### English

- 108A-108B. English Bible as Literature  
108C. English Bible as Literature: Special Topics

### French

162. Modern French Thought in Translation  
164A-164B-164C. The French Novel in Translation  
165. Topics in French Literature in Translation  
166. French and Francophone Autobiography, in English

### German (Germanic Languages)

- 50A. Great Works of German Literature in Translation: Medieval Period through Classicism  
50B. Great Works of German Literature in Translation: Romanticism to the Present  
106. The Faust Tradition from the Renaissance to the Modern Age  
M108. Love and Sex in German Literary Tradition  
112. Jewish Writing and Thought in German Culture from 1755 to the Present  
116. Special Topics in Modern Literature and Culture

### 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

- M140. Italian Novella from Boccaccio to Basile

150. Modern Fiction in Translation

- M158. Women in Italian Culture  
M230A-M230B. Folk Tradition in Italian Literature  
M260A. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature

### Japanese (East Asian Languages)

150. Japanese Literature in Translation: Classical  
151. Japanese Literature in Translation: Modern  
154. Postwar Japanese Culture through Literature  
M156. Literature and Technology

### Jewish Studies (Near Eastern Languages)

- M150A-150B. Hebrew Literature in English  
151A-151B. Modern Jewish Literature in English

### Korean (East Asian Languages)

150. Korean Literature in Translation: Classical  
151. Korean Literature in Translation: Modern

### Old Norse Studies (Germanic Languages)

40. The Heroic Journey in Northern Myth, Legend, and Epic  
C139. The Saga  
C140. Viking Civilization and Literature

### 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. Russian Novel in Translation  
118. Russian Literature of Middle Ages and Enlightenment  
119. Golden Age and the Great Realists  
120. Literature and Revolution  
124C-124T. Studies in Russian Literature  
125. The Russian Novel in Its European Setting  
126. Survey of Russian Drama  
M127. Women in Russian Literature  
128. Russian Science Fiction

CM170. Russian Folklore

**Scandinavian**

50. Introduction to Scandinavian Literature  
 141. Backgrounds of Scandinavian Literature  
 142. Scandinavian Literature of the 19th Century  
 143. Scandinavian Literature of the 20th Century  
 C144. Henrik Ibsen on the World Stage  
 C145. Getting Married: Strindberg and Battle of the Sexes  
 C146. Kierkegaard and Foundations of Existentialism  
 C147. Pan's Prophets: Knut Hamsun and Other Interpreters of Nature as Modern Idyll  
 C180. Literature and Scandinavian Society  
 C182. Theory of the Scandinavian Novel  
 184. Hans Christian Andersen  
 CM186. Voices of Women in Scandinavian Literature  
 187. Scandinavian Film: Bergman and Others

**Serbian/Croatian (Slavic Languages)**

154. South Slavic Literature

**Slavic (Slavic Languages)**

125. Interwar Central European Prose  
 126. Postwar Central European Prose

**Spanish (Spanish and Portuguese)**

60A-60B-60C. Hispanic Literatures in Translation

**Ukrainian (Slavic Languages)**

152. Ukrainian Literature

**Yiddish (English)**

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

*College of Letters and Science*

UCLA  
 212 Royce Hall  
 Box 951550  
 Los Angeles, CA 90095-1550

(310) 825-1145  
 fax: (310) 825-9754  
 e-mail: french@humnet.ucla.edu  
 http://www.humnet.ucla.edu/humnet/french/  
 index.htm

Françoise Lionnet, Ph.D., *Chair*  
 Malina Stefanovska, Ph.D., *Graduate Studies  
 Director*

Dominic R. Thomas, Ph.D., *Undergraduate  
 Studies Director*

**Professors**

Emily Apter, Ph.D.  
 Jean-Claude Carron, Docteur ès Lettres  
 Patrick J. Coleman, Ph.D.  
 Eric L. Gans, Ph.D.  
 Peter Haidu, Ph.D.  
 Françoise Lionnet, Ph.D.  
 Stephen D. Werner, Ph.D.

**Professors Emeriti**

Marc Bensimon, Ph.D.  
 Hassan el Nouty, Docteur ès Lettres  
 Milan S. La Du, Ph.D.  
 L. Gardner Miller, Docteur ès Lettres  
 Shushi Kao, Ph.D.

**Associate Professors**

Andrea N. Loselle, Ph.D.

Sara E. Melzer, Ph.D.  
 Malina Stefanovska, Ph.D.

**Assistant Professor**

Dominic R. Thomas, Ph.D.

**Lecturers**

Laurence Denié, Ph.D.  
 Nicole Dufresne, Ph.D.  
 Kimberly Jansma, Ph.D.

### Scope and Objectives

The UCLA French and Francophone Studies Department 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. All three plans lead to the Bachelor of Arts degree and subsequently 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 major 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./French and Linguistics B.A.

### Preparation for the Majors

*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. Students in Plan III must also take Linguistics 20.

**Transfer Students**

To be admitted to the French majors, transfer students 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. Students in Plan III must also complete an introduction to linguistics course.

### The Majors

Three plans are offered by the department:

#### Plan I: French/Francophone Studies in Literature and Culture

Plan I leads to the Bachelor of Arts in French. *Required:* Thirteen upper division courses, including French 100, 101, 102; two courses from 114A, 114B, 114C; at least six courses in French and Francophone literature and/or culture selected from upper division offerings in the department in language, civilization, literature, or the arts. Two upper division elective courses from outside the department may be substituted in the major program with consent of the undergraduate adviser.

#### Plan II: Interdisciplinary French/Francophone Studies

Plan II, with emphasis on French and Francophone culture, leads to the Bachelor of Arts in French and 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. *Required:* Thirteen upper division courses, including French 100, 101, 102; two courses from 114A, 114B, 114C; at least two courses in French and Francophone literature; one additional elective course normally selected from upper division offerings in the department in language, civilization, literature, or the arts; five upper division elective courses in fields relevant to French and Francophone studies to be selected in or outside the department in consultation with the undergraduate adviser.

#### Plan III: French and Linguistics

Plan III leads to the Bachelor of Arts in French and Linguistics. In addition to the normal preparation for the major, students are required to complete the sixth term of work in one other foreign language or the third term in each of two other foreign languages. Linguistics 20 is required as preparation for the major. *Required:* Twelve upper division courses, including French 100, 101, 102; two courses from 105, 107, 108A, 108B, 109; two courses from

114A, 114B, 114C; Linguistics 103, 110, 120A, 120B, and 165A or 165B.

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, 101, or 102, 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 162 through 165, 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 any of the French majors.

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.

## 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 115A 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 courses 170A and 170B 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). Courses 170A and 170B count as one course toward the requirements for the French majors.

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, or 15.

*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.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of French and Francophone Studies offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in French and Francophone Studies.

## Admission

Applicants to the M.A. program must hold a B.A. in French or the equivalent. The Graduate Record Examination (GRE) General Test, a sample of written work in French, and three letters of recommendation are also required and should be sent to the department.

For UCLA students applying to the Ph.D. program, completion of the M.A. degree in French and Francophone Studies with recommendation for admission to the doctoral program is required. Outside applicants must hold the M.A. degree in French or equivalent, submit three letters of recommendation and a sample of written work in French, and take the Graduate Record Examination (GRE) General Test.

## Master's Degree

For areas of study, see Doctoral Degree.

The M.A. degree is offered through the comprehensive examination and thesis plans; the latter requires a special petition. A total of 11 courses in French is required, eight at the graduate level, including required coursework in literary research and composition and contemporary theories, at least two courses in each of the three periods, and one additional course in the period not covered on the M.A. examination. For thesis plan candidates, this is the period of specialization which is not covered on the oral qualifying examination.

Students are required to consult with the graduate adviser to ensure full historical coverage of French literature.

There is a language requirement for this degree.

## Doctoral Degree

The corpus of French literature is divided into three chronological periods, each including two centuries: (1) medieval and Renaissance, (2) classical (17th and 18th centuries), and (3) modern (19th and 20th centuries, with Francophone literature as an option).

Required coursework includes courses in literary research and composition and contemporary theories if not already covered at the M.A. level, seminars (a balance should be sought between theoretical and literary-historical relevance to the student's proposed period of specialization), and graduate courses in other departments related to the area of specialization.

Admitted students holding the M.A. or an equivalent degree from another institution must consult the graduate adviser for possible additional course requirements. In addition, students are expected to follow the guidance committee's suggestions in taking courses in preparation for the doctoral qualifying examination.

Written and oral qualifying examinations are required. Two written qualifying examinations are based on individual reading lists and cover the historical area related to the proposed dissertation topic and areas of critical theory relevant to the proposed dissertation topic.

Following successful completion of the written examinations, students prepare a dissertation prospectus and take the University Oral Qualifying Examination, which covers the written examinations and the proposed dissertation subject.

There is a language requirement for this degree.

## French

### Lower Division Courses

**1. Elementary French. (4)** Lecture, five hours.

**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 a grade of C– or better.

**2G. Elementary French for Graduate Students. (3)** Enforced requisite: course 1G. Preparation for GSFLT or other language examinations. A passing grade does not imply satisfaction of language requirements. May be repeated. S/U grading.

**3. Elementary French. (4)** Lecture, five hours. Enforced requisite: course 2 with a grade of C– or better.

**4. Intermediate French. (4)** Lecture, five hours. Enforced requisite: course 3 with a grade of C– or better.

**5. Intermediate French. (4)** Lecture, five hours. Enforced requisite: course 4 with a grade of C– or better.

**6. Intermediate French. (4)** Enforced requisite: course 5 with a grade of C– or better.

**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 a grade of B or better.

**12. Introduction to Study of French 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. P/NP or letter grading.

**14. Introduction to French Civilization, in English. (4)** Lecture, two hours; discussion, one hour. Not open for credit to students with credit for course 14W. Study of contemporary French institutions and issues in political, cultural, and socioeconomic realms. Structure of French society and recent developments. P/NP or letter grading.

**14W. Introduction to French Civilization. (5)** Lecture, two hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for course 14. Study of contemporary French institutions and issues in political, cultural, and socioeconomic realms. Structure of and recent developments in French society. Satisfies Letters and Science Writing II requirement. Letter grading.

**15. Theory and Correction of Diction. (4)** Enforced requisite: course 6. French pronunciation, diction, intonation in theory and practice; phonetic transcription, phonetic evolution of the modern language; remedial exercises; recordings.

**41. French Cinema and Culture. (4)** Lecture, three hours; film screenings, three hours. Introduction to French culture and literature through study of major films of cultural and literary significance. P/NP or letter grading.

### Upper Division Courses

**100. Written Expression: Techniques of Description. (4)** Lecture, three hours. Requisite: course 6. Writing assignments follow close analysis of relevant texts and study of related grammatical structures. P/NP or letter grading.

**101. Written Expression: Techniques of Narration. (4)** Lecture, three hours. Requisite: course 6. Writing assignments follow close analysis of relevant texts and study of related grammatical structures. P/NP or letter grading.

**102. Advanced Expository Writing: Techniques of Argumentation. (4)** Lecture, three hours. Requisites: courses 100, 101. Study of rhetorical devices and revision of related grammatical structures. Writing assignments follow analysis of relevant texts. P/NP or letter grading.

**105. Structure of French. (4)** Lecture, three hours. Requisite: course 15. Prior background in linguistics not required. Introduction to linguistic analysis of French in areas of phonology, morphology, syntax, and language variation.

**107. Advanced Oral Expression. (4)** Lecture, three hours. Requisite: course 100. Communicative and rhetorical strategies; techniques of oral exposition, argumentation, and analysis.

**108A-108B. Advanced Practical Translation. (4-4)** (Formerly numbered 108A-108B-108C.) Lecture, three hours. P/NP or letter grading:

**108A.** Lecture, three hours. Requisite: course 101. Translation of journalistic texts, including biography and interview, formal and informal reporting, advertising and idiomatic language. Work in techniques of translation. P/NP or letter grading.

**108B.** Lecture, three hours. Requisite: course 102 or 108A. Translation of literary and sociocultural texts, including editorials, polemical issues, film subtitles. Comparative stylistics of translation. P/NP or letter grading.

**109. Language and Communication in Business French. (4)** Lecture, three hours. Requisite: course 6. Oral and written business communication in France, including commercial transactions, banking, 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. Cultural issues in business French, including mentalities, practices and customs, marketing, and advertising strategies. 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, Laclot, 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.

**115A-115B-115C. Medieval French Literature. (4-4-4)** Lecture, three hours:

**115A.** Invention of Love in the 12th Century. Selections from the broad range of lyric poetry and narrative romance in which is first elaborated "romantic" (sometimes called "courtly") love. Readings include works of the troubadours and *trouvères*, different versions of the Tristan-myth, a romance of Chrétien de Troyes, and first part of *Romance of the Rose*.

**115B.** Medieval Knight: Heroism and Its Social Problems. Readings in literature and history of medieval warfare and its ideals in relation to social structure of the time. Texts include *La Chanson de Roland*, *Raoul de Cambrai*, *La Mort le roi Artu*, crusade history, and Georges Duby's *Guerriers et paysans*.

**115C.** Comic Structure and Social Class. Medieval comedy, to be studied in relation to class structures and their evolution in the Middle Ages, takes a number of forms. Often obscene in the *fabliaux*, it can turn parodic in the *Roman de Renart*, simultaneously satiric, fantastic, and religious in the bourgeois drama of Arras, and utterly charming in the unclassifiable *Aucassin et Nicolette*.

**116A-116B-116C. Renaissance. (4-4-4)** Lecture, three hours:

**116A.** La Pléiade and 16th-Century Poetry. Study of the linguistic and poetic "revolution" brought about by *Defiance et Illustration* (1549), including texts by Marot, Scève, Labé, Du Bellay, and Ronsard.

**116B.** The Novel and Other Early 16th-Century Prose. Emphasis on Rabelais, with other texts by Marguerite de Navarre and Jean Calvin.

**116C.** Late French Humanism. Emphasis on Montaigne's *Essais*, with other texts from the Religious Wars period.

**117A-117B-117C. 17th Century. (4-4-4)** Lecture, three hours:

**117A.** Theater. Study of French comedy and/or tragedy through representative works, including those by Corneille, Molière, and Racine.

**117B.** Prose. Study of 17th-century philosophers, moralists, and/or novelists such as Pascal, La Rochefoucault, La Bruyère, La Fayette, and La Fontaine.

**117C.** Culture and Society. Study of 17th-century political, social, religious, and courtly aspects, including libertine and *salons milleux*, la Fronde, and Versailles.

**118A-118B-118C. 18th Century. (4-4-4)** Lecture, three hours:

**118A.** Satire. Readings include Montesquieu's *Lettres persannes*, Diderot's *Neveu de Rameau* and *Rêve de d'Alembert*, and Voltaire's *Contes*.

**118B.** The Novel. Readings include Prévost's *Manon Lescaut*, Diderot's *La Religieuse* and *Jacques le fataliste*, excerpts from Rousseau's *Julie*, and Laclot's *Les Liaisons dangereuses*.

**118C.** Theater. Readings include selected plays of Marivaux and Beaumarchais, as well as selections from theoretical writings of Diderot and Rousseau.

**119A-119D. 19th Century. (4 each)** Lecture, three hours:

**119A.** Romanticism. Readings of representative poets, novelists, and playwrights of the Romantic era such as Chateaubriand, Lamartine, Hugo, Vigny, Balzac, and Stendhal.

**119B.** Generation of 1848. Readings of representative writers of the 1840s and the Second Empire such as Baudelaire, Nerval, Balzac, Flaubert, and Mérimée. May also include the *théâtre à thèse* and Parnassian poetry.

**119C.** Naturalism and Symbolism. Study of naturalism in the novel and drama as represented by Zola, Maupassant, and Becque, and of symbolism in the poetry of Baudelaire, Verlaine, Rimbaud, and Mallarmé.

**119D.** Turn of the Century. Study of genres and trends from 1885 through World War I, with emphasis on prose writers such as Huysmans, Laforgue, Barrès, Alain-Fournier, Jarry, Roussel, France, and Romain-Roland.

**120A-120B-120C. 20th Century. (4-4-4)** (Formerly numbered 120A-120D.) Lecture, three hours. P/NP or letter grading:

**120A.** Early 20th-Century Writers. (4) Lecture, three hours. Readings of works by Claudel, Apollinaire, Valéry, Gide, and Proust. P/NP or letter grading.

**120B.** Literature from 1918 to 1945. (4) Lecture, three hours. Study of works by surrealists and other major writers such as Céline, Malraux, Giraudoux, and Anouilh. P/NP or letter grading.

**120C.** Post-World War II Literature. (4) Lecture, three hours. Study of works by existentialists and other major writers such as Robbe-Grillet, Beckett, Genet, Ponge, and Duras. P/NP or letter grading.

**121A-C121B. Contemporary Francophone Literature. (4-4)** Lecture, three hours:

**121A.** French-African Literature. Survey of literary works of French expression north and south of the Sahara from World War II to the present.

**C121B.** Quebec Literature. Survey of modern *Québécois* literary works. Concurrently scheduled with course C222. P/NP or letter grading.

**124. The Short Story. (4)** Lecture, three hours. Survey of short fiction forms in France and the French-speaking world.

**125. Evolution of French Comedy. (4)** Lecture, three hours. Study of history and evolution of comedy from the Middle Ages to the theater of the absurd.

**130. Special Topics in French and Francophone Cultures. (4)** (Formerly numbered 130A-130B-130C.) Lecture, three hours. Requisites: courses 6, 12. Study of French and Francophone cultures of Middle Ages, Renaissance, "Ancien Régime," and 19th and 20th centuries. Fourth hour may be required for viewing films and other laboratory activities. May be repeated for credit. Letter grading.

**132. Contemporary France. (4)** Lecture, three hours. Social, cultural, and political institutions and/or movements in 20th-century France.

**M140. Women's Studies in French Literature. (4)** (Formerly numbered 140.) (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. Cinema and Literature in France. (4)** Lecture, three hours (additional hours may be required for viewing films and other laboratory activities). Study of interaction between cinema and literature in its generic, thematic, and sociocultural aspects.

**142. Poetry and Music. (4)** Lecture, three hours. Interdisciplinary study of relation between music and literature, with emphasis on the setting of poetical texts to music, from the troubadours to modern times.

**M143. Rhetoric of Rule. (4)** (Same as Communication Studies M117.) Lecture, three hours. Exploration of how and why power is symbolically constructed by comparing Louis XIV's and President Clinton's attempts to manipulate their image in the "media" of their respective cultures.

**150. Studies in Medieval Literature. (4)** May be repeated once for credit with consent of major adviser.

**151. Studies in 16th-Century Literature. (4)** May be repeated once for credit with consent of major adviser.

**152. Studies in 17th-Century Literature. (4)** May be repeated once for credit with consent of major adviser.

**153. Studies in 18th-Century Literature. (4)** May be repeated once for credit with consent of major adviser.

**154. Studies in 19th-Century Literature. (4)** May be repeated once for credit with consent of major adviser.

**155. Studies in 20th-Century Literature. (4)** May be repeated once for credit with consent of major adviser.

**156. Studies in Contemporary French and Francophone Literature. (4)** Lecture, three hours. May be repeated once for credit with consent of major adviser. P/NP or letter grading.

**157. Studies in French Critical Theory and Philosophy. (4)** Lecture, three hours. Advanced study of major concepts in contemporary French thought, with attention to its influence on French literature and culture, and its application to literary and nonliterary texts.

**158. Studies in History of Ideas. (4)** Lecture, three hours. Specific themes which address a particular problem of French literature, civilization, or ideas. May be repeated for credit with consent of major adviser.

**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.

**162. Modern French Thought in Translation. (4)** Lecture, three hours. Reading and discussion of contemporary works in translation. May be repeated for credit with consent of major adviser. P/NP or letter grading.

**164A-164B-164C. The French Novel in Translation. (4-4-4)** Lecture, three hours. Texts and authors to be studied announced in advance for each offering.

**165. Topics in French Literature in Translation. (4)** Lecture, three hours. Variable topics to be announced each term. May be repeated for credit with consent of major adviser. P/NP or letter grading.

**166. French and Francophone Autobiography, in English. (4)** Lecture, three hours. Genre of self-portrait covers writers from Montaigne and Rousseau to the 20th century. Focus on rhetoric of genre and its relation to broad questions of identity, gender, race, and class. P/NP or letter grading.

**170A-170B. Thesis Tutorial. (4-4)** (Formerly numbered 170.) Tutorial, to be arranged. Limited to senior French majors with 3.5 departmental and 3.25 overall grade-point averages. Letter grading. **170A.** Research Methods. Preparation: completion of one honors project or one seminar. Individual study of research techniques related to a topic leading to an honors thesis. Required work includes bibliography, outline, prospectus. **170B.** Requisite: course 170A. Individual study on a topic leading to an honors thesis of approximately 30 to 35 pages to be written under guidance of a faculty member.

**199. Special Studies in French. (2 to 8)** Preparation: consultation with undergraduate adviser. Limited to juniors/seniors. May be repeated once.

## Graduate Courses

**201. Literary Research and Composition. (4)** Lecture, three hours. Introduction to graduate-level literary research, including writing scholarly papers, compilation and presentation of bibliography, and practical work in computer use of data bank.

**202. Historical and Philosophical Background to French Literary Criticism. (4)** Lecture, three hours.

**203. Contemporary Theories. (4)** Lecture, three hours. Introductory study of representative texts from the works of major modern theoreticians, which may include works by Althusser, Barthes, Derrida, Foucault, Genette, Greimas, Kristeva, and Lacan.

**205. Techniques of Literary Analysis. (4)** Lecture, three hours. Practice in close analysis of literary texts, including *explication de texte*.

**214. Problematics of Medieval Language and Literature. (4)** Lecture, three hours. Requisite to courses 215A, 215B, 250A, 250B, 250C. Introduction to Old French and the problematics of medieval literature.

**215A-215B. Medieval Literature. (4-4)** (Formerly numbered 215A-215D.) Lecture, three hours. Requisite: course 214. Development of a vernacular culture in the Middle Ages. Exploration of social functions of texts designated as "literary" by modernity as part of social, economic, and political evolutions in which those texts played key roles. Letter grading. **215A.** Medieval Subject; **215B.** Narrative Types.

**216. Renaissance. (4)** (Formerly numbered 216A-216B-216C.) Lecture, three hours. French literature of the 16th century studied within historical, intellectual, and cultural contexts. Letter grading.

**217. 17th Century. (4)** (Formerly numbered 217A-217D.) Lecture, three hours. Readings in 17th-century literature studied within historical, cultural, and literary contexts. Letter grading.

**218. Enlightenment. (4)** (Formerly numbered 218A-218B-218C.) 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)** (Formerly numbered 219A-219D.) Lecture, three hours. Readings in 19th-century literature, covering development of the novel, lyric poetry, and theater from Romantic period to *fin-de-siècle*. Letter grading.

**220. 20th Century. (4)** (Formerly numbered 220A-220D.) 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.

**221A-221B-221C. French-African Literature. (4-4-4)** Lecture, three hours:

**221A.** Introduction to Study of French-African Literatures. In-depth survey of French-African literatures prior to independence.

**221B.** French-African Literature of Madagascar and Bantu Africa. Readings and analysis of major works since independence.

**221C.** French-African Literature of Berbero-Sudanese and Arabo-Islamic Africa. Readings and analysis of major works since independence.

**C222. Contemporary Francophone Literature: Quebec Literature. (4)** Lecture, three hours. Survey of modern *Québécois* literary works. Concurrently scheduled with course C121B.

**241. Introduction to Generative Anthropology. (4)** Lecture, three hours. Discussion of principles of generative anthropology and their application to study of literary texts and related cultural phenomena.

**242. Introduction to Study of Narrative. (4)** Lecture, three hours. First survey of modern French methodology for critical analysis and interpretation of narrative, with examples from all periods of French literature.

**250A. Major Medieval Texts. (4)** Seminar, three hours. Requisite: course 214. Intensive study of individual texts from multiple perspectives, such as *La Chanson de Roland*, a romance of Chrétien de Troyes, *Le Roman de la rose*, or François Villon's *Grand Testament*. May be repeated for credit.

**250B. Structures of Medieval Literature. (4)** Seminar, three hours. Requisite: course 214. Advanced study of a variety of texts in terms of textual and historical structures. May be repeated for credit.

**250C. Problems in Medieval Literature. (4)** Seminar, three hours. Requisite: course 214. Exploratory study of a theoretical problem, such as subjectivity and representation in medieval literature, minor or nonclassified texts, individuality and convention, or opposition of religion and secularism. May be repeated for credit.

**251A-251B. Studies in the Renaissance. (4-4)** May be repeated for credit.

**253A-253B. Studies in the 17th Century. (4-4)** May be repeated for credit.

**254A-254B. Studies in the 18th Century. (4-4)** May be repeated for credit.

**255A-255B. Studies in the 19th Century. (4-4)** May be repeated for credit.

**256A-256B. Studies in Contemporary Literature. (4-4)** May be repeated for credit.

**257A-257B. Studies in French-African Literature. (4-4)** May be repeated for credit.

**258A-258B. Studies in Literary Criticism. (4-4)** May be repeated for credit.

**259A-259B. Studies in Philosophy and Literature. (4-4)** May be repeated for credit.

**260A-260B. Studies in History of Ideas. (4-4)** Particular problems in French literature and ideas. May be repeated for credit.

**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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

## GENERAL EDUCATION CLUSTERS

*College of Letters and Science*

UCLA  
A265 Murphy Hall  
Box 951571  
Los Angeles, CA 90095-1571

(310) 794-2018  
<http://www.college.ucla.edu/ge/>



## Scope and Objectives

Available to entering freshmen only, general education clusters are an option for satisfying general education requirements. The clusters span three quarters and are interdisciplinary team-taught courses designed to introduce students to multiple areas of knowledge. They focus on a common topic and are organized in such a way that students can explore how different disciplines converge and diverge in their approach to a particular problem.

General education clusters are taught by some of the University's most distinguished faculty and are designed to strengthen the writing, quantitative reasoning, critical thinking, and information literacy skills that students need to excel at UCLA. During Fall and Winter Quarters, instruction in the clusters consists of lecture courses taught in concert with discussion sections. In Spring Quarter students enroll in one of a number of small satellite seminars whose topics are related to the cluster theme.

On completion of the entire yearlong cluster, students satisfy the equivalent of four general education courses.

For the current cluster course offerings and general education credit, refer to <http://www.college.ucla.edu/ge/>.

## General Education Clusters

### Lower Division Courses

**M1A-M1B-M1C. Global Environment. (5-5-5)** (Same as Environment M1A-M1B-M1C.) Course M1A is enforced requisite to M1B, which is enforced requisite to M1C. 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. **M1C.** Special Topics. Seminar, three hours. Small groups address environmental topics like smog, deforestation, and recycling. Exercises include field trips and oceanographic cruises.

**20A-20B-20C. Interracial Dynamics in American Culture, Society, and Literature. (5-5-5)** Course 20A is enforced requisite to 20B, which is enforced requisite to 20C. Letter grading. **20A-20B.** Lecture, three hours; discussion, two hours. Examination of construction of race and its position in 20th-century American society through interdisciplinary approach that brings together cultural studies and social sciences. Consideration of texts to achieve understanding of how we are produced and positioned in our society by racial categories and ideas. **20C.** Special Topics. Seminar, three hours. Consideration of how experience, debates, and issues of race are represented and understood in historical, legal, cinematic, and literary contexts.

**21A-21B-21C. History of Modern Thought. (5-5-5)** Course 21A is enforced requisite to 21B, which is enforced requisite to 21C. Letter grading. **21A-21B.** Lecture, three hours; discussion, two hours. Introduction to key issues in humanities and social sciences through close reading of prominent theories and texts of past four centuries. Consideration of historical and intellectual significance of writers from Rousseau and Wollstonecraft to Foucault and Beauvoir. **21C.** Special Topics. Seminar, three hours. Examination of cross-section of classical and modern social theories and debates that shape them.

**22A-22B-22C. Toward World Economy: Perils and Promise of Globalization. (5-5-5)** Course 22A is enforced requisite to 22B, which is enforced requisite to 22C. 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. **22C.** Special Topics. Seminar, three hours. Examination of global governance, development, and health.

**50A-50B-50C. Perception and Illusion: Cognitive Psychology, Literature, and Art. (5-5-5)** Course 50A is enforced requisite to 50B, which is enforced requisite to 50C. Letter grading. **50A-50B.** Lecture, three hours; laboratory, two hours. Through study of cognitive psychology, literature, and visual arts, examination of nature of visual perception, optical illusion, and the many ways in which we use our senses to construct reality. **50C.** Special Topics. Seminar, three hours. Examination in depth of issues related to aesthetics of perception and cognition, computers and consciousness, and narrations of perception.

**60A-60B-60C. The U.S., 1963 to 1974: Politics, Society, and Culture. (5-5-5)** Course 60A is enforced requisite to 60B, which is enforced requisite to 60C. Letter grading. **60A-60B.** Lecture, three hours; discussion, two hours. Interdisciplinary exploration of U.S. society from assassination of Kennedy to resignation of Nixon. Topics include civil rights, Great Society, anti-Vietnam war movement, political and artistic countercultures, and changes in technology, law, and the media. **60C.** Special Topics. Seminar, three hours. In-depth examination of political and cultural issues affecting U.S. society from 1963 to 1974.

**70A-70B-70C. Evolution of Cosmos and Life. (5-5-5)** Course 70A is enforced requisite to 70B, which is enforced requisite to 70C. 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 the universe itself, to introduce students to both the life and physical sciences. Examination of evolution of the universe, galaxy, solar system, and Earth in course 70A; focus on evolution of life in course 70B. **70C.** Special Topics. Seminar, three hours. Examination in depth of various issues of evolution. Topics may range from creation of California's physical landscape to debate between evolution and creationism.

**80A-80B-80C. Frontiers in Human Aging: Biomedical, Social, and Policy Perspectives. (5-5-5)** Course 80A is enforced requisite to 80B, which is enforced requisite to 80C. 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 the phenomena. **80C.** Special Topics. Seminar, three hours. In-depth examination of gender and aging, cellular aging, cancer, and aging of the brain.

## GEOGRAPHY

*College of Letters and Science*

UCLA  
1255 Bunche Hall  
Box 951524  
Los Angeles, CA 90095-1524  
(310) 825-1071  
<http://www.geog.ucla.edu/>

John A. Agnew, Ph.D., Chair  
Glen M. MacDonald, Ph.D., Vice Chair

### Professors

John A. Agnew, Ph.D.  
Judith A. Carney, Ph.D.  
William A.V. Clark, Ph.D.  
Denis E. Cosgrove, Ph.D.  
Michael R. Curry, Ph.D.  
J. Nicholas Entrikin, Ph.D.  
Glen M. MacDonald, Ph.D.

Antony R. Orme, Ph.D.  
David L. Rigby, Ph.D.  
Allen J. Scott, Ph.D.  
Stanley W. Trimble, Ph.D.  
Hartmut S. Walter, Ph.D.

### Professors Emeriti

Charles F. Bennett, Jr., Ph.D.  
C. Rainer Berger, Ph.D.  
Henry J. Bruman, Ph.D.  
Gary S. Dunbar, Ph.D.  
Gerry A. Hale, Ph.D.  
Tom L. McKnight, Ph.D.  
Howard J. Nelson, Ph.D.  
Jonathan D. Sauer, Ph.D.  
Melissa Savage, Ph.D.  
Werner H. Terjung, Ph.D.  
Benjamin E. Thomas, Ph.D.  
Norman J.W. Thrower, Ph.D.

### Associate Professors

Chi-Fun Cindy Fan, Ph.D.  
Marilyn N. Raphael, Ph.D.  
Yongkang Xue, Ph.D.

### Assistant Professors

Stephen A. Bell, Ph.D.  
Joshua S.S. Muldavin, Ph.D.  
Laurence C. Smith, 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.

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 elect to concentrate in one of five different areas of geography. Majors consult with the undergraduate counselor and adviser to plan a program suitable to their personal objectives.

#### Preparation for the Major

*Required:* Geography 1, 2, 3, 4, M40. All courses must be taken for a letter grade.

#### Transfer Students

To be admitted as Geography majors, transfer students with 90 or more units must complete as many of the following courses as possible prior to admission to UCLA: one physical geography course, one biogeography course, one cultural geography course, one economic geography course, and one statistics course.

#### The Major

*Required:* Ten upper division geography courses taken for a letter grade, which must include (1) five courses from one of the Concentrations for the Major listed below, (2) three additional courses in at least two different concentrations, (3) one regions course from Geography 122, 135, 136, 137, 152, 156, 180, 181, 182A, 183, 184, 185, 186, 187, 190, 191, and (4) one procedures course (4 units) from 100A (2 units), 105A (2 units), 163, 167 (6 units), 168, 169, 170, M171.

#### Major Concentrations

By the end of the junior year and no later than the beginning of the senior year, students are required to declare their specific concentration by filing a statement with the undergraduate adviser. The purpose of the concentration requirement is to expose students to systematic in-depth work within a specific area of geography. Completion of a concentration requires

five upper division geography courses. Students must take a concentration's required course(s), if any, before declaring that concentration. They must select one of the following concentrations and meet its course requirements:

1. *Urban and Regional Development Studies:* Five courses from M128, 135, 148, 150, 152, 155, 157, 159A
2. *Spatial Demography and Social Processes in the City:* Course 142 and four courses from 143, 144, 146, 150, 156, 159B
3. *Culture and Environment in the Modern World:* Five courses from 133, 134, 135, 136, 138, 140, 152, 159C
4. *Physical Geography:* Courses 100, 100A, 104, 105, 105A, and two courses from 101, 103, 107, 159D
5. *Biogeography:* Five courses from 108, 111, 112, 116, 118, 122, 123, 159E, 163

#### Allied Fields

Students must develop some competence in an allied field. This requirement consists of at least two upper division courses selected from at least one of the following disciplines: Afro-American studies, anthropology, art history, Asian American studies, atmospheric sciences, biology, chemistry, Chicana and Chicano studies, communication studies, Earth and space sciences, economics, folklore, history, management, philosophy, physics, political science, psychology, public health, sociology, women's studies. Urban Planning M190 is also acceptable. Other disciplines require departmental consent.

### 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, 2, 3, 4, 5, M40. All courses must be taken for a letter grade. Students are strongly advised to complete all requisites before beginning upper division work in the major. Counselors may suggest other recommended courses.

#### Transfer Students

To be admitted as Geography/Environmental Studies majors, transfer students with 90 or more units must complete as many of the following courses as possible prior to admission to UCLA: one physical geography course, one biogeography course, one cultural geography

course, one economic geography course, one people and ecosystems course, and one statistics course.

#### The Major

*Required:* Twelve upper division geography courses taken for a letter grade which must be distributed as follows: (1) *natural systems core* — two courses from 100, 103, 104, 105, 108, 112; (2) *human systems core* — two courses from 118, 133, 134, 140, 142, 148, 150; (3) *environmental studies cluster* — five courses from 107, 110, 116, 120, 121, 122, 123, 124, 125, 126, M128, 129, 131, 135, 136, 137; (4) *procedures* — two courses (8 units) from 100A (2 units), 105A (2 units), 163, 167 (6 units), 168, 169, 170, M171; and (5) *regions* — one course from 122, 135, 136, 137, 152, 156, 180, 181, 182A, 183, 184, 185, 186, 187, 190, 191.

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

To qualify for graduation with departmental honors in either major, students must have a cumulative grade-point average of 3.5 or better in at least five upper division geography courses and a 3.25 overall GPA, and complete Geography 199HA and 199HB with grades of A– or better. Contact the undergraduate advisers 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, 1254 Bunche Hall, (310) 825-1166. Courses should be selected in consultation with the departmental adviser.

*Required Lower Division Courses (8 units):* Two courses from Geography 1, 2, 3, 4. Whenever possible the courses should be taken before attempting upper division courses.

*Required Upper Division Courses (20 units):* Three courses from one of the five Geography major concentrations (urban and regional development studies, spatial demography and social processes in the city, culture and environment in the modern world, physical geography, or biogeography) and two courses from outside the selected concentration.

All minor courses 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, 1254 Bunche Hall, (310) 825-1166. Courses should be selected in consultation with the departmental adviser.

*Required Lower Division Courses (8 units):* Geography 5 and one course from 1, 2, 3, or 4. Whenever possible the courses should be taken 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.

All minor courses must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases,

even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Geography offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Geography.

## Admission

Applicants may apply in any quarter for admission to the M.A. or Ph.D. program.

Applicants must submit the *UCLA Application for Graduate Admission*, a complete set of transcripts of prior university coursework, the results of the Graduate Record Examination (GRE) General Test, a statement of purpose, and three letters of recommendation. Applicants are normally expected to have (1) completed the undergraduate major in geography or in a related field, (2) received a B.A. or B.S. degree, (3) attained at least a 3.3 grade-point average in courses taken in the junior and senior years in the major, (4) attained a high GRE score (normally well above 1,200) in the combined verbal and quantitative sections, (5) strong letters evaluating past academic and/or professional performance and indicating potential for high achievement in graduate studies, and (6) for international applicants whose native language is not English, attained a passing score on the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination. Exceptions to these guidelines may be considered for students whose records show other indications of unusual promise.

Applicants to the Ph.D. program usually are required to hold an M.A. or M.S. degree. Applicants must provide clear evidence of ability to conduct substantive research and to articulate ideas clearly in writing. In addition, a faculty member must be willing to serve as interim adviser. Under rare circumstances, students may proceed directly toward the Ph.D. degree without taking a master's degree. Students must have completed one year in the M.A. program, have three department faculty members review their dossiers and unanimously recommend such a course of action, and pass a four-hour qualifying examination set and evaluated by three faculty members competent in their area of specialization. The pass must be unanimous and receive the approval of at least two thirds of the voting faculty in a formal faculty meeting.

## Master's Degree

For areas of study, see Doctoral Degree.

The M.A. degree is offered through the thesis plan. Nine courses are required, including three core courses. Seven courses must be at the graduate level.

## Doctoral Degree

Students commonly specialize in one or more of the following areas of geographical knowledge: environmental studies, geomorphology, climatology, biogeography, cartography, and economic, social, cultural/historical, population, and urban geography.

At the M.A. level students emphasize at least one of these specialized areas. The written qualifying examinations for the Ph.D. include one examination each in three of these fields selected by the student in consultation with an adviser. However, because geographical knowledge and its associated research questions frequently transcend disciplinary and subdisciplinary boundaries, students, in consultation with faculty, are expected to refine and deepen their research interests further within, across, and beyond these organized research and teaching areas.

The required core courses for the M.A. must be completed. At least three graduate geography courses in addition to the M.A. coursework are required, as are three upper division or graduate courses in one or two fields outside geography allied to the student's major research area or subdisciplinary specialization.

Written and oral qualifying examinations are required. The written examination consists of five written papers. Three papers pertain to three substantive fields of geographical inquiry in which the student is specializing, one general paper addresses the major issues, developments, and debates in the field at large, and one paper involves a field problem.

Following successful completion of the written qualifying examination, students prepare a dissertation proposal and take the University Oral Qualifying Examination, which focuses on the proposal.

## Geography

### Lower Division Courses

**1. Physical Environment. (4)** Lecture, three hours; laboratory, two hours. Study of Earth's physical environment, with particular reference to the nature and distribution of landforms and climate.

**2. Biogeography: Spatial Dynamics of Biological Diversity in a Changing World. (4)** Lecture, three hours; discussion, 90 minutes. Study of Earth's biosphere, with particular reference to evolution and disturbance of plants, animals, and soils. P/NP or letter grading.

**3. Cultural Geography. (4)** Lecture, three hours; discussion, 90 minutes. Broad examination of basic cultural variables in human occupation of Earth's surface. Ecological, spatial, and historical approaches.

**4. Globalization: Regional Development and World Economy. (4)** Lecture, three hours; laboratory, one hour. Emergence of global economy and examination of its main characteristics, with focus on economic geography in attempting to understand spatial variation in distribution of all forms of human productive activity at different spatial scales. Students to have understanding of basic features of contemporary global space-economy and have a sense of its historical evolution at end of course. P/NP or letter grading.

**5. People and the Earth's Ecosystems. (4)** Lecture, three hours; laboratory, two hours. Examination of historical and contemporary roles of man as a major agent of biological change in Earth's ecosystems.

**M40. Introduction to Statistical Methods for Social Sciences. (5)** (Formerly numbered 40.) (Same as Anthropology M80, Sociology M18, and Statistics M12.) Lecture, four hours; discussion, one hour; laboratory, one hour. Elements of statistical analysis for social sciences. 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.

**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.

## 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.

**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; reading period, one hour. Corequisite: course 105A. Recommended: courses M40, 104. Designed for juniors/seniors. Role of water in geographic systems: hydrologic phenomena in relation to climate, landforms, soils, vegetation, and cultural processes and impacts on the 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.

**106. Applied Climatology: Physical Principles and Practice. (4)** Lecture, three hours; reading period, 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.

**107. Soil and Water Conservation. (4)** Lecture, three hours; discussion, one hour. Requisite: course 1. Recommended: course 105 or 106 or Civil Engineering 150. 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.

**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; reading period, one hour; field trips. Requisites: course 2, 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; reading period, one hour. Requisites: courses 1, 2 or Life Sciences 1, M40. 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.

**M115. Environmentalism: Past, Present, and Future. (4 to 6)** (Same as Urban Planning CM189.) Discussion, three hours; optional field study, five to 10 hours. Exploration of history, politics, and theories of environmental movements, dynamics of race, class, and gender in relation to environmental agendas, and potential role of environmentalism in reshaping our society. Readings, discussion, and research papers. Offered annually as a graduate research seminar and biannually as an undergraduate upper division lecture and field studies program. P/NP or 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 health care.

**120. Conservation of Resources: North America. (4)** Requisites: courses 1, 2. Designed for juniors/seniors. Analysis of basic principles and problems associated with conservation of natural resources in the U.S. and Canada.

**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; discussion, one hour. Requisites: courses 2, 5. Recommended: course M40. 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; discussion, one hour. Preparation: two environmental studies cluster courses. Requisite: course M40. 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. (5)** (Same as Environment M127 and Organismic Biology M127.) Lecture, five hours; discussion, one hour; field trips. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL. 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. Letter grading.

**M128. Global Environment and Development: Problems and Issues. (4)** (Same as Urban Planning CM128.) Lecture, three hours; discussion, one hour. Requisite: course 5. Designed for juniors/seniors. Questions of population, resource use, Third World poverty, and the environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Examination of emergent local and regional coalitions for self-reliance and sustainable development. 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.

**131. Environmental Change. (4)** 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 the Modern World. (4)** Lecture, three hours; discussion, 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.

**137. Historical Geography of American Environment. (4)** Lecture, three hours. Prerequisites: courses 1, 2. Designed for juniors/seniors. Study of systematic changes of natural environment in the 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. Communication 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.

**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.

**143. Geography of Health Care. (4)** Lecture, three hours. Examination of geography of health care delivery and planning, focusing on factors which influence accessibility and utilization of health services by consumers. Spatial aspects of organization of health care influence who gets care where. P/NP or letter grading.

**144. Ethnicity in the American City. (4)** Lecture, three hours; reading period, two hours. Recommended preparation: course 142. Designed for juniors/seniors. Designed to encourage and facilitate critical thinking about geographical aspects of ethnicity in contemporary America, with focus specifically on nonwhite ethnic minorities (blacks, Hispanics, Asian Americans, and Native Americans). Use of a comparative perspective to explain changing distribution, social, economic, and political behavior, and adjustment problems these groups face in the contemporary American city. P/NP or letter grading.

**146. Gender, Race, and Geography of Employment in American Cities. (4)** Lecture, three hours; reading period, two hours. Designed for juniors/seniors. Geography of employment of men and women of different racial and ethnic backgrounds in American cities. Examination of interrelationships between space and division of labor, and spatial restructuring on employment of women and minorities. P/NP or letter grading.

**148. Economic Geography. (4)** Lecture, three hours; reading period, one hour. Prerequisite: course 4. Designed for juniors/seniors. Geographical aspects of economic production and growth. General theory of the space-economy. Land-use processes. Location of industry. Regional development. P/NP or letter grading.

**M149. Transportation Geography. (4)** (Same as Urban Planning M149.) Prerequisite: course 3 or 4. Designed for juniors/seniors. Study of geographical aspects of transportation, focusing on characteristics and functions of the various modes and on complexities of intra-urban transport.

**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 American cities. 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.

**155. Industrial Location and Regional Development. (4)** Lecture, three hours. Prerequisite: 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. Prerequisite: course 4. Recommended: course M40. Examination of empirical and theoretical issues of regional growth and change. Introduction to supply and demand-based models of regional development.

**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

**163. Field Analysis in Biogeography. (4)** Fieldwork, eight hours. Prerequisites: 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. Images of Earth: The World from Above. (4)** Lecture, three hours. Use of maps, charts, diagrams, and other images to show how Earth has been represented through the ages, how they have been influenced by current ideas and, in turn, how they have themselves influenced the course of events. P/NP or letter grading.

**167. Cartography. (6)** Lecture, two hours; laboratory, six hours. Preparation: three courses from 1 through 5. Designed for juniors/seniors. Survey of the 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. Introduction to Geographic Information Systems. (4)** Lecture, two hours; laboratory, two hours. Designed for juniors/seniors. Introduction to basic geographic information systems (GIS) concepts and spatial analysis. Data structures, topology, and attribute information. Laboratory exercises use database query, manipulation, and spatial analysis to address "real world" problems. P/NP or letter grading.

**169. Satellite Remote Sensing and Imaging Geographic Information Systems. (4)** Lecture, two hours; laboratory, one hour. 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 system (GIS) software. P/NP or letter grading.

**170. Advanced Geographic Information Systems. (4)** Lecture, three hours; discussion, one hour. Prerequisite: 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)** (Formerly numbered 171.) (Same as Statistics M140.) Lecture, three hours; laboratory, one hour. Prerequisite: course M40. Introduction to methods of measurement and interpretation of geographic distributions and associations. P/NP or letter grading.

**172. Advanced Remote Sensing and Data Processing. (4)** Lecture, three hours; laboratory, one hour. Prerequisite: 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.

## 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 the historical development of Spanish South America and the contemporary economic and cultural geography of the 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 the historical development of Portuguese South America and the 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. Russia. (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 Russia and former Soviet lands. 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.

**190. Australasia. (4)** Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Regional synthesis of physical and cultural features which characterize Australia, New Zealand, and the islands of the South Pacific. P/NP or letter grading.

**191. California. (4)** Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Systematic and regional treatment of geography of California, including physical, cultural, and economic aspects and detailed studies of the various regions. P/NP or letter grading.

## Special Studies

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Limited to juniors with a B average in the major or seniors.

**199HA-199HB. Honors 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 a 3.5 grade-point average. **199HA.** Independent study course taught by team of two faculty members who assist student with bibliographic research and/or field research on a topic of mutual interest to student and the faculty members. Successful completion of course 199HA entails preparation of a detailed bibliography and outline (to be evaluated by the two faculty members) for writing of a substantial paper during course 199HB. If that work is determined to be of A quality, student is allowed to continue in honors program. If that work is graded B or below, credit is awarded, but student is not permitted to continue in honors program. **199HB.** Devoted to writing of substantial paper researched and outlined in course 199HA. It also is evaluated by the two faculty members. If paper is determined to be of A quality, student graduates with honors in geography. If paper is graded B or below, credit is awarded, but student does not receive honors.

**199I. Independent Studies for Internships. (2 to 4)** Independent studies course to be supervised jointly by Field Studies Office and faculty adviser. Further supervision to be provided by placement for which student is doing internship. May not be applied toward major requirements. P/NP 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, 107. 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 Engineering 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.

**206. Introduction to Biophysical Modeling of Land Surface Processes. (4)** 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 CO<sub>2</sub> fluxes transfer, and satellite data application. Laboratory sessions included. 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 an appropriate graduate course in atmospheric sciences or Earth and space sciences. Analysis of the changing physical environment of the 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 an appropriate graduate course in anthropology, botany, Earth and space sciences, or zoology. Analysis of ecological aspects of environmental change during the 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.

**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 the state, corporations, and local groups, and environmental and social impact of its development. Letter grading.

### Human Geography

**230. Political Ecology. (4)** Seminar, three hours; reading period, three hours. Designed for graduate students. Exploration of theoretical constructs and approaches to analyses of development and the environment associated with political ecology. Examination of relations between poverty, ecological degradation, and global restructuring. Case studies of changing production organization and ecology of land-use patterns within different and emergent economic and political contexts. S/U or letter grading.

**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. Requisite: course 232. 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.

**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.

**244. Topics in Spatial Demography. (4)** Discussion, three hours; reading period, two hours. Selected topics in migration and mobility, especially the nature of housing choice and neighborhood change. May be repeated for credit. S/U or letter grading.

**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.

**254. Migration and Residential Mobility. (4)** Lecture, two hours; discussion, one hour; reading period, one hour. Description and modeling of national, regional, and intra-urban migration.

### 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 requisite: 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.

**269. Remote Sensing of Environment. (4)** 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.

**M270A-M270B-M270C. Seminars: Climate Dynamics. (2 to 4 each)** (Same as Atmospheric 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 the 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 Urban Planning M215.) Lecture, two hours; discussion, one hour; laboratory, one hour. Specific techniques useful in analysis of spatial data and modeling of spatial distributions.

## 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.

## Seminar

**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.

## Core Courses

**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.

**298B. History of Modern Geography. (4)** Lecture, three hours; reading period, one hour. Evolution of the field of geography in the 19th and 20th centuries, with emphasis on professionalization of geography and its emergence as a modern academic discipline.

**298C. 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.

## Special Studies

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

fax: (310) 825-9754  
e-mail: [germanic@humnet.ucla.edu](mailto:germanic@humnet.ucla.edu)  
<http://www.germanic.ucla.edu>

Andrew R. Hewitt, Ph.D., *Chair*

### Professors

Ehrhard Bahr, Ph.D.  
Jesse L. Byock, Ph.D.  
Andrew R. Hewitt, Ph.D.  
Robert S. Kirsner, Ph.D.  
Kathleen L. Komar, Ph.D.  
Wolfgang Nehring, Ph.D.  
James A. Schultz, Ph.D.  
Hans Wagener, Ph.D.

### Professors Emeriti

Franz H. Bäuml, Ph.D.  
Marianna D. Birnbaum, Ph.D.  
Kenneth Chapman, Ph.D.  
Carl W. Hagge, Ph.D.  
William J. Mulloy, Ph.D.  
Victor A. Oswald, Jr., Ph.D.  
Erik Wahlgren, Ph.D.  
Donald J. Ward, Ph.D.  
Terence H. Wilbur, Ph.D.

### Associate Professor

Jill Anne Kowalik, Ph.D.  
Christopher M. Stevens, Ph.D.

### Lecturer

Astrid Klocke, Ph.D.  
Jutta Landa, 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, Old Norse, 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 Old Norse 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.

### 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. Students in Plan C must also take Linguistics 20.

### Transfer Students

To be admitted as German majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of German.

### The Major

Three plans are offered by the department:

#### Plan A: Literature and Culture

Plan A is designed for students who are interested in studying German language and thought by selecting courses in literature, film, folklore, and contemporary culture studies.

*Required:* German 130A, 130B, and 11 upper division German courses, at least three of which must be at the 150 level or above. Two of the 11 courses may be upper division courses in other departments. Students who enroll in any course taught in English translation in the department must sign a contract with the instructor that all texts authored in German are to be read in the original language. The contract must then be filed with the undergraduate adviser. Students may take up to two courses from the 120 series or below in satisfaction of major requirements. Two additional courses from the 120 series or below may be selected if students elect not to take courses in other departments. All courses must be taken for a letter grade.

#### Plan B: German Studies

Plan B is designed for students whose interests are primarily interdisciplinary in nature. Departmental majors receive credit not only for upper division courses in German literature, film, folklore, and contemporary culture, but for courses in related fields such as history, political science, philosophy, music, and others.

*Required:* German 130A, 130B, seven upper division German courses (at least two of which must be at the 150 level or above), and four upper division courses in a related field or fields selected in consultation with the undergraduate adviser. Students who enroll in any course taught in English translation in the department must sign a contract with the instructor that all texts authored in German are to be read in the original language. The contract must then be filed with the undergraduate adviser. Only two such contract courses may be applied toward the major. All courses must be taken for a letter grade.

#### Plan C: Germanic Languages/Linguistics

Plan C is intended for students interested in the study of languages and linguistics and al-

# GERMANIC LANGUAGES

*College of Letters and Science*

UCLA  
212 Royce Hall  
Box 951539  
Los Angeles, CA 90095-1539  
(310) 825-3955

lows students to study more than one Germanic language.

*Required:* German 130A, 130B, 150, 170, C172, and eight additional upper division courses as follows: three courses in one other Germanic language (Scandinavian languages taught in the Scandinavian Section may be applied by petition to the undergraduate adviser), three linguistics courses from outside the department (i.e., anthropology, applied linguistics, linguistics, sociology) selected in consultation with the undergraduate adviser, and two electives from department offerings (excluding German 100A, 100B, 100C, and courses taught in English translation). All courses 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 195 with a grade of A. Contact the departmental honors adviser for procedures, special arrangements, possible exceptions, and other information.

## Single Subject Credential in German

Students desiring the single subject credential in German should consult the Department of Education, 1009 Moore Hall (310-825-8328), and the Department of Germanic Languages.

## 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):* Any five German courses (excluding German literature in translation).

All minor courses must be taken for a letter grade, with 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), Hungarian, Old Norse, Scandinavian languages, Yiddish.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Germanic Languages offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Germanic Languages and Master of Arts (M.A.) degree in Scandinavian (see Scandinavian Section).

### Admission

Though a bachelor's degree in German, Germanic linguistics, or linguistics with a minor in German and a minimum grade-point average of 3.0 from an accredited U.S. institution or the equivalent is preferred for admission to the M.A. program, the department accepts students from a variety of undergraduate backgrounds. Applicants with deficiencies in undergraduate preparation are considered but if admitted are required to take remedial courses, as recommended by the graduate adviser. Three letters of recommendation are required. Graduate Record Examination (GRE) scores are required from applicants from the U.S. and other English-speaking countries.

In addition to these requirements, an M.A. degree in German or a Germanic language from an accredited U.S. institution is required for admission to the Ph.D. program. Also acceptable are European degrees such as German or Austrian *Staatsexam*, a German or Austrian *Magister*, or a Swiss *Lizenziat*. A German *Zwischenprüfung* is not acceptable. In the case of significant deficiencies in prior training, the graduate advisers make appropriate study or course recommendations. All deficiencies must be removed prior to taking the qualifying examinations.

Applicants with an M.A. in fields other than German (for example, in Comparative Literature or in Linguistics) are required to pass the written part of the M.A. comprehensive examination in German or Scandinavian, as applicable, within three quarters after admission to the department.

### Master's Degree

The M.A. degree is offered through the comprehensive examination and thesis plans. There are three M.A. plans that differ with respect to course requirements and comprehensive examinations. Plan A is for students who plan to terminate their studies with the M.A. and an instructional credential. Plan B is for students whose main interests are in literature,

culture, or German studies and who plan to proceed toward the Ph.D. Plan C is for students whose main interests are in German linguistics and who plan to proceed toward the Ph.D.

A minimum of nine upper division and graduate courses are required, of which at least six must be graduate-level courses. Course requirements differ by plan. Graduate students are expected to attend and participate in departmental lectures and colloquia.

There is a language requirement for this degree.

## Doctoral Degree

Ph.D. students must complete eight graduate courses (at least four in the department) beyond the M.A. degree, three of which are seminars. If students have already taken a seminar in preparation for their M.A. degree, only two of the eight courses must be seminars.

Written and oral qualifying examinations are required. Students in literature, culture, and German studies are expected to cover six different areas: one author, one genre, one period, one theoretical or historical problem, and two special topics of their choosing. Students in linguistics complete an examination in five target languages and a second examination in linguistic theory.

Students in Old Norse are examined in language, in theoretical problems of interpretation, and on issues concerning social and historical context. Students in Scandinavian complete an examination in their major Scandinavian literature and a second examination in the other two Scandinavian literatures. Alternatively, students in literature may choose to cover the six areas in three examinations, each of which is devoted to two of the six areas they have chosen.

Following successful completion of the written examinations, students take the University Oral Qualifying Examination.

There is a language requirement for this degree.

## Afrikaans

### Upper Division Courses

**105A. Elementary Afrikaans. (4)** Lecture, four hours; language laboratory. Introduction to a sister language of modern Dutch and a 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.

**114. From Oppressed to Oppressor and Beyond: Literature in Afrikaans from Preapartheid to Postapartheid Era, in English Translation. (5)** Lecture, four hours. 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. Letter grading.



**135. Introduction to Afrikaans Literature. (4)** Discussion, three hours. Requisite: course 105B. Analysis of selected works from founding of the Genootskap van Regte Afrikaners in 1875 to the 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. Special Studies in Afrikaans. (2 to 4)** Tutorial, to be arranged. Independent studies course for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite. Letter grading.

## Graduate Courses

**596. Directed Individual Study or Research in Afrikaans. (4)** Tutorial, to be arranged with faculty member who directs the 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

### Upper Division Courses

**100. Modern Dutch Culture and Society. (4)** Lecture, three hours. Lectures, discussions, and readings in English. Survey of art, architecture, literature, film, Dutch government (including 'Pillarization' — *verzuijing*), the two World Wars, housing policy, mass media, and rise of a multiracial society. Letter grading.

**103A-103B. Elementary Dutch. (4-4)** Lecture, four hours; language laboratory. Course 103A is requisite to 103B. Introduction to the standard language of the Netherlands and one of the 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 the 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 the 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 the Netherlands and northern (Flemish) Belgium from the mid-1850s to the present, including novels by such writers as Multatuli, Couperus, Hermans, Mulisch, and Reve and poetry by such groups as the symbolist *Beweging van Tachtig* and the post-War *Beweging van Vijftig*. P/NP or letter grading.

**199. Special Studies in Dutch. (2 to 4)** Tutorial, to be arranged. Independent studies course for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite. Letter grading.

## Graduate Courses

**596. Directed Individual Study or Research in Dutch. (4)** Tutorial, to be arranged with faculty member who directs the 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 the 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)** 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)** 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)** Reading and translation, three hours. Requisite: 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 requisite: course 3. P/NP or letter grading.

**5. Intermediate German. (4)** Lecture, four hours; laboratory, one hour. Enforced requisite: course 4. P/NP or letter grading.

**6. Intermediate German. (4)** Lecture, four hours; laboratory, one hour. Enforced requisite: 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 requisite: 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 requisite: course 3. Conversation course designed for intermediate and advanced students who wish to improve their spoken command of the language. 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. (4-4)** Lecture, three hours. May not be applied toward completion of the 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 the earliest period, such as the heroic and courtly epic, to authors such as Grimmshausen, Lessing, Schiller, and Goethe. P/NP or letter grading.

**50B. Romanticism to the Present. (4)** Lecture, three hours. 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. The City as Text: German Exile Culture in Los Angeles. (4)** Lecture, three hours. 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.

**60W. War. (5)** Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H. 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, a war in which political and military confrontation seemed particularly attuned to a sense of confrontationalism and scandal in cultural life. Satisfies Letters and Science Writing II requirement. Letter grading.

**62W. Technoscience and German Culture. (5)** Seminar, four hours. Enforced requisite: English Composition 3 or 3H. 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 Letters and Science Writing II requirement. Letter grading.

**70. Origin of Language. (4)** Lecture, three hours. Theoretical and methodological issues surrounding origin of language. Topics include theory of evolution, evolution of man, how language is organized in the brain, and science of language, in particular physiology of speech, phonetics, and comparative reconstruction. Letter grading.

**88. Lower Division Seminar. (4)** Discussion, three hours. Course of variable content limited to topics of current interest and offered whenever a staff member is available.

### Upper Division Courses

**100A. German History and Culture before 1500. (4)** Lecture, three hours; discussion, one hour. Lectures, discussions, and readings in English; knowledge of German not required. Study of German culture and society from the beginning to 1500 as represented in literature, art, and architecture. P/NP or letter grading.

**100B. German History and Culture from 1500 to 1914. (4)** Lecture, three hours; discussion, one hour. Lectures, discussions, and readings in English; knowledge of German not required. 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.

**100C. German History and Culture from 1914 to the Present. (4)** Lecture, three hours; discussion, one hour. Lectures, discussions, and readings in English; knowledge of German not required. Study of development of German culture and society as represented in literature, art, music, and architecture from 1914 to the present. P/NP or letter grading.

**102A. German Film in Cultural Context: Early German Film. (4)** (Formerly numbered 121B.) Lecture, two hours; discussion, one hour. Lectures and texts in English; additional readings in German for majors. 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.

**102B. German Film in Cultural Context: New German Film. (4)** (Formerly numbered 121C.) Lecture, two hours; discussion, one hour. Lectures and texts in English; additional readings in German for majors. Survey of German film since 1960 in its thematic and stylistic diversity. Films authored by Werner Herzog, Fassbinder, and Margarethe von Trotta are juxtaposed with commercial comedies of the 1990s. Film discussions enhanced by interactive media. Letter grading.

**M104. Tristan, Isolde, and History of Heterosexuality. (4)** (Formerly numbered M119K.) (Same as Women's Studies M119.) Lecture, three hours. German, French, and English versions of Tristan and Isolde story from Middle Ages to the 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. The Faust Tradition from the Renaissance to the Modern Age. (4)** (Formerly numbered 119C.) Lecture, three hours. Readings and discussions of the Faust theme in European literature and intellectual history, including chapbook of *Doktor Faustus*, Marlowe's and Goethe's dramas, and Thomas Mann's and Bulgakow's novels. Letter grading.

**M108. Love and Sex in German Literary Tradition.**

(4) (Formerly numbered 108.) (Same as Women's Studies M108.) Lecture, three hours. Study of major literary works that address issues of idealized desire, emotional/sexual boundaries, and development of sexual identity. Letter grading.

**110. Nietzsche and Critique of Western Culture.**

(4) (Formerly numbered 118.) Lecture, two hours; discussion, one hour. 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.

**112. Jewish Writing and Thought in German Culture from 1755 to the Present.**

(4) (Formerly numbered 119F.) Lecture, three hours. 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.

**114. German Exile Culture in Los Angeles.**

(4) Lecture, three hours. 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.

**116. Special Topics in Modern Literature and Culture.**

(4) (Formerly numbered 119E.) Lecture, three hours. 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.

**118. Feminist Issues in German Literature and Culture.**

(4) (Formerly numbered 121E.) Lecture, three hours. 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.

**120. German Folklore.**

(4) (Formerly numbered 134.) Lecture, three hours. Survey of various folklore genres in cultural context, including legends, proverbs, and cultural enactments such as carnival. Letter grading.

**M122. Fairy Tales in Literature and Society.**

(5) (Formerly numbered M119I.) (Same as Folklore M119.) Lecture, four hours. 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. Letter grading.

**130A-130B. Conversation and Composition on Contemporary German Culture and Society I, II.**

(4-4) (Formerly numbered 108A-108B.) Lecture, three hours. Requisite: course 6. Course 130A is requisite to 130B. 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.

**132. Business German.**

(4) (Formerly numbered 102.) Lecture, three hours. Requisite: course 6. 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 the Internet. P/NP or letter grading.

**134. Advanced German Language through Cultural History and Current Affairs.**

(4) (Formerly numbered 128.) Lecture, three hours. Requisites: courses 130A, 130B. 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.

**136. Theory and Practice of Translation.**

(4) (Formerly numbered 103.) Lecture, three hours. Requisite: course 130B with a grade of B or better. German/English and English/German translation of literary texts, popular press articles, and business documents, with attention to issues of style. Letter grading.

**140A. Introduction to German Poetry.**

(4) (Formerly numbered 101A.) Lecture, three hours. 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.

**140B. Introduction to German Drama.** (4) (Formerly numbered 101B.) Lecture, three hours. 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.

**140C. Introduction to German Narrative Prose.**

(4) (Formerly numbered 101C.) Lecture, three hours. 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.

**142. Introduction to 18th-Century Studies.**

(4) (Formerly numbered 104.) Lecture, three hours. Topics in Enlightenment literature, social history, and culture. Works by Goethe, Lessing, Schiller, Kant, Mozart, and others. Letter grading.

**144. Introduction to 19th-Century Studies.**

(4) (Formerly numbered 105.) Lecture, three hours. Presentation of major texts from Romanticism to realism. Works by Kleist, Büchner, Heine, Fontane, and others. Letter grading.

**146. Introduction to Modern Literature.**

(4) (Formerly numbered 106.) Lecture, three hours. 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.

**148. Introduction to Contemporary Literature.**

(4) (Formerly numbered 107.) Lecture, three hours. Analysis and discussion of German, Austrian, Swiss, and ex-GDR literatures from 1945 to the present. Examination of writers such as Heinrich Böll, Günther Grass, Friedrich Dürrenmatt, Elfriede Jelinek, and Christa Wolf with a view to their specific political and cultural context. Letter grading.

**150. Language and Linguistics.**

(4) (Formerly numbered 129.) Lecture, three hours. Requisite or corequisite: course 130A. 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.

**152. Studies in German Literature before 1750.**

(4) (Formerly numbered 122.) Lecture, three hours. Requisite: course 140A. Readings and analysis of major works from the Middle Ages to the baroque. Letter grading.

**154. Goethe.**

(4) (Formerly numbered 123.) Lecture, three hours. Requisite: course 130A. Reading and discussion of representative works (except *Faust*) from Goethe's early period through maturity and old age. Letter grading.

**156. Goethe's *Faust*.**

(4) (Formerly numbered 132.) Lecture, three hours. Requisite: course 130A. Detailed interpretation of Goethe's major work, Parts I and II, together with general consideration of other treatments of the *Faust* theme in European literature. Letter grading.

**158. Romanticism.**

(4) (Formerly numbered 124.) Lecture, three hours. Requisite: course 130A. Reading and analysis of major works by German Romantics, including Friedrich Schlegel, Novalis, E.T.A. Hoffmann, and Eichendorff. Letter grading.

**160. Advanced Study of Modern Literature.**

(4) (Formerly numbered 126.) Lecture, three hours. Requisite: course 130A. Naturalism, Expressionism, and other early 20th-century literary movements and works. Letter grading.

**162. Advanced Study of Contemporary Literature and Culture.**

(4) (Formerly numbered 127.) Lecture, three hours. Requisite: course 130A. Literature after 1945 in German-speaking countries, including issues such as national borders, ethnic identity, gender relations, and commercialization of culture. Letter grading.

**170. Current Topics in Germanic Linguistics.**

(4) (Formerly numbered 137.) Lecture, three hours. Requisite: course 130A. 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. Letter grading.

**C172. Linguistic Theory and Grammatical Description.**

(4) (Formerly numbered C138.) Lecture, three hours. Requisite: course 150 or Linguistics 20. 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.

**190. 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.

**195. Senior Thesis Course.**

(4) Extensive reading, research, and writing of senior thesis. May be used for writing honors thesis.

**199. Independent Studies.**

(2 to 4) Tutorial, to be arranged with faculty member who directs the study (course section to be identified using departmental code number — see department for appropriate faculty code). Course for students who desire more intensive or specialized investigation of material covered in a regular course. 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 post-structuralism. 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 reading. 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) (Formerly numbered 205.) Lecture, three hours. Selected readings from 1500 to 1700, with introduction to development of German as a 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) (Formerly numbered 206A, 206B.) Lecture, three hours. Analysis of major 18th-century German texts from philosophic, social-historical, psychohistorical, and literary perspectives. Letter grading.

**207. Weimar Classicism.**

(4) (Formerly numbered 207A, 207B.) 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 Hoffmann, 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 the 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, socio-political 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 the 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 the 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)** (Formerly numbered 211A.) 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 the divided Germany, gender expectations, and social-political attitudes. Letter grading.

**212. Contemporary Literature and Culture. (4)** (Formerly numbered 211B.) 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 the present. Study of media theory, feminist film theory, and interrelationships between film, literature, and social history. Letter grading.

**217. History of the German Language. (4)** Historical survey of development of the standard literary German language from the time of Indo-European unity through proto-Germanic, West Germanic, medieval period, Reformation, baroque period, and Enlightenment until its final codification at the end of the 19th century.

**230. Survey of Theory in Historical Linguistics. (4)** Lecture, three hours. Systematic overview of theories of historical linguistics. Letter grading.

**231. Gothic. (4)** Systematic study of phonology and grammar of the Gothic language, with readings in Wulfila's translation of the Bible and introduction to history of the Goths and their place in the development of modern Europe.

**232. Old High German. (4)** 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.

**233. Old Saxon. (4)** Introduction to study of earliest documents in Old Low German. Readings in the *Heliand* and study of the *Old Saxon Genesis*.

**C238. Linguistic Theory and Grammatical Description. (4)** Lecture, three hours. Prerequisite: course 150 or Linguistics 20. 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 C172. Graduate students meet as a 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)** Topics selected from the field of historical German phonology and syntax according to needs and preparation of students enrolled (e.g., West Germanic problem and classification of the Germanic languages, development of Germanic verbal and nominal morphology, proto-Germanic syntax).

**253. Seminar: Medieval Literature. (4)** Seminar, three hours. Investigation of a 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 philosophical 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 the French and American Revolutions. Letter grading.

**258. Seminar: Romanticism. (4)** Discussion of a specific author or topic from the Romantic period, possibly in close connection with course 208. Critical review of secondary works.

**259. Seminar: 19th-Century Literature. (4)** Discussion of a specific author or topic of 19th-century literature, possibly in close connection with course 209A, 209B, or 209C. Critical review of secondary works.

**260. Seminar: Modern Period. (4)** Seminar, three hours. In-depth analysis of a particular issue in pre-1945 German literature and culture. Letter grading.

**261. Seminar: Contemporary Literature. (4)** Seminar, three hours. In-depth analysis of a 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.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**495. Approaches to Foreign Language Pedagogy. (4)** (Formerly numbered 495A, 495B.) 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.

**596. Directed Individual Study or Research. (4)** To be arranged with faculty member who directs the 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; however, only one course in the 500 series may be applied toward M.A. graduate course requirement. S/U grading.

**597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (4)** To be arranged with faculty member who directs the study (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). May be taken only once before and only once after M.A. degree, except for Ph.D. candidates with a formal minor field of studies who may take course twice after M.A., once in the major and once in the minor. Only one course in the 500 series may be applied toward M.A. graduate course requirement. S/U grading.

**598. Research for and Preparation of M.A. Thesis. (4 to 12)** To be arranged with faculty member who directs the study (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). Only one course in the 500 series may be applied toward M.A. graduate course requirement. S/U grading.

**599. Research for and Preparation of Ph.D. Dissertation. (4 to 12)** To be arranged with faculty member who directs the study (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). May be repeated. S/U grading.

## Upper Division Courses

**C139. The Saga. (4)** Seminar, three hours. The sagas are the largest extant medieval prose literature. Texts in English, with selections from the different types of Icelandic sagas. Consideration of the history and society that produced these narratives. Concurrently scheduled with course C268.

**C140. Viking Civilization and Literature. (4)** 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 C241.

**C145. Old Norse Literature and Society. (4)** Seminar, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C272.

**151. Elementary Old Norse. (4)** Introduction to grammar and pronunciation of Old Norse. Selected readings from the sagas and *Prose Edda*.

**152. Intermediate Old Norse. (4)** Requisite: course 151. Continued grammar, pronunciation, and readings from the *Eddas* and sagas of Icelanders, Norwegian kings, and legendary heroes.

**153. Modern Icelandic. (4)** Requisite: course 152. Grammar, readings, and conversation.

**199. Special Studies in Old Norse. (2 or 4)** Independent studies course for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite.

## Graduate Courses

**221. Advanced Old Norse Prose. (4)** Requisite: course 152. Readings of major saga texts. Also, secondary sources which bear on specific issues in Old Norse literature and medieval Scandinavian history.

**222. Advanced Old Norse Poetry. (4)** Requisite: course 152. Readings of mythological and heroic poems from *Poetic Edda*. Secondary sources used where appropriate.

**C241. Viking Civilization and Literature. (4)** 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 C140. Graduate students do additional readings and write more extensive research papers.

**245A. Germanic and Scandinavian Mythology. (4)** Seminar, three hours. Study of Northern myth and religion through close reading of Eddic texts and secondary sources.

**C268. The Saga. (4)** Seminar, three hours. The sagas are the largest extant medieval prose literature. Texts in English, with selections from the different types of Icelandic sagas. Consideration of the history and society that produced these narratives. Concurrently scheduled with course C139. Graduate students do additional readings and write more extensive research papers.

**C272. Old Norse Literature and Society. (4)** Seminar, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C145. Graduate students do additional readings and write more extensive research papers.

**596. Directed Individual Study or Research. (4)** To be arranged with faculty member who directs the 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; however, only one course in the 500 series may be applied toward M.A. graduate course requirement. S/U grading.

**597. Preparation for Ph.D. Qualifying Examinations. (4)** To be arranged with faculty member who directs the study (see department for I.D. number). S/U grading.

## Old Norse Studies

### Lower Division Course

**40. The Heroic Journey in Northern Myth, Legend, and Epic. (4)** Comparison of the journeys of heroes. Readings in mythology, legend, folktale, and epic, including *Nibelungenlied*, *Volsunga saga*, *Eddas*, and *Beowulf*. Cultural and historic backgrounds to the texts. All readings in English.

# GERONTOLOGY

Interdepartmental Program  
College of Letters and Science

UCLA  
8631 Franz Hall  
Box 951563  
Los Angeles, CA 90095-1563  
(310) 206-0312  
e-mail: gerontol@psych.ucla.edu  
http://www.psych.ucla.edu/Undergrad/  
gerontology\_minor.htm

Larry L. Butcher, Ph.D., *Director*

## Faculty Advisory Committee

Larry L. Butcher, Ph.D., *Chair*  
Robert M. Emerson, Ph.D.  
James E. Lubben, D.S.W.  
Kathleen M. McGarry, Ph.D.  
Gary W. Small, M.D.

## Affiliated Faculty

### Professors

Emily K. Abel, Ph.D. (*Health Services*)  
Larry L. Butcher, Ph.D. (*Psychology*)  
Rita B. Effros, Ph.D., *in Residence (Pathology and  
Laboratory Medicine)*  
Robert M. Emerson, Ph.D. (*Sociology*)  
James E. Lubben, D.S.W. (*Social Welfare*)  
Donald G. MacKay, Ph.D. (*Psychology*)  
Arnold B. Scheibel, M.D. (*Neurobiology, Psychiatry  
and Biobehavioral Sciences*)  
Fernando M. Torres-Gil, Ph.D. (*Social Welfare*)  
F. Eugene Yates, M.D. (*Medicine*)

### Associate Professor

Kathleen M. McGarry, Ph.D. (*Economics*)  
Steven P. Wallace, Ph.D. (*Community Health  
Sciences*)

### Adjunct Associate Professors

JoAnn Damron-Rodriguez, Ph.D. (*Social Welfare*)

## Scope and Objectives

The explosive expansion of the older population in this country and the world — the “Age Revolution” — insures 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 age.

## Undergraduate Study

### 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, M150, Community Health Sciences 90, Psychology M117J, 124G, 189, 193 (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).

All minor courses must be taken for a letter grade, with 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.) Prerequisite: 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.

**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.

**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 the aged; caregiving relations and institutions; professions concerned with the aged and aging.

# HEALTH SERVICES

School of Public Health

UCLA  
31-269 Center for the Health Sciences  
Box 951772  
Los Angeles, CA 90095-1772  
(310) 825-2594, 825-7863  
http://www.ph.ucla.edu/hs/

Ronald M. Andersen, Ph.D., *Chair*  
Thomas H. Rice, Ph.D., *Vice Chair*

## Professors

Emily K. Abel, Ph.D.  
Ronald M. Andersen, Ph.D. (*Fred W. and Pamela K.  
Wasserman Professor of Health Services*)  
Robert H. Brook, M.D., Sc.D.  
E. Richard Brown, Ph.D.  
William Comanor, Ph.D.  
Jonathan E. Fielding, M.D., M.P.H.  
Patricia A. Ganz, M.D.  
Ronald Hays, Ph.D.  
Charles E. Lewis, M.D., Sc.D.  
Marvin Marcus, D.D.S.  
Thomas H. Rice, Ph.D.  
Stuart O. Schweitzer, Ph.D.  
Martin Shapiro, M.D.  
Paul R. Torrens, M.D., M.P.H.

## Professors Emeriti

Lester Breslow, M.D., M.P.H.  
Carl E. Hopkins, Ph.D., M.P.H.  
William Shonick, Ph.D.

## Associate Professors

Roshan Bastani, Ph.D., *in Residence*  
William E. Cunningham, M.D., M.P.H.  
Susan L. Ettner, Ph.D.  
Gerald F. Kominski, Ph.D.  
Mark S. Litwin, M.D., M.P.H.  
John Peabody, M.D., Ph.D., *in Residence*

## Assistant Professors

Jeff Luck, Ph.D., M.B.A., *in Residence*  
Patricia Parkerton, Ph.D., *in Residence*  
Ninez Ponce, Ph.D., *in Residence*  
Mark Schuster, M.D., Ph.D., *in Residence*

## Lecturers

Bruce W. Bennett, Ph.D.  
Alain Jourdir  
Richard Sinaiko, M.P.H.

## Adjunct Professors

Ellen Alkon, M.D., M.P.H.  
Michael Bobrow, A.I.A.  
Stuart P. Bowne, M.D.  
Jose Escarce, M.D.  
Arlene Fink, Ph.D.  
Emmett Keeler, Ph.D.  
Jacqueline B. Kosecoff, Ph.D.  
Eric McLaughlin, Ph.D., M.B.A.  
Ruth J. Roemer, J.D., *Emerita*  
Iraj Tabibzadeh, M.D.

## Adjunct Associate Professors

Barbara Berman, Ph.D.  
Dana Goldman, Ph.D.  
Raymond D. Goodman, M.D., M.P.H.  
Nancy D. Harada, Ph.D.  
Antonio Legorreta, Ph.D.  
William McCarthy, Ph.D.  
Anthony Schiff, J.D.

## Adjunct Assistant Professor

Pamela L. Davidson, Ph.D.  
Melissa Farmer, Ph.D.  
F.A. Hagigi, Dr.P.H., M.B.A., C.M.C.  
Diana W. Hilberman, Dr.P.H.  
Nadereh Pourat, Ph.D.  
Jon Riddle, Ph.D.  
Louis Rubino, Ph.D.  
Amardeep Thind, M.D., Ph.D.

Elizabeth M. Yano, 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 Health Care 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

.For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs, and included on their websites.

## Graduate Degrees

The Department of Health Services offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Health Services.

## Admission

Applicants to the M.S. program should see the Master of Public Health (M.P.H.) admission section under Public Health Schoolwide Programs. Admission requirements for the M.S. in Health Services are the same as for the M.P.H.

For the Ph.D. program, in addition to the University minimum requirements, the department requires (1) satisfactory performance on the Graduate Record Examination (GRE), (2) at least a 3.0 junior/senior grade-point average, at least a 3.5 GPA in graduate studies or demonstrated superiority in graduate work, and at least a B in each of the mandatory core courses, (3) a positive recommendation by the Health Services Department, (4) approval by the doctoral admissions committee and the department chair, (5) completion of the M.S. in Health Services or an appropriately related field is preferred, (6) submission of a writing sample, preferably a master's thesis or equivalent. Screening examinations may be required by the department.

## Master's Degree

The M.S. degree is offered through the comprehensive examination and thesis plans. Students must complete 16 full courses (64 units). A minimum of five courses must be at the graduate level. Students must complete required coursework in health services, as well as introductory courses in biostatistics and epidemiology. Students are strongly encouraged to take advanced courses in biostatistics and epidemiology. Elective courses should be selected in consultation with an adviser and may be chosen from offerings in the department or other departments in the School of Public Health.

Students with a prior doctoral-level degree (M.D., Ph.D., J.D., D.D.S., or equivalent), and relevant experience, must complete 12 full courses (48 units). Students are encouraged to substitute advanced courses in specific areas if previous academic work provides adequate preparation.

## Doctoral Degree

In addition to the requirements for an M.S. in Health Services, major field course requirements include required courses in health services and biostatistics. A cognate is required with at least three courses from a department that grants a Ph.D. degree. Acceptable cognate areas are chosen from one of the following areas: economics, epidemiology, health care outcomes research, history, management, pharmaceutical economics, policy studies, political science, psychology, and sociology.

Written and oral qualifying examinations are required. Students must pass a written examination in the major field, complete the requirements in a minor field, and pass an oral qualifying examination on the major and minor fields. Following successful completion of the

written examination, students take the University Oral Qualifying Examination.

## Health Services

### Lower Division Course

**88. Lower Division Seminar: Special Topics in Health Services. (4)** Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in health services approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member. Letter grading.

### 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 health care system; issues and forces shaping its future. P/NP or letter grading.

**M110. Ethnic, Cultural, and Gender Issues in America's Health Care Systems. (4)** (Same as Asian American Studies M110.) Lecture, three hours. Designed for juniors/seniors. Introduction to study of gender, ethnicity, and cultural diversity related to health status and health care delivery in the U.S. Letter grading.

**131. Structure and Function of Health Care Facilities. (4)** Lecture, two hours; discussion, two hours. Requisite or corequisite: course 100. Introduction to structure, organization, and function of health care facilities. P/NP or letter grading.

**132. Financial and Managerial Accounting for Health Services Organizations. (4)** Lecture, four hours. Requisite: course 100. Introduction to financial and managerial accounting and its application to the health services industry. P/NP or letter grading.

**133. Introduction to Health Economics. (4)** Lecture, four hours. Presentation of tools of economic analysis. Topics include introductory concepts of microeconomics, theory of demand for health insurance and health care, substitution of health personnel, hospital cost functions, and costs and benefits of health programs. P/NP or letter grading.

**134. Introduction to Comprehensive Health Planning. (4)** Lecture, four hours; fieldwork, four hours. Preparation: one upper division microeconomics, statistics, calculus, or political science course. Concepts underlying health planning, state of the art, and some relevant literature. P/NP or letter grading.

**136. Introduction to Health Services Research. (4)** Lecture, four hours. Requisite: Biostatistics 100A. Review of the field of health services research. Uses of quantitative methods and applications of conceptual/theoretical constructs (as well as methodologies) from social and behavioral sciences and epidemiology to studies of workings of health services. P/NP or 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.

**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.

**199. Special Studies. (2 to 4)** Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to seniors. Individual undergraduate guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Only 4 units may be taken each term. Letter grading.

## Graduate Courses

**200A-200B. Health Systems Organization and Financing. (4-4)** (Formerly numbered 200A-200B-200C.) Lecture, four hours; discussion, two hours. Limited to graduate health services students. In-depth analysis of health services systems in the U.S., using relevant theories, concepts, and models. S/U or 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 and S/U or letter 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.

**214. Measurements of Effectiveness and Outcomes of Health Care. (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.

**220. Seminar: Cost Containment. (4)** Seminar, three hours. Through lectures and discussion of journal articles, analysis of success and failure of alternative methods of controlling U.S. health care costs. Examination of how other countries have controlled their costs. Letter grading.

**221. Tobacco: Prevention, Use, and Public Policy. (4)** Lecture, three hours; discussion, one hour. 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 the U.S., and international trends in tobacco use. 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 health care providers, health care institutions, health care 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 the life cycle of public policy. Letter grading.

**234. Health Services Organization and Management Theory. (4)** Lecture, four hours. Preparation: two upper division social sciences courses. Requisites: courses 100, 131. Application of contemporary organization and management theory to systems that provide personal health care 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)** (Formerly numbered 236.) (Same as Policy Studies M268.) Lecture, four hours; discussion, two hours. Preparation: intermediate microeconomics. Requisite: Biostatistics 100A. Microeconomic aspects of the health care system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading.

**237A-237B. Special Topics in Health Services Research Methodology. (4-4)** Lecture, one hour; discussion, three hours. Requisites: Biostatistics 100A, 100B. In-depth consideration of problems in application of statistical and other quantitative methods in health services research. Critique of adequacy of study designs, appropriateness of analyses, and degree to which conclusions are supported by data. Letter grading.

**237C. Issues in Health Services Methodologies. (4)** Lecture, four hours. Requisites: courses 237A, 237B. Designed for doctoral students. Intended to assist students in understanding the research process and its application in study of health services in the U.S. Introduction to issues related to reporting, disseminating, and documenting research findings. Letter grading.

**238. Politics of Health Care. (4)** Lecture, four hours. Requisite: course 100. Concepts and procedures for political analysis; national, state, and local politics in health care; examination of selected case studies. S/U or letter grading.

**239. Aging and Long-Term Care. (4)** Lecture, four hours. Requisites: courses 100, 238, Community Health Sciences 270A, 270B. Long-term care of the chronically ill elderly examined from perspective of political and sociodemographic trends, including populations at risk, policy options, and alternative forms of care such as nursing homes, home care, and care by informal support systems. Letter grading.

**240. Health Care Issues in International Perspective. (4)** Lecture, four hours. Preparation: two health administration courses, two upper division social sciences courses. Analysis of crucial issues in health care; manpower policy, economic support, health facilities, patterns of health service delivery, regulation, planning, and other aspects of health care 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)** (Formerly numbered M241.) (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.

**244. Seminar: Health Services and Policy Evaluation. (4)** Seminar, four hours. Preparation: basic courses in program evaluation and health services organization. Requisites: Biostatistics 100A, 100B. Designed for doctoral students. Seminar applying alternative evaluation research theories and methods to health service organizations and systems. Topics include linking evaluation criteria to policy decisions, theories, and previous research; political and organizational context of evaluation; utilization of findings; and meta-evaluation. S/U or letter grading.

**245. Society's Response to Aging. (4)** Lecture, four hours. Preparation: two health services courses, two upper division social sciences courses. Examination of central issues of health care delivery to the elderly in the U.S. Topics include demographic trends, economic characteristics, health status, demand for care, health care financing, long-term care, and continuum of care for the aged. S/U or letter grading.

**246. Seminar: Special Populations — Health Services Policy Issues. (4)** Seminar, four hours. Requisites: courses 200A, 200B, 232, 238. Limited to doctoral students or M.S. and M.P.H. students with advanced degrees. Doctoral-level seminar which focuses on health services for selected priority population groups, integrating scientific, organizational, economic, ethical, and political evidence as a basis for public policy. Different populations may be selected for attention each year. Letter grading.

**247. Research Topics in Health Economics. (4)** Lecture, four hours. Requisites: courses 100, M236, 446. Seminar in economic analysis of current health services issues. Critical examination of studies pertaining to health manpower, health care 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)** (Formerly numbered 249E.) (Same as Policy Studies M266.) Seminar, four hours. Requisites: courses 200A, 200B, M236. Advanced treatment of a 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. Techniques in Medical Technology Assessment: Decision Analysis and Cost-Effectiveness. (4)** Seminar, three hours. Requisites: courses 200A, 200B. Doctoral-level seminar focusing on techniques to assess a 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.

**M249J. Mental Health Services. (4)** (Same as Psychiatry M251.) Lecture, three hours. Requisites: courses 200A, 200B, 200C. Designed for doctoral students. Survey of contemporary American delivery of health services to emotionally and mentally ill and retarded. Analysis of characteristics of such services, with historical background of their evolution and projections of their future prospects. 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)** (Formerly numbered 249L.) (Same as Community Health Sciences M249L.) Lecture, four hours. Requisites: courses 200A, 200B, 200C. 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.

**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 Health Care 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 health care management, as well as written and oral presentation of those results. Letter grading.

**250. Evolution of Health Professions in the 20th Century. (4)** Lecture, two hours; discussion, two hours. During the 20th century there have been dramatic changes in composition of "helping" professions. Review of forces responsible for these changes and description of processes by which lay persons are educated/socialized into major subgroups of health professions. Review of major social forces external to health care system that affect its composition. Letter grading.

**251. Process Improvement and Information Systems in Health Care Organizations. (4)** Lecture, four hours. Requisites: course 100, Biostatistics 100A. Introduction to concepts of health care quality measurement, process improvement, and information systems, as well as organizational aspects of implementing them. Letter grading.

**M252. Medicare Reform. (4)** (Same as Policy Studies 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.

**M253. Advanced Topics in Health Services Research: Access to Care. (4)** (Same as Community Health Sciences M253.) Lecture, three hours. Requisites: courses 237A, 237B, and 237C, or Community Health Sciences 210, 270A, and 270B. Doctoral seminar designed to explore health services research regarding access to health care and policies to enhance access. Topics include conceptual frameworks, measurement issues, study designs, analytic approaches, and substantive findings and trends in access and access-related policies. Letter grading.

**260A-260B. World Health. (2-2)** Lecture, two hours. Designed for graduate students. Overview of world health, with emphasis on health care outside the U.S. Key areas include burden of infectious diseases, health economics, and impact of health care policy on health care delivery. In Progress and letter 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.

**M269. Health Care Policy and Finance. (4)** (Same as Policy Studies M269.) Seminar, three hours; outside study, nine hours. Requisites: courses 200A, 200B, M236, Biostatistics 100A, 100B. Exploration of demand for health insurance, policies for public insurance (Medicaid and Medicare), the uninsured, and health insurance reform. Examination of effects of managed care on health and costs, consumer protection movement, and rise of competitive health care markets. 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.

**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.

**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 the cancer epidemic, cancer control goals for the nation, and interventions designed to encourage smoking cessation/prevention, cancer screening, and other dietary, psychosocial, and lifestyle changes. Letter grading.

**M422. Practices of Evaluation in Health Services: Theory and Methodology. (4)** (Formerly numbered 422.) (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.

**425. Law and Epidemiology. (4)** Lecture, four hours. Requisite: course 235 or Epidemiology 100. Examination, generally, of relationship between law and epidemiology, including use of epidemiology to regulate exposure to risk. Letter grading.

**427. Population-Based Health Planning. (4)** Lecture, four hours. Requisites: courses 200A, 200B, Biostatistics 100A. Introduction to techniques of forecasting health care needs, utilization, and expenditures using population-based planning. Letter grading.

**430. New Developments in E-Health and Internet. (4)** Lecture, four hours. Introduction of new technologies in health care 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. Managerial Processes in Health Services Organizations. (4)** Lecture, one hour; laboratory, three hours. Requisites: courses 100, 234. Managerial skills and behaviors applied to components of organizations at several levels: individual, interpersonal, group, intergroup, system, and interorganization. Unique features of health services organizations are stressed as applications are presented. Letter grading.

**432. Integrative Seminar: Health Services Management. (4)** Seminar, four hours. Requisite: course 431. Residents and preceptors are responsible for presenting cases of actual administrative problems for solution by teams of students and faculty. 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.

**434. Employer/Employee Health Management. (4)** Lecture, two hours; discussion, two hours. Preparation: a combination of three graduate courses in health planning, hospital finance, health policy, health insurance, occupational health, health services research, and health information systems. Requisite: course 100. Preview and analysis of how employer and employee groups provide, sponsor, and manage health-related services for others. S/U or letter grading.

**435. Management Science for Health Planning and Administration. (4)** Lecture, three hours; laboratory, two hours. Requisites: Biostatistics 100A and either Biostatistics 403 or Management 404. Introduction to use of quantitative analyses to support managerial and operational decisions in health services organizations. Topics include mathematical models for structuring decisions, resource allocation, inventory control, task sequencing, scheduling, and forecasting. Use of microcomputers. S/U or letter grading.

**436. Financial Management of Health Service Organizations. (4)** Lecture, four hours. Requisites: courses 131, 132, 234. Application of financial management and accounting principles to health care facilities, including unique financial characteristics of health care 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, four hours. Requisite: course 131. General survey of legal aspects of health services management, including governance, agency, informed consent, medical malpractice, contracts, negligence, and case law related to health facility operations. S/U 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.

**441. Ambulatory Care in the U.S. (4)** Seminar, three hours. Requisites: courses 132, 200A, 200B, Management 403. Introduction to organization and management concepts, problems, and issues in ambulatory health services, including financial management and information systems requirements. Letter grading.

**442A. Managed Health Care: Quality and Cost. (4)** Lecture, three hours. Overview of issues related to growth, management, and planning of managed health care systems. Review of role of HMOs and PPOs, as well as discussion of managed care as a solution. Letter grading.

**442B. Managed Care Practices. (4)** Lecture, four hours. Requisite: course 442A. Introduction to practices and methodologies required of those participating in managed care sector. Attention to pros and cons and advantages and disadvantages of various aspects of managed care. Topics include revenue maximization and cost control, negotiating and contractual relationships among the parties to deliver care, and quality and performance measurement. Letter grading.

**443A. Biological and Social Bases of Prevention. (4)** Lecture, two hours; discussion, two hours. Requisites: courses 100 (or 200A and 200B), Biostatistics 100A, Epidemiology 100. Designed for graduate students. Development, current status, and potential of preventive medicine in public health practice, focusing on risk indicator approach (exercise, alcohol, stress, etc.), with consideration of program settings, delivery problems, and issues. Letter grading.

**443D. Advanced Hospital Financial Management Simulation. (4)** Lecture, one hour; discussion, one hour; laboratory, two hours. Requisites: courses 100, 132, 436. Practical aspects of hospital management decisions in a changing environment examined through computer simulation, with particular attention to economic projections, demand patterns, investment programs, and health care regulations. S/U or letter grading.

**443E. Advanced Hospital Financial Management Seminar. (4)** Seminar, four hours. Requisites: courses 100, 131, 132, 436. Hospital financial management, including reimbursement management, capital financing, and capital investment analysis, discussed and analyzed with respect to students' individual residency sites. S/U or letter grading.

**444. Applied Methodology in Health Planning. (4)**

Lecture, three hours; fieldwork, four hours. Requisites: courses 200A, 200B. Demonstration of methodology of health planning by involving students in formulation of actual health plan for existing agency in Los Angeles area. Letter grading.

**445. Strategic Planning and Marketing in Health Care. (4)**

Lecture, three hours. Requisites: courses 200A, 200B, Biostatistics 100A, 100B. Survey course covering theory and applications of strategic planning and marketing concepts as they apply to health care organizations. Lectures and discussion of case studies for which students must prepare in advance, fieldwork, and microcomputer exercises. Letter grading.

**446. Financing Health Care. (4)** Lecture, four hours. Requisites: course 100, Economics 1, 2. Patterns of health care financing by consumers, providers, third-party intermediaries; trends in health service use; expenditures, national health insurance, and international comparisons of health financing. S/U or letter grading.

**447. State Health Policy Issues. (4)** Seminar, three hours. Requisite: course 238. Focus on health policy development and implementation at state government level, with emphasis on financing, direct provision, and regulation of health care services, facilities, equipment technology, and manpower. Exploration of intergovernmental relationships. S/U or letter grading.

**447D. Management of Health Maintenance Organizations. (4)** Lecture, three hours. Requisites: courses 100, 134. Alternative approaches to fee-for-service for paying, providing, or arranging for delivery of health care services, and relating these approaches to national health policy. S/U or letter grading.

**447E. Health Insurance Principles and Programs. (4)** Lecture, four hours. Preparation: one health services course. Requisites: courses 100, 232. Examination of social, actuarial, and commercial assumptions underlying private health insurance. Comparison with government-sponsored health insurance. Analysis of diversity of voluntary medical care insurance plans under different sponsorships and with varied scopes of coverage and benefits and their implications for public and private medical care developments. S/U or letter grading.

**M448. Health Policy Issues for Dental Professionals. (2)** (Same as Dentistry M422.) Lecture, two hours. Requisites: course 100, Biostatistics 100A, Epidemiology 100. Current public health policy issues in dental health, including cost, financing, role of government, and quality assurance. S/U grading.

**M448D. Case Studies in Dental Practice. (2)** (Same as Dentistry M433A.) Lecture, two hours. Provides students with practice methodology for evaluation of dental care settings. Didactic and field experience, providing foundation for evaluation of programs. S/U 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. Financial Theory of Health Services Organizations. (4)** Lecture, four hours. Requisites: courses 200A, 200B. Study of health care financial management, including variables of cost of funds, availability of physicians to provide the necessary patients, efficiency of operations, and legal constraints. Letter grading.

**495. Teacher Preparation in Health Services. (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 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 8)** Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

## HISTORY

*College of Letters and Science*

UCLA  
6265 Bunche Hall  
Box 951473  
Los Angeles, CA 90095-1473

(310) 825-4601  
fax: (310) 206-9630  
<http://www.sscnet.ucla.edu/history/>

Brenda Stevenson, Ph.D., *Chair*

### Professors

Edward A. Alpers, Ph.D.  
Perry Anderson, B.A., *Acting*  
Joyce O. Appleby, Ph.D.  
Peter Baldwin, Ph.D.  
Ivan T. Berend, Ph.D.  
Kathryn Bernhardt, Ph.D.  
Robert P. Brenner, Ph.D.  
Brian P. Copenhaver, Ph.D.  
Ellen C. DuBois, Ph.D.  
Christopher Ehret, Ph.D.  
Benjamin A. Elman, Ph.D.  
Robert G. Frank, Jr., Ph.D.  
Saul P. Friedlander, Ph.D. (*1939 Club Professor*)  
Patrick Geary, Ph.D.  
J. Arch Getty, Ph.D.  
Carlo Ginzburg, Laurea in lettere (*Franklin D. Murphy Professor of Italian Renaissance Studies*)  
Juan Gómez-Quiñones, Ph.D.  
Robert A. Hill, M.Sc.  
Thomas S. Hines, Ph.D.  
Philip C. Huang, Ph.D.  
Lynn A. Hunt, Ph.D. (*Eugen Weber Professor of Modern European History*)  
Margaret C. Jacob, Ph.D.  
Russell Jacoby, Ph.D., *in Residence*  
Sanford M. Jacoby, Ph.D.  
Michael O. Jones, Ph.D.  
Naomi R. Lamoreaux, Ph.D.  
John H. Laslett, D.Phil.  
Ronald J. Mellor, Ph.D.  
Eric H. Monkkonen, Ph.D.  
Fred G. Notehelfer, Ph.D.  
Herman Ooms, Ph.D.  
Theodore M. Porter, Ph.D.  
Anthony J.S. Reid, Ph.D.  
Peter H. Reill, Ph.D.  
Richard H. Rouse, Ph.D.  
Teofilo F. Ruiz, Ph.D.  
David Sabeian, Ph.D. (*Henry J. Bruman Professor of German History*)  
Miriam R. Silverberg, Ph.D.  
Debra L. Silverman, Ph.D.  
Brenda Stevenson, Ph.D.  
Geoffrey W. Symcox, Ph.D.  
Richard von Glahn, Ph.D.  
Scott L. Waugh, Ph.D.  
Dora B. Weiner, Ph.D., *in Residence*  
Richard Weis, Ph.D.  
James W. Wilkie, Ph.D.  
Matthew Norton Wise, Ph.D.  
Robert Wohl, Ph.D.

### Professors Emeriti

Amin Banani, Ph.D.  
Kees W. Bolle, Ph.D.  
Giorgio Buccellati, Ph.D.  
Robert I. Burns, S.J., Ph.D.  
Robert N. Burr, Ph.D.  
Mortimer Chambers, Jr., Ph.D.  
Claus-Peter Clasen, Ph.D.  
Robert Dallek, Ph.D.  
Frank O. Gatell, Ph.D.  
Richard Hovannisian, Ph.D. (*Armenian Educational Foundation Professor Emeritus of Modern Armenian History*)  
Daniel W. Howe, Ph.D.  
Norris C. Hundley, Ph.D.  
Nikki Keddie, Ph.D.  
Barisa Krekić, Ph.D.  
James Lockhart, Ph.D.  
Peter Loewenberg, Ph.D.  
Afaf Marsot, D.Phil.  
Lauro R. Martines, Ph.D.  
Gary B. Nash, Ph.D.  
Merrick Posnansky, Ph.D.  
Hans J. Rogger, Ph.D.  
Damodar R. SarDesai, Ph.D. (*Navin and Pratima Doshi Professor Emeritus of Premodern Indian History*)  
Alexander P. Saxton, Ph.D.  
Stanford J. Shaw, Ph.D.  
Eugen J. Weber, M.Litt. (*Eugen Weber Professor Emeritus of Modern European History*)  
Stanley A. Wolpert, Ph.D.

### Associate Professors

Stephen A. Aron, Ph.D.  
Ruth H. Bloch, Ph.D.  
Joel T. Braslow, M.D., Ph.D., *in Residence*  
John Duncan, Ph.D.  
Laura F. Edwards, Ph.D.  
Steven Frank, Ph.D.  
James L. Gelvin, Ph.D.  
Valerie J. Matsumoto, Ph.D.  
Melissa L. Meyer, Ph.D.  
Michael G. Morony, Ph.D.  
José C. Moya, Ph.D.  
David N. Myers, Ph.D.  
Kathryn Norberg, Ph.D.  
Geoffrey Robinson, Ph.D.  
Michael Salman, Ph.D.  
William R. Summerhill, Ph.D.  
Sharon J. Traweek, Ph.D.  
Albion M. Urdank, Ph.D.  
Joan Waugh, Ph.D.  
William H. Worger, Ph.D.  
Mary A. Yeager, Ph.D.

### Assistant Professors

Eric R. Avila, Ph.D.  
Vinay Lal, Ph.D.  
Ghislaine E. Lydon, Ph.D., *in Residence*  
Muriel McClendon, Ph.D.  
David D. Phillips, Ph.D.  
Gabriel Piterberg, Ph.D.  
Claudia Rapp, D.Phil.  
Janice L. Reiff, Ph.D.  
Kevin B. Terraciano, Ph.D.  
Mary Terrall, Ph.D.  
Jessica A. Wang, Ph.D.  
Henry S.N. Yu, Ph.D.

### Senior Lecturer S.O.E.

S. Scott Bartchy, Ph.D.

### Lecturer

Larry Lauerhass, Ph., *Emeritus*  
Paul Vonblum, Ph.D.

### Adjunct Professors

Richard H. Popkin, Ph.D.  
Robert C. Ritchie, Ph.D.

### Adjunct Assistant Professor

Fredelle Zaiman Spiegel, Ph.D.

### Adjunct Associate Professor

Yuji Ichioka, 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 department offers graduate programs leading to the M.A. and Ph.D. and accepts qualified applicants for either or both degrees. There is also a joint master's program with the Graduate School of Education and Information Studies. 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

### History B.A.

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). All courses 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 99.

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

To be admitted as History majors, transfer students 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.

### 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) History 197.

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

The College of Letters and Science allows 8 quarter units toward the B.A. for each Advanced Placement Test in History. The History Department applies this credit to the Preparation for the Major as follows: AP European History fulfills History 1C; AP American History with a score of 4 or 5 allows 8 units of History 13A, 13B, 13C credit on the history preparation. The excess units may be applied only toward the degree.

## Honors Program

The honors program is designed for History majors who are interested in carrying out a year-long independent research project that culminates in an honors thesis. A 3.5 departmental grade-point average is normally required for admission, but students with a lower GPA may apply to the honors committee for admission. Application should be made at the beginning of the junior year.

The proposal, research, analysis, and writing of the paper take place over three terms through History 199HA, 199HB, and 199HC. Course 199HA is taken in Spring Quarter of the junior year, followed by courses 199HB and 199HC in Fall and Winter Quarters of the senior year. Contact the undergraduate adviser for more information.

## Single Subject Credential in Social Science

For information on the single subject credential in social science, consult the Department of Education, 1009 Moore Hall, (310) 825-8328.

## 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 undergraduate adviser in 6248 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 195A through 195E, 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 197 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. Only one course applied toward the students' majors may also be applied toward this minor. Transfer credit for courses may be subject to departmental approval.

One course may be taken on a Passed/Not Passed basis; all other minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases,

even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of History offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in History.

## Admission

### M.A./Ph.D. in History

For admission to the graduate programs, applicants normally should have completed the undergraduate major or its equivalent, received a Bachelor of Arts degree or its equivalent from an accredited college or university, and maintained at least a B+ average in upper division work. Three letters of recommendation and the scores of the General Test of the Graduate Record Examination (GRE) must be submitted to the department. Applicants to the Ph.D. program are urged to seek an interview or to correspond with a member of the History Department faculty in the field in which they intend to work.

The Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination is required of international applicants whose first language is not English. Applicants may also be admitted with subject deficiencies, but such deficiencies must be removed by completing courses that are in addition to those required for the degree program. Applicants who have had a year or more of graduate study at other institutions should have attained a grade-point average of 3.5 or better (on a 4.0 scale) if they wish to work toward the Ph.D. degree.

### History M.A./Information Studies M.L.I.S

Applicants admitted to the Ph.D. program in History who wish to receive the M.A. in History and the M.L.I.S. in three years may apply to the concurrent degree program by submitting applications to both departments.

## Master's Degrees

The M.A. degree is offered through the comprehensive examination plan. The department requires a minimum (and preferably a maximum) of nine upper division and graduate courses in history, at least six of which must be graduate courses. For students in U.S. history, a minimum of seven of the nine courses must be at the 200 level.

The comprehensive examination covers one of the following fields: (1) ancient (includes ancient Near East); (2) medieval (includes Byzantine and medieval Jewish history); (3) Europe, 1450 to present (also includes British, Jewish, and Russian history); (4) Africa; (5) Near East (includes Armenia); (6) India and Southeast Asia; (7) China; (8) Japan; (9) Latin America; (10) U.S.; (11) history of science; (12) special fields (students in the history of religions or his-

tory of Christianity are normally examined in one of the above fields but, with the approval of the faculty in these fields, may petition the graduate guidance and curriculum committee for an M.A. examination in their field of specialization).

There is a language requirement for this degree.

## Doctoral Degree

Major fields include ancient Greece; ancient Rome; medieval constitutional and legal; medieval social and economic; medieval ecclesiastical and religious; medieval intellectual and cultural; Byzantine; Russia since 800; East Central and Southeast Europe since 1450; England prior to 1485; Britain since 1450; the British Empire; ancient Near East; the Near East, 500 to 1500; the Near East since 1500; Armenian; survey of African history; topics in African history (preferably on a regional basis); history of science since 1450; Europe, Renaissance/Reformation; Europe, Renaissance to the French Revolution; Germany since 1450; France since 1450; Italy since 1450; Spain and Portugal since 1450; Europe since 1740; European socioeconomic history; European intellectual and cultural history; psychohistory; China, 900 to 1800; China since 1800; early modern Japan; modern Japan; South Asia; Southeast Asia; Latin America, 1492 to 1830; Latin America since 1759; history of religions; Jewish history; history of Christianity; comparative history; U.S.: Afro-American, American diplomatic, American West, American Indian, Asian Americans, California, history of the South, Civil War and Reconstruction, Colonial, cultural, economic, immigration, intellectual, Jeffersonian and Jacksonian American (1800 to 1850), labor, Mexican-American, social, the new nation (1763 to 1800), 20th century, urban, women's history.

Required coursework is specific to the fields. Completion of at least one continuing two- or three-quarter seminar which includes completion of a substantial research paper is required. Doctoral committees may require such courses as they deem necessary for preparation for qualifying examinations. Courses taken to fulfill M.A. degree requirements may also be used to satisfy Ph.D. requirements.

Written and oral qualifying examinations are required. Students are expected to show not only a mastery of their special subject, but also an extensive knowledge covering the wider field of historical knowledge and an ability to correlate historical data and to explain their significance. Details on the examinations, including differences by field and timing, are outlined in *Program Requirements for UCLA Graduate Degrees*.

Following successful completion of the written examinations, students prepare a dissertation prospectus and take the University Oral Qualifying Examination.

There is a language requirement for this degree.

# History

## Lower Division Courses

**1A-1B-1C. Introduction to Western Civilization. (4-4-4)** Lecture, two 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. **1A.** Ancient Civilizations from Prehistory to Circa A.D. 843; **1B.** Circa A.D. 843 to Circa 1715; **1C.** Circa 1715 to the Present.

**1AH-1BH-1CH. Introduction to Western Civilization (Honors). (4-4-4)** Lecture, two hours; discussion, two hours. Honors sequence parallel to courses 1A, 1B, 1C.

**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. (4)** Lecture, three hours; discussion, two hours. History of social knowledge and social theory 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, the Occult, and Science. (4-4)** Lecture, three hours; discussion, two hours. P/NP or letter grading:

**2C.** Mystics, Heretics, and Witches in Western Tradition, 1000 to 1600. (4) Lecture, three hours; discussion, two hours. Specific aspects of elite and popular culture in medieval and early modern western 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 the Present. (4) 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. (4-4-4)** Lecture, three hours; discussion, two hours. History majors may not apply these courses on science general education requirements:

**3A.** Scientific Revolution. Survey of the beginnings of physical sciences involving transformation from Aristotelian to Newtonian cosmology, mechanization of the natural world, rise of experimental science, and origin of scientific societies.

**3B.** Physical Sciences since the Enlightenment. Broad survey of development of ideas in classical and modern physical science since Newton. Theories of matter, but more specifically chemistry, thermodynamics, electromagnetic theory of light, energy conservation, relativity, and quantum mechanics.

**3C.** Biological Sciences, 1800 to 1955. Survey of development of biological sciences from the period of Bichat and Müller to discovery of the double helix.

**3CH. Introduction to History of Science (Honors). (4)** Honors course parallel to course 3C. P/NP or letter grading.

**3D. Themes in History of Medicine. (4)** Lecture, three hours. Not open to freshmen. Limited to 30 students. 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.

**4. Introduction to History of Religions. (4)** Lecture, three hours; discussion, two hours. Discussion of various systems, ideas, and fashions of thought that have dominated Western approaches to religions of the world since antiquity. Survey of development from classical Greek and early Christian theories to modern history with its discoveries of the religions of India, China, ancient Near East, etc., and the problem of the encounter of various religions in the 19th and 20th centuries.

**8A. Colonial Latin America. (4)** 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). (4)** 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. (4)** Lecture, three 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). (4)** Lecture, three hours; discussion, three hours. Honors course parallel to course 8B. P/NP or letter grading.

**8C. Latin American Social History. (4)** 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.

**8CH. Latin American Social History (Honors). (4)** Lecture, three hours; discussion, two hours. Honors course parallel to course 8C.

**9A-9E. Introduction to Asian Civilizations. (4 each)** Lecture, three hours; discussion, two hours. P/NP or letter grading:

**9A. History of India. (4)** 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. (4)** 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 Japanized 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). (4)** 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. (4)** Lecture, three hours; discussion, two hours. Introduction to history of the Muslim world from advent of Islam to the present day. P/NP or letter grading.

**9E. Southeast Asian Crossroads. (4)** 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 Malay-Indonesian patterns. P/NP or letter grading.

**10A-10B. Introduction to Civilizations of Africa. (4-4)** Lecture, three hours; discussion, two hours. Course 10B is not open for credit to students with credit for course 10BH or 10BW. Survey of history of Africa from 1800 to the present, with particular attention to 19th-century historical background, era of colonial rule, and regaining of African independence in postcolonial era. P/NP or letter grading.

**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. 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 Letters and Science Writing II requirement. Letter grading.

**11A-11B. History of China. (4-4)** Lecture, three hours; discussion, two hours. **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 the contemporary era.

**11AH-11BH. History of China (Honors). (4-4)** Lecture, three hours; discussion, two hours. Honors sequence parallel to courses 11A, 11B.

**13A-13B-13C. History of the U.S. and Its Colonial Origins. (4-4-4)** Lecture, two 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. (4)** 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. (4)** Lecture, three hours; discussion, two hours. Outline of world history from rise of Islam to start of Industrial Revolution, 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 the Present. (4)** 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.

**M70. Survey of Medieval Greek Culture. (4)** (Same as Classics M70.) Lecture, three to four hours. Classical roots and medieval manifestation of Byzantine civilization: political theory, Roman law, pagan critique of Christianity, literature, theology, and contribution to the Renaissance (including discovery of America).

**88A-88U. Lower Division Seminars. (5 each)** Seminar, three hours. Limited to 15 freshmen/sophomores. Open to nonhistory majors. Readings, discussions, papers. Sign-ups and descriptions of offerings each term are available in undergraduate counselor's office (6248 Bunche Hall). Ten units may be taken for credit. **88A.** Ancient Greece; **88B.** Ancient Rome; **88C.** Medieval; **88D.** Early Modern Europe; **88E.** Modern Europe; **88F.** Russia/Eastern Europe; **88G.** Britain; **88H.** U.S.; **88I.** Latin America; **88J.** Near East; **88K.** India; **88L.** China; **88M.** Japan; **88N.** Africa; **88O.** Science/Technology; **88P.** History of Religions; **88Q.** Theory of History; **88R.** Jewish History; **88S.** Armenia and the Caucasus; **88T.** Southeast Asia; **88U.** Psychohistory.

**97H. Three Trials. (4)** Discussion, three hours. Limited to 20 students. Intensive study of three trials, each of which led to the execution of the accused: Socrates, Jesus of Nazareth, and Joan of Arc. View of each trial as a conflict between legitimate but irreconcilable interests and world views. For each, class constitutes itself as a court (prosecution, defense, jury) and reviews the verdict of original trial.

**99. Introduction to Historical Practice. (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. P/NP or letter grading.

## Upper Division Courses

Upper division lecture courses in the History Department are usually scheduled for three hours. Periodically, additional one-hour discussion sections are offered with the lectures. Consult the quarterly *Schedule of Classes* to determine the offerings for each term.

**100. History and Historians. (4)** (Formerly numbered 100A.) Lecture. Designed for juniors/seniors. Study of historiography, including intellectual processes by which history is written, results of these processes, and sources and development of history. Attention also to representative historians. P/NP or letter grading.

**102. Explorations in Psychoanalysis and History. (4)** Designed for juniors/seniors. Art of psychological and historical interpretation; assessment of recent writings in the field of psychohistory.

**M103A-M103B. Historical Archaeology. (4-4)** (Same as Anthropology M115A-M115B.) Lecture, three hours. Designed for juniors/seniors. P/NP or letter grading.

**M103A.** World Perspective. Historical archaeology requires appreciation of historical sources, archaeology, and material culture. Thematic emphasis, with exploration of breadth of the discipline both in the Old World and the Americas. **M103B.** American Perspective. Emphasis on historical archaeology in North America, particularly to some practical applications.

**M104A-M104B. Ancient Egyptian Civilization. (4-4)** (Same as Ancient Near East M104A-M104B.) Lecture, three hours. Course M104A is not requisite to M104B. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. **M104A.** Chronological discussion of Prehistory, the Old and Middle Kingdom. **M104B.** The New Kingdom and the Late period until 332 B.C.

**M105. History of Ancient Mesopotamia and Syria. (4)** (Same as Ancient Near East M105.) Lecture, three hours. Designed for juniors/seniors. Political and cultural development of the "Fertile Crescent," including Palestine, from the Neolithic to the Achaemenid period.

**106A-106B-106C. Survey of the Middle East from 500 to the Present. (4-4-4)** Designed for juniors/seniors. Background and circumstances of rise of Islam, creation of the Islamic Empire, and its development. Rise of Dynastic Successor States and the Modern Nation States. Social, intellectual, political, and economic development. **106A.** 500 to 1300; **106B.** 1300 to 1700; **106C.** 1700 to the Present.

**107A-107B. Islamic Civilization. (4-4)** Designed for juniors/seniors. **107A.** Premodern Islam. Origins of Islamic civilization, Muhammad and the Qur'an; development of Islamic doctrine, ritual, piety and law, sectarian Islam, and mysticism. **107B.** Islam in the Modern World. Reform movements, legal issues, sociopolitical trends, movements of opposition.

**108A-108B. History of the Arabs. (4-4)** Course 108A is requisite to 108B. Designed for juniors/seniors. Political, social, intellectual, and economic history of the Arabs from the 18th century to the present.

**109A-109B. History of North Africa from the Moslem Conquest. (4-4)** Lecture. Designed for juniors/seniors. P/NP or letter grading. **109A.** To 1578; **109B.** 1578 to the Present.

**109C. History of Islamic Iberia. (4)** Designed for juniors/seniors. Survey of political, social, economic, religious, artistic, and literary history of an Islamic culture in Western Europe, with special attention to ethnic and religious pluralism in premodern society and transmission of science and philosophy to Christian Europe. P/NP or letter grading.

**110A-110B. Iranian History. (4-4)** Designed for juniors/seniors. Political, social, and cultural history of Persia. **110A.** Islamic Iran to 1800; **110B.** Iran from 1800 to the Present.

**111A-111B. History of the Turks. (4-4)** Designed for juniors/seniors. Survey of society, government, and political history of the Turks from earliest times to the present. P/NP or letter grading. **111A.** Origins to 1808. Turkish origins, early Central Asian and Middle Eastern states. Rise and fall of the Ottoman Empire. **111B.** 1808 to the Present. Modernization of the Ottoman Empire, 1808-1923. The Turkish Republic. The Turks in the world.

**111C. History of Jews in the Ottoman Empire and the Turkish Republic, 1300 to 1923. (4)** Designed for juniors/seniors. Preliminary introduction to the Jews in Byzantium and the Islamic world before the Ottoman conquest, followed by discussion of Jewish communities and Judaism in Southwestern Europe, Anatolia, and the Middle East while they were under Ottoman rule (1300 to 1923) and in the Turkish Republic since 1923. P/NP or letter grading.

**112A-112B-112C. Armenian History. (4-4-4)** Designed for juniors/seniors. **112A.** Armenia in Ancient and Medieval Times, 2nd Millennium B.C. to A.D. 11th Century; **112B.** Armenia from Cilician Kingdom through Periods of Foreign Domination and National Stirrings, 11th to 19th Centuries; **112C.** Armenia in Modern and Contemporary Times, 19th and 20th Centuries. Armenian question and genocide, national republic, Soviet Armenia, and the dispersion.

**C112D. Introduction to Armenian Oral History. (4)** Lecture/discussion, three hours. Designed for juniors/seniors. Uses and techniques of Armenian oral history; pre-interview, interview, and postinterview procedures; methods of compilation and evaluation. Field assignments and interviews. May be concurrently scheduled with course C212.

**113. The Caucasus under Russian and Soviet Rule. (4)** Designed for juniors/seniors. Survey of political, economic, social, and cultural history of the Caucasus region since 1801. Georgian, Armenian, and Azerbaijani response to Russian and Soviet rule; the national-identity question and the Soviet national republics.

**114. Topics in Middle Eastern History. (4)** Designed for juniors/seniors. Examination of major issues in history of Middle East. P/NP or letter grading.

**115A-115B-115C. History of Ancient Mediterranean World. (4-4-4)** Designed for juniors/seniors. **115A.** Survey of history of the ancient East from earliest times to foundation of the Persian Empire. **115B.** History and institutions of the Greeks from their arrival to the death of Alexander. **115C.** History and institutions of Rome from founding of the city to the death of Constantine.

**116A-116B. History of Ancient Greece. (4-4)** Designed for juniors/seniors. **116A.** Rise of the Greek City-State. Emphasis on archaic period and early classical age through the Persian Wars. **116B.** Classical Period. Clash between Athens and Sparta, consequent rise of Macedonia, and aftermath of Alexander the Great.

**117A-117B-117C. History of Rome. (4-4-4)** Designed for juniors/seniors. P/NP or letter grading. **117A.** To Death of Caesar. Emphasis on development of imperialism and on constitutional and social struggles of the late republic. **117B.** From Death of Caesar to the Time of Constantine. The early empire treated in more detail, supplemented by survey of social and economic changes in the 3rd century. **117C.** Transformation of the Classical World. Political, cultural, and religious history of the Mediterranean in late antiquity, from crisis of Roman Empire in the 3rd century to barbarian and Arab invasions and beginning of medieval states and societies in the 7th century.

**118. Topics in Ancient History. (4)** Designed for juniors/seniors. Introduction to topics in Greek and Roman history, including Roman law, ancient Greek and Roman slavery, world of Caesar Augustus, Greek democracy, and Alexander the Great. May be repeated for credit. P/NP or letter grading.

**C119A. From Roll to Codex: Manuscripts in Early Middle Ages. (4)** (Formerly numbered C119C.) Lecture, three hours. Examination of history of medieval manuscripts and circumstances of their production, use, and survival as evidence for study of medieval European society to 1100. Concurrently scheduled with course C219A. P/NP or letter grading.

**C119B. From Parchment to Print: Manuscripts in Later Middle Ages. (4)** (Formerly numbered C119D.) Lecture, three hours. Examination of history of medieval manuscripts and circumstances of their production, use, and survival as evidence for study of medieval European society from 1100 to 1500. Concurrently scheduled with course C219B. P/NP or letter grading.

**119M. The Christian Church, 100 to 1517. (4)** (Formerly numbered 119.) Lecture. Designed for juniors/seniors. Constitutional, political, and economic history of the Church: Christianization of Roman Empire and Germanic kingdoms; governance and institutions of the Church; relations between Church and monarchy; the high tide of papalism; crises of authority on eve of the Reformation. P/NP or letter grading.

**C120A. Interfaces: Transmission of Roman Literature. (4)** Discussion, 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. Concurrently scheduled with course CM220A. P/NP or letter grading.

**120M. The Christian Religion, 100 to 1350. (4)** (Formerly numbered 120.) Lecture. Designed for juniors/seniors. Religious experience of Christians — conversion, doctrine, belief, heresy, spirituality, worship, liturgy, and art. Religious life of lay Christians, as well as that of the Church's institutional, intellectual, and spiritual leaders. P/NP or letter grading.

**121A-121B. Medieval Europe. (4-4)** Designed for juniors/seniors. Basic introduction to Western Europe from Latin antiquity to the age of discovery, with emphasis on medieval use of Greco-Roman antiquity, history of the manuscript book, and growth of literacy. **121A.** 400 to 1000; **121B.** 1000 to 1500.

**121C. Medieval Civilization: Mediterranean Heartlands. (4)** Designed for juniors/seniors. Survey of Western Mediterranean Europe, social/economic/cultural within a political framework, including its relation with other cultures.

**121D. Medieval People: The 13th Century. (4)** Designed for juniors/seniors. Movements and creative contributions to Western culture in this central century of the Middle Ages, as seen in its representative men and works.

**M122. Power and Imagination in Byzantium. (4)** (Same as Classics M170.) Lecture, three hours. Requisites: courses M70, or 123A and 123B. Designed for juniors/seniors. Study of relations of authority and the intelligentsia in the highly centralized Byzantine Empire. Topics include criticism of the emperor, iconoclasm, intellectual freedom, attempts at reform.

**123A-123B. Byzantine History. (4-4)** Designed for juniors/seniors. Political, socioeconomic, religious, and cultural continuity in the millennial history of Byzantium. Reforms of Diocletian. Byzantium's relations with Latin Europe, Slavs, Sassanids, Arabs, and Turks.

**124A-124B. East-Central Europe. (4-4)** Designed for juniors/seniors. **124A.** The 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 the economy, politics, and culture. **124B.** The Short 20th Century, 1918 to 1990. Analysis and interpretation of stormy history of crisis zone of Europe where wars, revolts and revolutions, different types of extremisms led to a historical detour: 70 years of departure from Western values and at last an effort to turn back to them.

**124C. East-Central Europe in Transition, 1988 to 1993. (4)** Designed for juniors/seniors. State-socialism and Soviet domination collapsed in East-Central Europe in 1989. Analysis of cause and consequence of the collapse, as well as the road of transformation in seven (now 12) countries of the 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 the future. P/NP or letter grading.

**124D. Film and History: Central and Eastern Europe, 1945 to 1989. (4)** 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.

**125A-125F. History of Modern Europe. (4 each)** Designed for juniors/seniors. P/NP or letter grading:

**125A.** Renaissance and Reformation, 1450 to 1660. Reorganization of power, new forms of representation, and discourses about rule and obedience in Europe from the mid-15th through 16th century; popular culture; peasant society; refashioning of religion and power; localization.

**125B.** Baroque Culture and Absolutist Politics, 1600 to 1715. 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 the family, sexuality, and the body; witch persecutions.

**125C.** Old Regime and Revolutionary Era, 1715 to 1815. Enlightened absolutism and reform, challenge of new political and economic ideas, crisis of the Old Regime, impact of French Revolution and Napoleonic empire.

**125D.** Bourgeois Century, 1815 to 1914. 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.

**125E.** Era of Total War, 1914 to 1945. 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).

**125F.** World War II and Its Aftermath, 1939 to the Present. World War II, origins and persistence of the Cold War, reconstruction in the West, de-Stalinization, decolonization, crisis of the welfare state, background to and course of the 1989 revolutions, current political configuration.

**126A-126F. Cultural and Intellectual History of Modern Europe. (4 each)** Designed for juniors/seniors.

Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of the time in historical context. P/NP or letter grading. **126A.** 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. **126B.** 16th Century. **126C.** 17th Century. **126D.** 18th Century. **126E.** 19th Century. **126F.** 20th Century.

**127A-127B-127C. War and Diplomacy in Europe. (4-4-4)** Lecture. Designed for juniors/seniors. P/NP or letter grading. **127A.** 1650 to 1815. Survey of military and diplomatic history, seen in relation to social and economic developments and growth of the state. **127B.** 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. **127C.** The Cold War. Relations of the West, Soviet Union, and the world from 1945 to 1991. Origins, development, and end of power-political, military, and ideological confrontations between the superpowers and their allies and clients in Europe, Asia, and Latin America.

**128A-128B-128C. History of France. (4-4-4)** Designed for juniors/seniors. **128A.** 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. **128B.** France, 1715 to 1871. "Ancien Régime" and the time of revolutions. Critical discourse leading to the French Revolution, collapse of the state, Napoleonic era, reconstruction of society through the monarchies and revolutions of the 19th century. **128C.** The Making of Modern France, 1871 to the Present. From oligarchy to democratic bureaucracy in two wars and three republics.

**129A. Baroque and Enlightenment Germany. (4)** 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 a political system, and baroque and Enlightenment cultures as new discourses on power and hierarchy. P/NP or letter grading.

**129B. Nationalism and Modernization in 19th-Century Germany. (4)** Designed for juniors/seniors. Problems of class society and state formation, emancipation, assimilation, growth of national consciousness, emergence of a "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.

**129C. 20th-Century Germany. (4)** Designed for juniors/seniors. Transitions that Germany has faced during this century: two world wars, shift from monarchy to republic to national socialism to a "divided nation," and finally "reunification." Consideration of political, social, economic, and cultural spheres. P/NP or letter grading.

**129D. History of the Low Countries. (4)** Lecture. 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 the 17th and 18th centuries, Low Countries from 1830 to 1918, Netherlands and Belgium in context of Europe after 1945. P/NP or letter grading.

**130. Europe in the Age of Revolution, Circa 1775 to 1815. (4)** (Formerly numbered 130A-130B-130C.) Lecture. Designed for juniors/seniors. Period from revolt of the Thirteen Colonies to French Revolution of 1789, and Napoleonic regime, viewing social and political changes unleashed by these revolutionary movements in a comparative and transnational perspective. P/NP or letter grading.

**131A-131D. History of Russia. (4 each)** Designed for juniors/seniors. P/NP or letter grading:

**131A.** From the Origins to the Rise of Muscovy, Kievan Russia and its culture, Appanage principalities and towns; the Mongol invasion; unification of the Russian state by Muscovy, Autocracy and its Servitors; serfdom.

**131B.** Imperial Russia from Peter the Great to Nicholas II. 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 the old regime.

**131C.** Revolutionary Russia and the Soviet Union. The Revolutions of 1917, Civil War, consolidation of the 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?

**131D.** Culture and Society in Imperial Russia. Recommended preparation: course 131B or Russian 99A or 119. 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.

**132A-132B-132C. History of Italy. (4-4-4)** Lecture. Designed for juniors/seniors. P/NP or letter grading.

**132A.** 1350 to 1559. Most important social, economic, political, and cultural developments in history of Italy during later Middle Ages and Renaissance. **132B.** 1559 to 1848. (Formerly numbered 132A.) Counter-Reformation and absolutism, Enlightenment reforms, revolutionary era, and first phase of the Risorgimento. **132C.** 1848 to the Present. (Formerly numbered 132B.) Political, economic, social, diplomatic, and ideological developments.

**133A-133B. Social History of Spain and Portugal. (4-4)** Designed for juniors/seniors. **133A.** Age of Silver in Spain and Portugal, 1479 to 1789. Development of popular history in the Iberian Peninsula. Emphasis on peasants and urban history, gold routes, slave trade, history of women, and development of different types of collective violence. **133B.** Rebellion and Revolution in Modern Spain and Portugal, 1789 to the 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.

**134A. Southeastern Europe, 500 to 1500. (4)** Designed for juniors/seniors. Political, economic, and cultural survey of the independent Balkan states in the Middle Ages.

**134B. Southeastern Europe, 1500 to 1918. (4)** Designed for juniors/seniors. The Balkans under Ottoman rule, movements of national liberation, and formation of nation states.

**135A-135B. Marxist Theory and History. (4-4)** Course 135A is generally requisite to 135B. 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.

**136. Topics in European History. (4)** Designed for juniors/seniors. Integrated introduction to important aspects of European history, with emphasis on a specific topic within a broad framework. May be repeated for credit. P/NP or letter grading.

**137A-137B. History of Women in Europe. (4-4)** (Formerly numbered 137A-137B-137C.) Lecture. Designed for juniors/seniors. History of social, political, and cultural roles of women in Western Europe from early Middle Ages to the present. P/NP or letter grading. **137A.** 800 to 1715; **137B.** 1715 to the Present.

**138A-138B. Topics in Medieval English History. (4-4)** Designed for juniors/seniors. Topics include the village community and economy, family and landholding, Church and society, war, politics, and feudal relations.

**139B-139C. Economic History of Europe. (4-4)** Designed for juniors/seniors. P/NP or letter grading. **139B.** 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. **139C.** 20th Century. Changing European economy after World War I and II and in the 1990s; impact of fourth and fifth Industrial Revolutions; Great Depressions of the century during the 1930s, 1970s, and 1980s; and changing modernization strategies; import-substituting industrialization in the peripheries; Soviet "modernization dictatorship" in East Central Europe and its collapse; integration process of second half of the century and rise of European Union; modernization model at end of the century.

**140A-140B-140C. Europe and the World. (4-4-4)** Lecture. P/NP or letter grading:

**140A.** Exploration and Conquest, 1400 to 1700. (4) Lecture. First phase of European expansion in the 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.

**140B.** Colonialism, Slavery, and Revolution, 1700 to 1870. (4) Lecture. 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 the 18th century, and beginnings of industrialization. P/NP or letter grading.

**140C.** Imperialism and Post-Colonialism, 1870 to the Present. (4) Lecture. 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 the world. P/NP or letter grading.

**141A-141B-141C. History of Britain. (4-4-4)** Designed for juniors/seniors. Analysis of British economy, society, and polity, focusing on dynamics of both stability and change. P/NP or letter grading. **141A.** Tudor-Stuart Times, 1485 to 1715. Political, socioeconomic, religious, and cultural history of Britain under the Tudors and Stuarts. Topics include Reformation, transformation of the economy, establishment of overseas colonies, 17th-century political upheavals and their impact on political and socioeconomic structures. **141B.** 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. **141C.** Modern Britain since 1832.

**142A-142B. British Empire since 1783. (4-4)** Designed for juniors/seniors. Political and economic development of the British Empire, including evolution of colonial nationalism, development of the commonwealth idea, and changes in British colonial policy.

**143. History of Canada. (4)** Designed for juniors/seniors. Survey of growth of Canada into a modern state from its beginnings under the French and British colonial empires.

**144. History of Australasia. (4)** Designed for juniors/seniors. History of Australia and New Zealand from the European settlement, with emphasis on interrelationships between settlers and aborigines; comparisons and contrasts between the Australian and New Zealand experience.

**145A. Colonial America, 1600 to 1763. (4)** Designed for juniors/seniors. Examination of the molding of an American society in English North America from 1600 to 1763. Emphasis on interaction of three converging cultures: Western European, West African, and American Indian.

**145B. Revolutionary America, 1760 to 1800. (4)** Designed for juniors/seniors. Inquiry into origins and consequences of the American Revolution, nature of the revolutionary process, creation of a constitutional national government, and development of a capitalist economy. P/NP or letter grading.

**146. U.S. History, 1800 to 1850. (4)** (Formerly numbered 146A.) Designed for juniors/seniors. Discussion of major social, political, economic, and cultural transformations of first half of the 19th century and how these changes helped to drive a wedge between the North and South. P/NP or letter grading.

**147A. U.S., Civil War and Reconstruction. (4)** Designed for juniors/seniors. Rise of sectionalism, antislavery crusade; formation of the Confederate States; war years; political and social reconstruction.

**147B. U.S., 1875 to 1900. (4)** Designed for juniors/seniors. American political, social, and institutional history in a period of great change. Emphasis on the altering concepts of role of government and responses to that alteration.

**147C. American South, 1877 to the Present. (4)** Designed for juniors/seniors. Analysis of political, economic, social, intellectual, and cultural history of the South from cotton belt to Sunbelt. Topics include origins of segregation, sharecropping, Southern politics, Southern culture, and civil rights movement.

**148A-148B. U.S., 20th Century. (4-4)** Lecture. Designed for juniors/seniors. Political, economic, intellectual, and cultural aspects of American democracy. P/NP or letter grading. **148A.** 1900 to 1928; **148B.** 1929 to 1960.

**148C. U.S. since 1960. (4)** Lecture. Designed for juniors/seniors. History of political, social, and diplomatic developments that have shaped the U.S. since 1960. P/NP or letter grading.

**149A-149B. American Economic History. (4-4)** Designed for juniors/seniors. **149A.** 1790 to 1910. Roles of economic forces, institutions, individuals, and groups in promoting or impeding effective change in the American economy, 1790 to 1910. During this period the technical skeleton of the modern industrial structure was formed. Why and how American economy evolved into a dual economy, characterized by a center of firms large in size and influence and a periphery of smaller firms. **149B.** 1910 to the Present. Dynamics of change in the dual economy, focusing in greater detail on interrelationships between macro and micro developments in the economy and on the growing interdependency between the U.S. and world economy, 1910 to the present.

**150A-150B. Intellectual History of the U.S. (4-4)** Designed for juniors/seniors. Principal ideas about humanity and God, nature and society, which 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.

**150C. History of Religion in the U.S. (4)** Designed for juniors/seniors. Consideration of the religious dimension of people's experience in the U.S. Examination of a number of religious traditions which have been important in this country, with emphasis on relating developments in religion to other aspects of American culture.

**151A-151B. Constitutional History of the U.S. (4-4)** Designed for juniors/seniors. **151A.** Origins and Development of Constitutionalism in the U.S. Particular emphasis on framing of the Federal Constitution in 1787 and its subsequent interpretation. Judicial review, significance of the Marshall Court, and effects of slavery and the Civil War on the Constitution. **151B.** Constitutionalism since the Civil War. Particular emphasis on development of the Supreme Court, due process revolution, the Court and political questions, and the fact of judicial supremacy within self-prescribed limits.

**152A-152B. American Diplomatic History. (4-4)** Lecture. Designed for juniors/seniors. P/NP or letter grading. **152A.** Establishment of an independent foreign policy, territorial expansion of the U.S., and emergence of a world power. **152B.** Role of the U.S. in the 20th-Century World.

**152BH. American Diplomatic History (Honors). (4)** Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Role of the U.S. in the 20th-century world.

- M153. The U.S. and the Philippines. (4)** (Same as Asian American Studies M153.) Lecture, three hours. Recommended preparation: courses 190A, 190B, 190C. Designed for juniors/seniors. Examination of complex interrelationships between U.S. colonialism, Philippine nationalism, history of Filipino Americans, and Philippine diaspora in the 20th century.
- 154A-154B. U.S. Urban History. (4-4)** Designed for juniors/seniors. **154A.** 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. **154B.** Topics in U.S. Urban History. Requisite: course 154A. 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.
- 154C-154D. History of American Architecture and Urban Planning, 1600 to the Present. (4-4)** Designed for juniors/seniors. Aspects of American cultural history as explored through architecture, urban planning, and allied arts, with emphasis on development of an architectural consciousness in America, ways in which the built environment has affected its users and observers, and extent to which it has reflected their values and ways of living. **154C.** 1600 to 1890; **154D.** 1890 to the Present.
- 155A-155B. American Working Class Movements. (4-4)** Designed for juniors/seniors. Major episodes in social, trade union, and cultural history of the American working class from Colonial times to the present, emphasizing both organized and unorganized labor, history of the Knights of Labor, A.F. of L. and C.I.O., and development of labor politics.
- 156A-156B. American Social History, 1750 to 1960. (4-4)** Designed for juniors/seniors. Historical analysis of American society and culture, with emphasis on the family, religious values, Afro-American life, women's work, urbanization and industrialization, immigration and nativism, and movements for social reform. **156A.** 1750 to 1860; **156B.** 1860 to 1960.
- 156C. History of Women in Colonial British America and Early U.S., 1600 to 1860. (4)** Lecture. Designed for juniors/seniors. Introduction to major themes in history of early American women from initial confrontation of English and American Indian cultures in the early 17th century to rise of women's rights movement in the mid-19th century. P/NP or letter grading.
- 156D. History of Women in the U.S., 1860 to 1980. (4)** Lecture. 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.
- 156H. Medicine and Society in 19th-Century America. (4)** Designed for juniors/seniors. Therapeutics, theories of disease, and medical science scrutinized with the 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 the 19th century?
- 157A-157B. North American Indian History. (4-4)** Designed for juniors/seniors. History of Native Americans from contact to the 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. **157A.** Precontact to 1830; **157B.** 1830 to the Present.
- M158A. Comparative Slavery Systems. (4)** (Same as Afro-American Studies M158A.) Designed for juniors/seniors. Examination of the slavery experience in various New World slave societies, with emphasis on outlining similarities and differences among the legal status, treatment, and slave cultures of North American, Caribbean, and Latin American slave societies.
- M158B-M158C. Introduction to Afro-American History. (4-4)** (Same as Afro-American Studies M158B-M158C.) Designed for juniors/seniors. Survey of the Afro-American experience, with emphasis on the 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 milieus.
- 158D. Afro-American Urban History. (4)** Designed for juniors/seniors. Examination of Afro-American urban life prior to 1945, with emphasis on transformation from slavery to freedom and shift from Southern to Northern areas. Forces which both propelled Afro-Americans to the cities and which also inhibited their adjustment to them.
- M158E. African American Nationalism in First Half of the 20th Century. (4)** (Same as Afro-American Studies M158E.) Designed for juniors/seniors. Critical examination of the African American search in first half of the 20th century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. P/NP or letter grading.
- M159A. History of the Chicano Peoples. (4)** (Same as Chicana and Chicano Studies M159A.) Designed for juniors/seniors. Survey lecture course on historical development of the Mexican (Chicano) community and people of Mexican descent (Indio-Mestizo-Mulato) north of the Rio through the 17th, 18th, and 19th centuries, with special focus on labor and politics. Provides integrated understanding of change over time in the Mexican community by inquiry into major formative historical forces affecting the 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 the U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and field research, and submission of a paper.
- M159B. History of the Chicano Peoples. (4)** (Same as Chicana and Chicano Studies M159B.) Designed for juniors/seniors. Survey lecture course on historical development of the Mexican (Chicano) community and people of Mexican descent in the U.S. through the 20th century, with special focus on labor and politics. Provides integrated understanding of change over time in the Mexican community by inquiry into major formative historical and policy issues affecting the community. Within a 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 the U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of a paper.
- 160A-160B. U.S. and Comparative Immigration History. (4-4)** Designed for juniors/seniors. Use of overlapping diaspora model which 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 the present. Special focus on Southern California in course 160B. P/NP or letter grading.
- 161. Asians in American History. (4)** Designed for juniors/seniors. Study of the politically troubling question of entry into the U.S. of immigrants ineligible for citizenship and their citizen children in American history.
- 162. American West. (4)** Designed for juniors/seniors. Study of the West as frontier and as region, in transit from the Atlantic seaboard to the Pacific, from the 17th century to the present.
- 163. History of California. (4)** Designed for juniors/seniors. Economic, social, intellectual, and political development of California from earliest times to the present. P/NP or letter grading.
- 164. History of Los Angeles. (4)** Designed for juniors/seniors. Social, economic, cultural, and political development of Los Angeles and its environs from time of its founding to the present. Emphasis on the diverse peoples of the area, changing physical environment, various interpretations of the city, and Los Angeles' place among American urban centers.
- 165A. Early Latin America. (4)** Designed for juniors/seniors. Advanced survey of Latin American history from conquest to independence, with emphasis on society, culture, and ethnic aspects.
- 165C. Indians of Colonial Mexico. (4)** Designed for juniors/seniors. Survey of social and cultural history of the Indians of Mexico, especially central Mexico, from time of the European conquest until Mexican independence, emphasizing an internal view of Indian groups and patterns on basis of records produced by the Indians themselves.
- 166. Latin America in the 19th Century. (4)** Designed for juniors/seniors. Intensive analysis of economic, social, and political problems of Latin American nations from their independence to around 1910.
- 167A-167D. Latin America in the 20th Century. (4 each)** Designed for juniors/seniors. Experiments in national development analyzed to relate the timing of social changes to economic, political, cultural, and geographic context. Successive country case studies each focus on world pressures and interplay of overlapping themes: struggle between centralized and decentralized government agencies (emphasized in course 167A), role of personalist leaders (emphasized in course 167B), definition of the national polity (emphasized in course 167C), and "rightist" and "leftist" models of development (emphasized in course 167D). Mexico is treated in course 171. Within each course, countries are studied according to the chronological contribution to the theme emphasized. **167A.** Haiti, Uruguay, Costa Rica, Cuba, Chile; **167B.** Bolivia, Dominican Republic, Argentina, Paraguay, Venezuela; **167C.** Panama, Colombia, Ecuador, Honduras, El Salvador; **167D.** Brazil, Guatemala, Peru, Nicaragua.
- 168. History of Latin American International Relations. (4)** Designed for juniors/seniors. Emphasis on developing interests of Latin American nations in their relationship with one another and with other areas of the world, beginning with 19th-century independence.
- 169. Latin American Eliteloire. (4)** Requisite: course 167A, 167B, 167C, or 171. 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.
- 170A. Latin American Cultural History. (4)** Designed for juniors/seniors. Intellectual, artistic, and folk expressions of the Latin American spirit and character examined in readings and lectures, with emphasis on unique contribution of Latin Americans to develop self-interpretation. Music, films, and slides supplement discussions.
- 170B. Classic Travel Accounts of Latin America since 1735. (4)** Designed for juniors/seniors. Recommended for prospective researchers before they select their region of study. Introduction to "enlightened traveler" accounts as they reveal cultural change from wide-ranging spatial and temporal vantage points. Comparison of published works to photographic series to analyze the great variety of geographic regions, peoples, customs, occupations, dress, food, architecture, and transportation in the 20 countries of the area.
- 170C. Issues in Latin America History. (4)** Designed for juniors/seniors. Examination of major issues in history of Latin America. P/NP or letter grading.
- 171. Mexican Revolution since 1910. (4)** Designed for juniors/seniors. Examination of concept of "permanent crisis" to describe and explain the 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.
- 172. History of Argentina. (4)** Designed for juniors/seniors. History of economic, political, social, and cultural developments that have shaped Argentina from colonial time to the present. Emphasis on 19th-century development of an agro-export economy and 20th-century formation of a mass society.
- 173. Modern Brazil. (4)** Designed for juniors/seniors. Selected topics in political, economic, social, and cultural development of Brazil, with emphasis on modernization and the struggle for change, 1850 to the present. Discussions, films, slides, and guest speakers supplement and complement lectures.
- 174. Brazilian Intellectual History. (4)** Designed for juniors/seniors. General intellectual development of Brazil, with emphasis on those introspective movements in which Brazilians attempted to interpret themselves, their nation, and their civilization.
- M175A-175Z. Topics in African History. (4 each)** Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Examination of specific topics which have a continental application rather than proceeding on a strictly chronological or regional basis. P/NP or letter grading:
- M175A.** Prehistoric Africa — Technological and Cultural Traditions. (4) (Same as Anthropology M119.) 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.

**175B. Africa and the Slave Trade. (4)** Social, economic, political, and cultural impact of the slave trade on African society, with emphasis on Atlantic trade without neglecting those of ancient Mediterranean, Islamic, and Indian Ocean worlds. Abolition and the African diaspora. P/NP or letter grading.

**175C. Africa in the Age of Imperialism. (4)** Topics include penetration of precapitalist social formations by capital, emergence of classes, nature of the colonial and postcolonial state, and struggle for national liberation in a global context. P/NP or letter grading.

**175D. Africa and the Diaspora in Global and Comparative Perspective. (4)** Forced migration of Africans through overseas slave trade was formative event of the 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.

**175E. Africa from 1945 to the Present. (4)** History of Africa south of the Sahara from end of World War II to the present. Last phases of colonial rule in Africa, African nationalism, Pan-Africanism, liberation movements, and achievement of independence. Political, social, and economic change in the colonies and in the 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.

**176A-176B. History of West Africa. (4-4)** Designed for juniors/seniors. **176A.** West Africa from Earliest Times to 1800; **176B.** West Africa since 1800.

**176C. Social and Economic History of West Africa since 1600. (4)** Designed for juniors/seniors. Analysis of main currents of West African social, cultural, and economic history since the fall of the Songhai Empire, with emphasis on the family, religious values, education, urbanization, migrations, arts, slavery, and the 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 the 1950s.

**177. History of Northeast Africa. (4)** Lecture. Designed for juniors/seniors. Survey of history of Ethiopia, Sudan, and Somalia in regional context of northeast Africa from earliest times to the present, with emphasis on economy and society, evolution of the state, and significance of Christianity and Islam. P/NP or letter grading.

**178A. History of East Africa. (4)** (Formerly numbered 178A-178B.) Lecture. 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.

**178B. History of Central Africa. (4)** (Not the same as course 178B prior to Winter Quarter 1999.) Lecture. 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.

**179A-179B. History of Southern Africa. (4-4)** Designed for juniors/seniors. Attention to social and economic as well as political aspects. P/NP or letter grading.

**179A.** From the Origins to 1870. Origins of the South African peoples and their interactions to 1870. **179B.** Since 1870. Interactions between inhabitants of southern Africa since 1870.

**182A-182B. Thought and Society in China. (4-4)** Designed for juniors/seniors. **182A.** 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 the classical legacy and their evolution under the impact of Buddhism to 1000. Emphasis on intersections between intellectual life and social, political, and economic conditions. **182B.** Since 1000. Recommended preparation: course 11B. Elite and popular expressions of Chinese cultural life from 1000 to the 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 the 20th century in light of earlier currents of thought.

**183A. Culture and Power in Late Imperial China. (4)** 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 the afterlife; political, legal, and medical discourses of body, personhood, and social identity; love, sexuality, and private life. P/NP or letter grading.

**183B. Selected Topics in Chinese History from 1500. (4)** (Not the same as course 183B prior to Fall Quarter 1999.) 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. P/NP or letter grading.

**183C. History of Women in China, A.D. 1000 to the Present. (4)** Designed for juniors/seniors. Topics include women and the family, women in Confucian ideology, women in literati culture, feminist movement, and women and the communist revolution. P/NP or letter grading.

**184. 20th-Century China. (4)** 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 the 20th century.

**185A. Japanese Popular Culture. (4)** (Formerly numbered 185.) Lecture. Designed for juniors/seniors. Topics in 18th-, 19th-, and 20th-century Japanese history, including legacy of premodern 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.

**185B. Women in 20th-Century Japan. (4)** Lecture. 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.

**186. Shinto, Buddhism, and Japanese Folk Religion. (4)** 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 the warrior culture, folk religious aspects such as shamanism, ancestor worship, and millenarianism.

**187A-187B-187C. Japanese History. (4-4-4)** Designed for juniors/seniors. Political, economic, and cultural development of Japan from prehistory to the present. P/NP or letter grading. **187A.** Ancient, Prehistory to 1600; **187B.** Early Modern, 1600 to 1868; **187C.** Modern, 1868 to the Present.

**188A. Early History of India. (4)** Designed for juniors/seniors. Introduction to civilization and institutions of India. Survey of history and culture of the South Asian subcontinent from earliest times to founding of the Mughal Empire.

**188B-188C. History of British India I, II. (4-4)** Designed for juniors/seniors. **188B.** Examination of expansion of British rule, theories and practice of governance, constitution of India as an "oriental despotism," epistemological projects of the state, and other modes by which the British achieved the conquest of knowledge. **188C.** Political economy of imperialism and Britain's "civilizing mission." Encounter, especially in terms of race and gender, between the colonized and colonizers and to questions of resistance and nationalism.

**188D. Classical Age of Indian History, A.D. 300 to 1000. (4)** Lecture. Designed for juniors/seniors. Age of glory under Imperial Guptas and subsequent consolidation under Harsha (north India) and Vakatakas, Chalukya, Pallava, and Chola (central and south India); emergence of Sanskrit as Pan-Indian language; spread of Indian culture in central and Southeast Asia. P/NP or letter grading.

**188E. Bhakti Traditions in Indian History. (4)** Lecture. Designed for juniors/seniors. Study of Bhakti or devotional traditions of India as part of "Great Tradition" of classical Hinduism; involvement of women; emergence of Sikhism. P/NP or letter grading.

**189A. Cultural and Political History of Contemporary South Asia. (4)** 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.

**M189B. Indian Identity in the U.S. and the Diaspora. (4)** (Formerly numbered 189B.) (Same as Asian American Studies M133.) Lecture, three hours. 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.

**189C. Special Topics in Contemporary Indian History. (4)** Designed for juniors/seniors. Treatment of major issues in history of contemporary India. P/NP or letter grading.

**190A-190B. History of Southeast Asia. (4-4)** Designed for juniors/seniors. **190A.** Early History of Southeast Asia. Political and cultural history of the peoples of Southeast Asia from earliest times to about 1815. **190B.** 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.

**190C. Philippine History. (4)** Designed for juniors/seniors. Social, cultural, and political history of Philippine societies from the Spanish conquest through independence. Emphasis on questions of identity under colonialism, understanding the 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.

**190D. Vietnam: Past and Present. (4)** Designed for juniors/seniors. Survey of history and culture of Vietnam from about 700 B.C. to the present, including political, social, and economic developments as well as international relations in post-1954 period. P/NP or letter grading.

**190E. Premodern Vietnamese History. (4)** Lecture. 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.

**M191A-M191B. Survey of Jewish History. (4-4)** (Same as Jewish Studies M191A-M191B.) Designed for juniors/seniors. Survey of social, political, and religious developments. **M191A.** From Biblical Times to End of the Middle Ages; **M191B.** From End of the Middle Ages to the Present.

**M191C-M191D. Focal Themes in Jewish History. (4-4)** (Same as Jewish Studies M191C-M191D.) Designed for juniors/seniors. Treatment in depth of one major theme in Jewish history (such as history of Messianic Movements, structure of the Jewish communities) through the ages.

**191E-191F. The Third Reich and the Jews. (4-4)** Designed for juniors/seniors. **191E.** 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. **191F.** 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 the occupied territories.

**191G. European Jewry from 1881 to the Present. (4)** Designed for juniors/seniors. Survey of major social, economic, and political factors that shaped the lives of Europe's Jews from outbreak of the First World War to the present. Emphasis on the diverse Jewish communities of interwar Europe, fate of Jews under the Nazis, and character of the postwar Jewish community. P/NP or letter grading.

**M192A-M192B. Jewish Intellectual History. (4-4)** (Same as Jewish Studies M192A-M192B.) Designed for juniors/seniors. **M192A.** Medieval Period. Examination of three intellectual worldviews that competed for hegemony in the medieval Jewish world — rabbinic Judaism, medieval rationalism as embodied in philosophy, and cabala; **M192B.** Modern Period. Exploration of some of most important currents and figures in Jewish intellectual history from the 18th century to the present.

**193A. History of Religions: Myth. (4)** 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.

**193B. Religions of South and Southeast Asia. (4)** Requisite: course 4 or 193A. Designed for juniors/seniors. Topics vary from year to year and include religion of the Veda; Brahmanism; (later) Hinduism. Consult *Schedule of Classes* for specifics. May be taken independently for credit.

**193C. Religions of South and Southeast Asia. (4)** Requisite: course 4 or 193A. 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.

**193D. Religions of the Ancient Near East. (4)** Designed for juniors/seniors. Main polytheistic systems of the ancient Near East, with emphasis on Mesopotamia and Syria and with reference to the religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom, and moral conduct.

**193E. Special Topics in History of Religions. (4)** Designed for juniors/seniors. Topics announced in *Schedule of Classes* and include ancient Germanic cults; Renaissance mysticism; mystics of the low countries; goddesses; religion in a secular age.

**194A. History of Early Christians. (4)** 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.

**194B. Religious Environment of Early Christians. (4)** Designed for juniors/seniors. Rich variety in religious practice and thought in the Mediterranean world of the 1st century C.E. as in context of the developing Christian movement. Topics include the Pharisees, Qumran, Philo, Stoics, Epicureans, traditional Greek and Roman religions, "mysteries," astrology, magic, gnosticism, and emperor-worship.

**194C. Jesus of Nazareth in Historical Research. (4)** Recommended preparation: course 194A. Designed for juniors/seniors. Stimulated by significant post-Enlightenment historical evaluations, students are led into first-hand knowledge (in translation) of various multilayered sources for reconstruction of the life, teaching, and initial impact of Jesus of Nazareth in his social, economic, political, and religious contexts.

**195A. History of Medicine: Historic Roots of Healing Arts. (4)** (Not the same as course 195A prior to Spring Quarter 2001.) Lecture. Designed for juniors/seniors. Introduction to traditions, practices, goals, and myths of Western healing professions from time of ancient Greeks to the 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.

**195B. History of Medicine: Foundations of Modern Medicine. (4)** (Not the same as course 195B prior to Spring Quarter 1999.) Lecture. Designed for juniors/seniors. Cultural, scientific, and social context that shaped modern medicine, from the 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 anatomo-clinical method at Paris School. P/NP or letter grading.

**195C. Historical Perspectives on Gender and Science. (4)** (Not the same as course 195C prior to Spring Quarter 1999.) Lecture. 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 the feminine. P/NP or letter grading.

**195D. Science and Technology in the 20th Century. (4)** Lecture. 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.

**195E. Topics in History of Science. (4)** Lecture. 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. P/NP or letter grading.

**196. Field Research Methods. (4)** Lecture, three hours. Designed for juniors/seniors. Provides opportunity for students to learn and practice field research, with particular emphasis on relationship between theory, field methodology, and research findings. P/NP or letter grading.

**197A-197Z. Undergraduate Seminars. (4 each)** Seminar, three hours. Designed for juniors/seniors. Limited to 15 students meeting with a faculty member. Organized on a topics basis with readings, discussions, papers. May be repeated once for credit. When concurrently scheduled with courses 201A through 201U or M203A and M203B, undergraduates must obtain consent of instructor to enroll. P/NP or letter grading.

**199. Special Studies in History. (4)** Designed for juniors/seniors. Intensive directed research program. Eight units may be applied toward major requirements.

**199HA. Directed Study for Honors. (4)** Discussion, three hours. Limited to history honors program students. Must be taken in Spring Quarter of junior year. Seminar on historical research and writing; student meetings with honors adviser to define research and preparation for the project. Extensive reading and research in field of proposed honors thesis.

**199HB. Directed Study for Honors. (4)** Requisite: course 199HA. Must be taken in Fall Quarter of senior year. Independent study and research on honors project under supervision of honors adviser, with presentation of research report and thesis outline to thesis adviser and second reader at end of quarter. Both must approve continuation of honors thesis project. In Progress grading (credit to be given only on completion of course 199HC). Only students approved for course 199HC receive credit for this course.

**199HC. Directed Study for Honors. (4)** Discussion, three hours. Requisite: course 199HB. Must be taken in Winter Quarter of senior year. Preparation of final version of honors thesis and presentation of portions of work-in-progress to other students engaged in honors projects. Completed thesis must be submitted to thesis committee by last day of class in Winter Quarter.

**199I. Independent Studies for Internships. (4)** Preparation: maintenance of 3.0 grade-point average in major. Independent studies course to be supervised jointly by Field Studies Office and faculty adviser. Further supervision to be provided by business for which student is doing internship. May not be used to satisfy requirement for course 197 or 199. Normally, only 4 units of internship with History Department are allowed. P/NP 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 the 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 the 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. Topic titles are same as for courses 200A through 200U. Graduate courses involving reading, lecturing, and discussion of selected topics. Does not fulfill seminar requirements for Ph.D. degree. May be repeated for credit. When concurrently scheduled with course 197, undergraduates must obtain consent of instructor to enroll.

**202A-202B. Seminars: Comparative Modern Economic History. (4-4)** Discussion, three hours. Designed for graduate students. Study of problems of modern economics in the 19th and 20th centuries, including such topics as industrialization, growth, demography, development, and economic change. In Progress and S/U or letter grading.

**M203A-M203B. Social Theory and Comparative History. (4-4)** (Same as Political Science M291A-M291B and Sociology M296A-M296B.) Colloquium, three and one-half hours every other week. Introduction to historically rooted social theory and theoretically sensitive history, following the program of the Center for Social Theory and Comparative History. Each course may be taken independently for credit.

**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.

**204A-204B. Seminars: Near and Middle Eastern History. (4-4)** Seminar, three hours. Methodology, socioeconomic and political change in the Arab world. In Progress and S/U or letter grading.

**205A-205B. Seminars: Medieval Middle Eastern History. (4-4)** Seminar, three hours. In Progress and S/U or letter grading.

**206A-206B. Seminars: Social History of the Middle East. (4-4)** Seminar, three hours. Interrelationship of city, tribe, and village in the Middle East; role of such definable social groups as women, religious classes, middle classes, landlords, tribesmen, and peasants; social change. In Progress and S/U or 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.

**209A-209B. Seminars: Ottoman and Modern Turkish History. (4-4)** Seminar, three hours. In Progress and S/U or letter grading.

**211A-211B. Seminars: Armenian History. (4-4)** Seminar, three hours. In Progress and S/U or letter grading.

**C212. Methods in Armenian Oral History. (4)** Seminar, three hours. Preparation: proficiency in Armenian language. Lectures and laboratory in methods of taking, processing, and utilizing depositions and other oral sources for Armenian history, including project assignment in the field. May be concurrently scheduled with course C112D.

**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. In Progress and S/U or letter grading.

**216A-216B. Seminars: Byzantine History. (4-4)** Seminar, three hours. In Progress and S/U or letter 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.

**218A-218B. Paleography I, II. (4-4)** (Formerly numbered 219A-219B.) Seminar, three hours; discussion, three hours. Preparation: reading knowledge of Latin and German or French. S/U or letter grading. **218A.** History of the manuscript book from antiquity through the Carolingian renaissance, with emphasis on dating and localization as well as on proficiency in reading. **218B.** History of the manuscript book from the Carolingian renaissance through the invention of printing, with emphasis on dating and localization as well as on proficiency in reading.



**C219A. From Roll to Codex: Manuscripts in Early Middle Ages.** (4) (Formerly numbered C219C.) Lecture, three hours. Examination of history of medieval manuscripts and circumstances of their production, use, and survival as evidence for study of medieval European society to 1100. Concurrently scheduled with course C119A. S/U or letter grading.

**C219B. From Parchment to Print: Manuscripts in Later Middle Ages.** (4) (Formerly numbered C219D.) Lecture, three hours. Examination of history of medieval manuscripts and circumstances of their production, use, and survival as evidence for study of medieval European society from 1100 to 1500. Concurrently scheduled with course C119B. S/U or letter grading.

**CM220A. Interfaces: Transmission of Roman Literature.** (4) (Formerly numbered M223.) (Same as Classics M220A.) Discussion, 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. Concurrently scheduled with course C120A. S/U or letter grading.

**221A-221B. Seminars: Medieval History.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**222A-222B. Seminars: Medieval Intellectual History and History of Science.** (4-4) Seminar, three hours. Selected problems from medieval and early modern philosophy, science, political theory, theology. In Progress and S/U or letter 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. In Progress and S/U or letter grading.

**227A-227B. Seminars: Reformation.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**229A-229B. Seminars: Early Modern European History.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**M230A-M230B. Seminars: Modern European History.** (4-4) (Same as Art History M241A-M241B.) Seminar, three hours. May be repeated for credit with consent of adviser. In Progress and S/U or letter grading.

**231A-231B. Seminars: Modern European Intellectual and Cultural History.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**232A-232B. Seminars: French History of the 19th and 20th Centuries.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**233A-233B. Seminars: Russian/Soviet History.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**234A-234B. Seminars: Modern History of Spain, Portugal, and Italy.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**235A-235B. Economic History of Europe, 1780 to 1939.** (4-4) Lecture, three hours. 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 and S/U or letter grading.

**M236A. Proseminar: Political Psychology.** (4) (Same as Political Science M261A and Psychology M228A.) Discussion, 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. Exploration of individual and group psychological processes and their uses in historical research. In Progress and S/U or letter grading.

**239A-239B. Seminars: English History — Middle Ages.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**240A-240B. Seminars: English History — Modern History.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**241A-241B. Seminars: German History.** (4-4) Seminar, three to four hours. Designed for graduate students. In Progress and S/U or letter 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. In Progress and S/U or letter 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. In Progress and S/U or letter grading.

**249A-249B. Seminars: Jacksonian America.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**250A-250B. Seminars: U.S. History of the Middle 19th Century.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**251A-251B. Collaborative Research Seminars: American History.** (4-4) Seminar, three hours. Research seminars taught jointly by two faculty members. In Progress and S/U or letter grading. **251A.** Common readings and development of individual research projects. **251B.** Research, writing, and critical discussion of draft papers.

**252A-252B. Seminars: Recent U.S. History to 1930.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**253A-253B. Seminars: Recent U.S. History since 1930.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**254A-254B. Seminars: U.S. Social and/or Intellectual History.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**255A-255B. Business Enterprise and American Culture.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**256A-256B. Seminars: American Diplomatic History.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**257A-257B. Seminars: U.S. Urban History.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**258A-258B. Seminars: Working Class History.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**259A-259B. History of Women.** (4-4) Seminar, three hours. History of women's social and political issues seen in a U.S. and comparative context. In Progress and S/U or letter grading.

**260A-260B. Seminars: Native American History.** (4-4) Seminar, three hours. In Progress and S/U or letter 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. 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 and S/U or letter grading.

**262A-262B. Seminars: Chicano History.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**263A-263B. Seminars: History of the American West.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**M264. History of American Education.** (4) (Same as Education M201C.) History of educational thought and of social forces impinging on American education from the 1880s to the present. Analysis of relation between these ideas and forces, and aims and practices of American education today.

**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. In Progress and S/U or letter grading.

**267A-267B. Seminars: Latin American History, 19th and 20th Centuries.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**M268A-M268B. Seminars: Recent Latin American History.** (4-4) (Same as Latin American Studies M268A-M268B.) Seminar, three hours. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of an interdisciplinary nature. In Progress and S/U or letter grading.

**275A-275B-275C. First-Year Colloquia: African History.** (4-4-4) (Formerly numbered 275.) Seminar, three hours. Required of all entering graduate students in African history. Source identification, research methodologies, historiographical traditions, historical interpretation, approaches to teaching, and research design. Each course may be taken independently for credit. S/U or letter grading.

**278A-278B-278C. Research Seminars and Dissertation: African History.** (4-4-4) (Formerly numbered 278A-278B.) Seminar, three hours. Multiple-term seminars/workshops designed to bring together pre-dissertation candidates and dissertation writers for regular presentations and critical assessment of their work in progress. Each course may be taken independently for credit. S/U or letter 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. In Progress and S/U or letter grading.

**285A-285B. Seminars: Japanese History.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**288A-288B. Seminars: South Asia.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**289A-289B. Seminars: Southeast Asia.** (4-4) Seminar, three hours. In Progress and S/U or letter grading.

**291A-291B. Seminars: Jewish History.** (4-4) Seminar, three hours. Studies in intellectual and social history of Jewish people from ancient times to the modern period. In Progress and S/U or letter grading.

**293A-293B. Seminars: History of Religions.** (4-4) Seminar, three hours. In Progress and S/U or letter 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, Feynabend, 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. In Progress and S/U or letter grading.

**M298. Interdisciplinary Studies in the 17th and 18th Centuries. (4)** (Same as English M298.) Topics vary according to participating faculty. May be repeated for credit.

**M299. Interdisciplinary American Studies. (6)** (Same as English M299.) Discussion, four hours. Readings, discussion, and papers on a common theme, team-taught by faculty from different departments. Topics vary according to participating faculty. May be repeated for credit with consent of instructors.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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 students' 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) 825-3480  
<http://www.humnet.ucla.edu/humnet/arthist/ArtHistoryHome.html>

Donald A. Preziosi, Ph.D., *Chair*

### Faculty Advisory Committee

Irene A. Bierman, Ph.D.  
Robert L. Brown, Ph.D.  
Ronald J. Mellor, Ph.D.  
Donald A. Preziosi, Ph.D., *Chair*  
Debra L. Silverman, Ph.D.

### Affiliated Faculty

#### Professors

Robert L. Brown, Ph.D. (*Art History*)  
(*Art History*)  
Ronald J. Mellor, Ph.D. (*History*)  
Debra L. Silverman, Ph.D. (*History*)

#### Associate Professor

Irene A. Bierman, Ph.D. (*Art 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

### 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.

No course for the major may be taken on a P/NP grading basis.

Students wanting to confer with a counselor regarding program planning and major requirements should contact the history/art history counselor at (310) 825-3480.

### 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

To be admitted as History/Art History majors, transfer students with 90 or more units must complete the following introductory courses 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.

### The Major

*Required:* History 99 or 100; 197 or 199; and courses as indicated in the following groups:

Group A: Two non-European history courses from History M104A, M104B, M105, 106A, 106B, 106C, 107A, 107B, 108A, 108B, 109A, 109B, 109C, 110A, 110B, 111A, 111B, 111C, 112A through C112D, 115A, M122, 123A, 123B, 143, 165A, 165C, 166, 167A through 167D, 168, 169, 170A, 170B, 171, 172, 173, 174, M175A, 175B, 175C, 175E, 176A, 176B, 176C, 177, 178A, 178B, 179A, 179B, 182A, 182B, 183A, 183B, 183C, 184, 185A, 186, 187A, 187B, 187C, 188A, 188B, 188C, 190A, 190B, 193B, 193C, 193D

Group B: Two U.S. history courses from History 145A, 145B, 146, 147A, 147B, 147C, 148A, 148B, 148C, 149A, 149B, 150A, 150B, 150C, 151A, 151B, 152A, 152B, M153, 154A through 154D, 155A, 155B, 156A through 156H, 157A, 157B, M158A through M158E,

M159A, M159B, 160A, 160B, 161, 162, 163, 164, M189B

Group C: Two European history courses from History 115B, 115C, 116A, 116B, 117A, 117B, 117C, 119M, 120M, 121A through 121D, 124A, 124B, 125A through 125F, 126A through 126F, 127A, 127B, 127C, 128A, 128B, 128C, 129A, 129B, 129C, 130, 131A through 131D, 132A, 132B, 133A, 133B, 134A, 134B, 135A, 135B, 137A, 137B, 138A, 138B, 141A, 141B, 141C, 142A, 142B, 144, M191A through 191G, M192A, M192B, 194A, 194B, 194C, 195A, 195B, 195C

Group D: Three Western art history courses from Art History 101A, 101B, 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, C119A, C119B

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 195A and 195B 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 195A and 195B with grades of A.

# HONORS COLLEGIUM

College of Letters and Science

UCLA  
A311 Murphy Hall  
Box 951414  
Los Angeles, CA 90095-1414  
(310) 825-1553  
<http://www.college.ucla.edu/up/honors>

## Faculty Advisory Committee

Joyce O. Appleby, Ph.D. (*History*), Chair  
Ruth, H. Bloch (*History*)  
Rogers Brubaker, Ph.D. (*Sociology*)  
John P. Carriero (*Philosophy*)  
Patricia M. Greenfield (*Psychology*)  
Janet R. Hadda (*English*)  
William M. Mason (*Sociology*)  
Jeffery H. Miller, Ph.D. (*Microbiology and Molecular Genetics*)  
Claudio Pellegrini, Ph.D. (*Physics and Astronomy*)  
David C. Rapoport, Ph.D., Emeritus (*Political Science*)  
Min Zhou, Ph.D. (*Sociology*)

## 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 promote 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. Many 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 brochure, which gives detailed course descriptions, is available from the program office or see <http://www.college.ucla.edu/up/honors>.

## Honors Collegium

### Lower Division Courses

**1. Systems Thinking: Exploring Order and Chaos in Everyday Life. (5)** (Not the same as course 1 prior to Fall Quarter 2000.) Seminar, three hours; laboratory, one hour. Exploration of neural networks, genetic algorithms, and systems languages as way of defining, measuring, exploring, and creating systems. P/NP or letter grading.

**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.

**3. History and Visual Culture from Engraving to Film and Television. (5)** (Not the same as course 3 prior to Fall Quarter 2000.) Seminar, three hours. Interdisciplinary look at relationship between visual imagery and historical developments, tracing evolution of visual culture in relationship to forms of political, social, and cultural authority in media from 17th-century engravings to post-World War II television. P/NP or letter grading.

**4. Surrealist Challenge. (4)** Examination of revolutionary cultural movement of surrealism in France and Spain in the 1920s and 1930s, including films of Buñuel and Dali, paintings of Ernst and Magritte, and writings of Breton, Crevel, and Péret. P/NP or letter grading.

**5. Science and the Human Condition. (4)** (Not the same as course 5 prior to Winter Quarter 1999.) Seminar, three hours. Examination of impact that scientific method has on the human condition and on our concept of humankind through two case studies: processes by which Darwin formulated theory of evolution by natural selection and replacement of Newtonian physics by quantum theory. P/NP or letter grading.

**6. Historical Construction of Reality. (4)** (Not the same as course 6 prior to Fall Quarter 1999.) Seminar, three hours. Examination, through comparative analysis of various societies at various times, of phenomena that are taken for granted as natural but which are actually historically constructed, including perception (time and space) and hierarchy (race and gender). P/NP or letter grading.

**7A. Urban Poverty and Public Policy in the U.S. (4)** Lecture, four hours; discussion, one hour. Focus on social welfare in the U.S., providing historical overview of poverty and the social programs that have attempted to deal with it and addressing current debate on the subject. P/NP or letter grading.

**7B. Urban Poverty and Public Policy in the U.S. (4)** Optional fieldwork and tutorial. Enforced corequisite: course 7A. Field studies in social policy. 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.

**9. Greeks and Barbarians: Multiculturalism in the Ancient World. (4)** Seminar, three hours. Through examination of art and literature from prehistoric period (Homer and Bronze Age) through the Hellenistic Age (4th through 2nd century B.C.), exploration of why and how diverse groups and cultures of classical antiquity defined themselves as different and what these expressions of difference have to do with modern perceptions of race and ethnicity. P/NP or letter grading.

**10. Social Classification and Categorization. (4)** Seminar, three hours. Examination of way in which schemes of classification powerfully shape systems of social counting and accounting. Use of recent works from many disciplines to examine how classification constitutes both principles of vision and principles of division. P/NP or letter grading.

**11. Reinventing African History. (5)** (Not the same as course 11 prior to Fall Quarter 2000.) Seminar, three hours. Critical evaluation of historical study of Africa, particularly of two schools defined by old Eurocentric stereotypes of Africa and new stereotypes arising from an Afrocentric model. P/NP or letter grading.

**12. Sacred Form: Literature and Poetry in India from Bronze Age to Premodern Times. (4)** (Not the same as course 12 prior to Fall Quarter 2000.) 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. Realism in Times of Crisis: French and Italian Cinema of the 1930s and 1940s. (4)** Lecture, four hours; discussion, one hour. Examination of French and Italian cinema in period around World War II, time marked by social tensions and political unrest. Investigation of French realism, Italian neorealism, and French abstract cinema as they reveal two different European cultures during a critical historical era. P/NP or letter grading.

**14. Interaction of Science and Society. (4)** (Not the same as course 14 prior to Winter Quarter 1998.) 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)** (Not the same as course 15 prior to Fall Quarter 2000.) 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. Contemporary Fiction and Psychology of the Self. (4)** Seminar, three hours. Examination of relationship between personal and interpersonal dynamics in literature as they are illuminated by Heinz Kohut's theories of self-psychology. P/NP or letter grading.

**17. Civil Rights, Women's Rights, Human Rights. (5)** (Not the same as course 17 prior to Fall Quarter 2000.) Seminar, three hours. Investigation of lived history of rights, including context and implications of 14th Amendment, subsequent civil rights activism, women's rights, internationalization of these notions in politics of human rights, and current critiques of "rights talk." P/NP or letter grading.

**19. Rhetoric on Trial: Legal Advocacy, Ancient and Modern. (4)** (Not the same as course 19 prior to Fall Quarter 2000.) Seminar, four hours. Examination of theory and practice of classical rhetoric through readings, discussions, and practical exercises, including field study of contemporary usage in political arena and courts. P/NP or letter grading.

**20. Artificial Intelligence: Machines as People, People as Machines. (4)** (Not the same as course 20 prior to Fall Quarter 1999.) 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.

**21W. Rise and Fall of Modernism. (6)** (Formerly numbered 21.) Seminar, three hours; writing laboratory, two hours. Enforced prerequisite: English Composition 3 or 3H. Not open for credit to students with credit for former course 21. 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 Letters and Science Writing II requirement. Letter grading.

**22. Short History of Science: Reading the Great Book of the Universe. (4)** (Not the same as course 22 prior to Fall Quarter 2000.) Seminar, four hours. Examination of key concepts of modern science through their historical development, including study of impact of scientific and industrial revolutions on art, economy, environment, religion, and structures of society. P/NP or letter grading.

**23. Globalization. (4)** Seminar, three hours. The making of one world from the 15th century on through exploration, trade, and colonization; revolutions in transportation and communication; regional and global networks of migration; transnational business and finance organizations; and (qualified) emergence of a global culture. P/NP or letter grading.

**24. 21st Century: Society, Environment, and Ethics. (4)** Lecture, two hours; discussion, one hour. Technology, society, and ethics in three major areas: environment and environmental engineering, or large-scale changes in biosphere; effects of technology on people; and effects of technology on nonhuman creatures. P/NP or letter grading.

**25. Human Genome: Prospects for a Super Race? (4)** Lecture, four hours; discussion, one hour. Influence of genetics on human biology, addressing the controversial issue of using genetic engineering to alter genes on human chromosomes. P/NP or letter grading.

**26. Representing Medicine: Art, Literature, and Film. (5)** (Not the same as course 26 prior to Summer Quarter 2000.) Lecture/discussion, 10 hours. Limited to Freshman Summer Program students. Exploration of interdisciplinary dimensions of medical representation, with emphasis on cross-cultural 20th-century portrayals of the 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)** (Not the same as course 27 prior to Fall Quarter 1999.) 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. Misleading Mirror: Self-Portraits in Word and Image. (4)** Self-portraiture as it is represented in the novel, poetry, painting, essay, and film, both from point of view of the artist/representor and from perspective of the reader/viewer. P/NP or letter grading.
- 29. Critical Vision: History of Art as a Social and Political Commentary. (4)** Seminar, three and one-half hours. Study of tradition of visual arts (painting, graphic art, photography, sculpture) as vehicles for social and political commentary. 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.
- 31. Current Environmental Problems. (5)** Lecture/discussion, four hours. Examination of current pressing environmental issues, including overpopulation, greenhouse effect, loss of biodiversity, and toxic waste production and disposal. P/NP or letter grading.
- 32W. Creativity and Culture: Making Things New in the Arts, Humanities, Social Sciences, and Sciences. (6)** (Formerly numbered 32.) Seminar, three hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for former course 32. Study of creative acts of artists, writers, social scientists, and scientists in relation to their societies, cultures, disciplines, conventions, and art forms. Satisfies Letters and Science Writing II requirement. Letter grading.
- 33W. Art of Engagement. (6)** (Formerly numbered 33.) Seminar, three hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for former course 33. Cross-curricular, cross-cultural examination of literature, art, and film as a way of discovering how writers and artists treat conflict between art as something inward and psychological and personal, and art as a vehicle of social and political import. Satisfies Letters and Science Writing II requirement. Letter grading.
- 34. Film and Society: The Hollywood Myth of Ancient Rome. (4)** Exploration of popular influence of ancient Rome on filmmakers of the 20th century, with eye to separating objective examination of Roman political and social institutions and the myth they have become. P/NP or 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. Ethnicity and Social Class in America. (4)** Introduction to data analysis, quantitative method, and use of statistics in social sciences, using General Social Survey (GSS) and concentrating particularly on ethnicity and social class. Students conduct statistical research of their own. P/NP or letter grading.
- 37A. Ethnicity, Social Class, and Social Mobility in the U.S. and Other Societies. (4)** Seminar, three hours. Study of the U.S. and other nations in terms of social class, social mobility, ethnicity, and absorption of immigrants, with emphasis on manipulation and analysis of data sets from census and survey data provided through instructional software. P/NP or letter grading.
- 37B. Ethnicity, Social Class, and Social Mobility in Los Angeles. (4)** Seminar, three hours. Course 37A is not requisite to 37B. Study of Los Angeles in terms of social class, social mobility, ethnicity, and absorption of immigrants, with emphasis on manipulation and analysis of data sets from census and survey data provided through instructional software. P/NP or letter grading.
- 38. Frida Khalo: Multidisciplinary Construction of an Artist's Life. (4)** (Not the same as course 38 prior to Fall Quarter 1999.) Seminar, four hours. Comprehensive contextual and interpretive study of artist Frida Khalo's life, art, and character as a way of examining seminal political/historical events and cultural movements. P/NP or letter grading.
- 39. Early Modern French Culture in Film. (5)** (Not the same as course 39 prior to Fall Quarter 2001.) Seminar, three hours. Using films and texts, study of development of courtly culture in France from the Renaissance to its demise in the 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)** (Not the same as course 40 prior to Fall Quarter 1999.) Seminar, four hours. Enforced requisite: English Composition 3 or 3H. 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 Letters and Science Writing II requirement. Letter grading.
- 41. Mathematical Concepts: Origins and Development. (4)** (Not the same as course 41 prior to Fall Quarter 1999.) Seminar, three hours. Exploration of various concepts in mathematics, especially in algebra, from historical point of view from ancient Babylonian quadratic triples to contemporary game theory and including study of some of the more remarkable applications. P/NP or letter grading.
- 42. Physics of Music. (5)** (Not the same as course 42 prior to Fall Quarter 2000.) Seminar, four hours. Study of physics of sound as it applies to music, including sine waves, relationship of frequency to pitch, harmonics and timbre, scales, tunings, and temperaments — all examined with both musical and physical experiments. P/NP or letter grading.
- 43. Male Identity and Sexuality in Ancient Rome. (4)** Seminar, three hours. Investigation of Roman cultural constructions of male identity and sexuality in context of political and social change in an emergent imperial ideology in the 1st century C.E.; examination of male "virtus," sexual stereotypes, and dynamics of sex and power in imperial politics. P/NP or letter grading.
- 44. Trail of Light. (4)** Lecture, three hours; discussion, two hours. Study of our understanding of light, colors, and vision: physics of light from Newton to Einstein; physics, chemistry, and biology of vision in relation to color; and appearance of light in art. P/NP or letter grading.
- 45. State, Nation, and Nationalism in Modern and Contemporary Europe. (4)** (Formerly numbered M115.) Seminar, four hours. Examination of state, nation, and nationalism in Europe in theoretical, comparative, and historical perspective. P/NP or letter grading.
- 46W. Literature of Testimony. (6)** Seminar, four hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H. Cross-cultural examination of 19th- and 20th-century literature of testimony functioning as acts of resistance, endorsement of inherited values, political activism, creation of knowledge, personal healing, and nation building. Satisfies Letters and Science Writing II requirement. Letter grading.
- 47. Literature of Colonization and Colonization of Literature. (4)** Seminar, three hours. Examination of various facets of interaction between Western and non-Western cultures since period of high imperialism beginning in the mid-19th century, with focus on the novel as prism through which to observe cultural meeting and interchange and their consequences. 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.
- 50A. Greek Views of Humanity. (4)** Lecture, three hours; discussion, one hour. Greek views of human experience as expressed in literary forms invented or developed by the Greeks: epic, history, tragedy, comedy, and philosophy; study of way in which Greek texts provide foundation for subsequent Western literature and thought. P/NP or letter grading.
- 50B. Gender and Race: Constructions of Greek Political Thought. (4)** Lecture, three hours; discussion, one hour. Course 50A is not requisite to 50B. Comprehensive introduction to Greek views of humanity with concentration on gender and race, especially as these issues are manifested in Plato and Aristotle. P/NP or letter grading.
- 51. Childhood in Historical and Sociological Perspective. (4)** Seminar, three hours. Examination of ways in which experience and social expectations of childhood have been transformed over time and of ways in which these experiences and expectations vary according to class, race, and gender. P/NP or letter grading.
- 52. Madness in the Enlightenment: Care and Cure of Mental Illness. (5)** (Not the same as course 52 prior to Fall Quarter 2000.) Seminar, four hours. Not open for credit to students with credit for Psychiatry 98B. Study of physicians and reformers of the Enlightenment who treated the mentally ill, examined in context of social, intellectual, and cultural history of the time. P/NP or letter grading.
- 53. American Folk Music, Protest, and Identity. (5)** (Not the same as course 53 prior to Fall Quarter 2001.) Seminar, three hours. Study of American folk music as a 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. Human Lives: Psychocultural Perspective. (4)** Seminar, three hours. Examination of human life course in psychocultural perspective, following observations of Kluckhohn and Murray, including investigations of (1) psychobiological underpinnings of human life, (2) human life as shaped by social and cultural processes, and (3) humanistic perspective defining uniqueness. P/NP or letter grading.
- 55. Culture and History of Utopias. (4)** (Not the same as course 55 prior to Fall Quarter 1999.) 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 a Window to the Mind. (4)** Lecture, four hours; discussion, one hour. Study of topics in language and the mind, including language acquisition in the child, language representation in the brain, relationship between language and other mental abilities, and autonomous nature of language as a system of knowledge. P/NP or letter grading.
- 57. Life and Sciences of Complexity. (4)** Seminar, four hours. Study of motion and change in systems, including general systems theory, cybernetics, catastrophe theory, and dissipative structure theory, moving toward a view of senescence of complex systems, or an answer to question of why we grow old and die. P/NP or letter grading.
- 58. Apartheid and Social Stratification in South Africa: Theory and Data. (4)** Seminar, three hours. Examination as an empirical question of structure and consequences of apartheid in South Africa, including analyses both of history and of social stratification. P/NP or letter grading.
- 59W. Literature and Culture of the American South. (6)** (Formerly numbered 59.) Seminar, four hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for former course 59. 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 Letters and Science Writing II requirement. Letter grading.

**60. Immigration and New Second Generation. (4)** (Not the same as course 60 prior to Fall Quarter 1998.) Seminar, three hours. Immigrant children and children of immigrants have become fastest growing and most ethnically diverse segment of the U.S. child population, raising issues of migration processes, contexts of reception, biculturalism, adaptation, and assimilation and impact of these on socioeconomic circumstances and future success. P/NP or letter grading.

**61. Social Theory in the 20th Century. (6)** Lecture, four hours; discussion, one hour; writing seminar, two hours. Examination of strikingly subjective thrust of 20th-century social thought which has emphasized cultural and emotional structures rather than the material, objective world. Focus on psychoanalysis, structuralism, functionalism, existentialism, and phenomenology in readings from Durkheim to Jean-Paul Sartre. P/NP or letter grading.

**62. Community and Self-Interest in History of American Culture. (6)** Lecture, four hours; discussion, one hour. Exploration of historical origins of the frequently contradictory values which inform American thought and culture: hierarchy and equality, institutional constraints and voluntarism, collective sense of mission and belief in the autonomous individual. P/NP or letter grading.

**63. Emerging Infections and Their Effects on Society: Past, Present, and Future. (4)** Seminar, four hours. Examination of how people have responded to plagues and infections through early history and "golden age of microbiology" of last 200 years; study of contemporary responses, including genetic engineering, and prophecies regarding what future may hold regarding infectious diseases. P/NP or letter grading.

**64. Neuroscience and Psychology of Art and Biology of Aesthetics. (5)** (Not the same as course 64 prior to Fall Quarter 2001.) Seminar, three hours. Interdisciplinary approach to study of premise that beauty, whether of faces, art works, or other subjects, is processed by the brain and can be understood as a neurological and psychological phenomenon. P/NP or letter grading.

**65. Literature and Culture of Francophone World. (5)** (Not the same as course 65 prior to Fall Quarter 2001.) 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.

**66. Art and the Machine: Impact of Technology on Aesthetics. (5)** (Not the same as course 66 prior to Fall Quarter 2001.) Seminar, four hours. Examination of how technology has changed way artists think about their art. P/NP or letter grading.

**67. Structure of Physical Reality. (4)** (Not the same as course 67 prior to Fall Quarter 1998.) 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. History of Social Thought. (4)** Lecture, three hours; discussion, one hour. Study of significant forms of social theory and social change from the English Revolution to beginning of the 20th century, including readings from Hobbes, Rousseau, Smith, Tocqueville, Marx, and Freud. P/NP or letter grading.

**69. Artificial Life and Evolutionary Design: Theory and Practice in Multiagent Modeling. (5)** (Not the same as course 69 prior to Fall Quarter 2001.) 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.

**70. Genetic Engineering in Medicine and Agriculture. (4)** Lecture, 90 minutes; discussion, two hours. Overview of principles of cell and molecular biology and of technical details of genetic engineering. Discussion of benefits and detriments of new biotechnology in relation to medicine, agriculture, and general social issues. 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.

**70B. Nonlife to Life, Microbes to Man: Nature Is Not Compartmentalized. (5)** Lecture, two and one-half hours; discussion, two hours. Examination of life on Earth from cosmic perspective through interconnected evolutionary histories of Earth's geology, biology, and atmosphere-ocean systems. 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. Cultural Heritage and Virtual Reality. (5)** (Not the same as course 71 prior to Fall Quarter 2001.) Seminar, four hours. Study of application of virtual reality technology to field of cultural heritage, using three-dimensional computer models of such sites as Cathedral of Santiago de Compostela, Colosseum, and Second Temple in Jerusalem. 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.

**74. Life Crises in Literature. (4)** Seminar, three hours. Examination of typical life upheavals (child abuse, coming of age, death, etc.) as they are portrayed in modern literature and, by comparative analyses of diverse literatures, focus on ways in which universal events are filtered through the prism of distinct cultural perspectives. P/NP or letter grading.

**75. On Nature of Things: Comparative Reading of Poem by Lucretius and Modern Science. (4)** Seminar, three hours. Most important and influential concepts of modern science, including atoms, their movements and nature, origin of the world, evolution of life; comparison with theories of Lucretius as defined in *De Rerum Naturae*. P/NP or letter grading.

**76. Race, Class, and Gender. (4)** Seminar, three hours. Analysis of interrelationship of race, class, and gender and of ways in which these social means of classification shape experience in American society. Research project on this topic into a hobby, sport, or occupation required. P/NP or letter grading.

**77. Space Science: Active Sun and Its Effects on Earth. (4)** (Not the same as course 77 prior to Fall Quarter 1999.) Lecture, 90 minutes. Study of consequences of solar magnetic storms on Earth, using latest NASA and ISAS tools for monitoring the sun and recording, through computer simulations, its effects. Joint course between Kyoto University, using distance learning technology. P/NP or letter grading.

**78. Writing in Age of Revolution. (4)** Lecture, four hours; discussion, one hour. Part of UCLA French Revolution Bicentennial Program. Examination of major debates of 1780 to 1820 in America and Europe through historical, rhetorical, and literary study. P/NP or letter grading.

**79. Genome: Blueprint, Controversy, Destiny. (5)** Lecture, three hours; laboratory, three hours. Not open to students with credit for Life Sciences 3 or 4. Laboratory-based exploration of topics related to Human Genome Project, including DNA coding, impact of Human Genome Project on society, use of DNA in forensic analysis, designer genes, and genomes as basis of new insights into evolution. P/NP or letter grading.

**80. Literature of Diversity: Cultural Experience in America. (4)** Seminar, three hours. Examination of richness and variety of American culture as revealed in literary works generally neglected in traditional surveys. Theories of ethnicity and nationalism presented in such works as *Black Elk Speaks*, *Their Eyes Were Watching God*, Mexican Corridos on immigration, and *China Men*. 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)** (Formerly numbered 83.) Seminar, four hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for former course 83. 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 Letters and Science Writing II requirement. Letter grading.

**84. Los Angeles, 1900 to 2000: History of a 20th-Century City. (4)** Seminar, three hours. Interdisciplinary approach to study of Los Angeles, with attention to political and economic issues and emphasis on social and cultural history as reflected in literature, art, film, and architecture. P/NP or letter grading.

**85. Science and Art: Concepts and Connections. (4)** Seminar, four hours. Study of relationships between intellectual problem solving in science and aesthetics, with particular attention to holographs and liquid light displays. P/NP or letter grading.

**86. Federico Garcia Lorca and Literature of New York. (4)** Lecture/discussion, three hours. Designed to place Lorca in the international current of urban literature. Examination of Lorca's poems (in translation) and drawings as representations of New York in art, cinema, and literature. P/NP or letter grading.

**87. Humans and Other Animals. (4)** (Not the same as course 87 prior to Fall Quarter 1998.) Seminar, three hours. Examination of ongoing and historic relations between human beings and animals cross-culturally, including animals perceived as predators, renewable and non-renewable resources, pets, trophies, collectibles, and objects of study. 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.

**89. Freud, Fairy Tales, and Feminism. (4)** Lecture/discussion. Demonstration of both the power of Freud's ideas and vision and vitality of criticisms of Freud that emanate from self-psychology and feminist thinking in contemporary social science. P/NP or letter grading.

**90. French Revolution: Ideologies and Images. (6)** Lecture, two and one-half hours; discussion, one hour; writing seminar, two hours. Examination of history of French Revolution as series of world historical events and as source of dominant ideologies and images that have influenced culture of France, Western Europe, and North and South America. P/NP or letter grading.

**92. Genes, Genomics, and Internet. (4)** (Not the same as course 92 prior to Fall Quarter 1998.) Lecture, two hours; computer laboratory, three hours. New science of genomics (computer analysis of genetic information), dealing with issues related to basic genetics, medicine, biotechnology, evolution, information technology, and their societal impact. P/NP or letter grading.

**94. Historic Roots of Healing Arts. (4)** (Not the same as course 94 prior to Fall Quarter 1998.) Not open to students with credit for Psychiatry 98H. Introduction to traditions, practices, goals, and myths of healing professions in Western medicine. P/NP or letter grading.

**95. Art, Politics, and Social Change in 19th-Century England and France. (4)** Seminar, three hours. Exploration, through analysis of artists and intellectuals in 19th-century England and France, of social factors in cultural expression and way that national traditions and political and social conditions shape each set of literary and artistic innovations. P/NP or letter grading.

**96. Cultural Dimensions of Apartheid and Post-Apartheid South Africa. (4)** Exploration of culture and society of contemporary South Africa through literature of both black and white South African authors and popular cultural forms such as people's theater and workers' poetry. 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.

**99. Student Research. (1 to 4)** (Not the same as course 99 prior to Fall Quarter 1999.) Tutorial (research or other scholarly work), five hours per week per unit. Entry-level research under guidance of a faculty mentor. Enrollment by contract. Students must be in good standing and enrolled in a minimum of 12 units (excluding this course). May be repeated; consult college/school adviser. P/NP grading.

## Upper Division Courses

**101. Summer 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.

**M102. Culture, Media, and Los Angeles. (6)** (Same as Afro-American Studies M102 and Asian American Studies M197H.) 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. Eurocentrism Debate: Viability of Western Tradition. (4)** Seminar, three hours. Designed for juniors/seniors. Assessment, both historically and critically, of "Western tradition" as a cultural, social, and ideological construct and delineation for discussion of current debates over Eurocentrism, particularism, and multiculturalism. P/NP or letter grading.

**105. Chinese and Greek Heroes, Past and Present. (4)** Seminar, three hours. Designed for juniors/seniors. Comparison of Greek and Chinese notions of the heroic in ancient epics and redefinitions of the heroic in their modern permutations, allowing students to interrogate cultural constructions of manhood. 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. History of the Devil in Scripture and Literature. (4)** Seminar, three hours. Following study of supernatural figure "Satan" in Old Testament and its correspondent figure in New Testament, course looks at historical research, literary analysis, and theological thinking to trace evolution of concept of "the devil" in the Bible, 15th-century drama, and poetry of John Milton. 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)** (Formerly numbered 112.) (Same as Education 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.

**113. Geographical Encounter and Exploration. (4)** Seminar, four hours. Examination of coming together of various societies, whether preliterate or literate: the encounter. Exploration of both European and non-European travels, with emphasis on new thinking in fields of history and geography. P/NP or letter grading.

**114. Darwin and *The Origin of Species*. (4)** Lecture, three hours; discussion, one hour. Reading of Darwin's *The Origin of Species* in original text, then using it as springboard to investigate history of his period, what influenced him, and how future scientists have used him. P/NP or letter grading.

**M116. Art Alive: Art and Improvisation in the Museum. (4)** (Same as Theater M193.) Seminar, four hours. Offered in collaboration with the Los Angeles County Museum of Art (LACMA). Interpretation of art in the collection through acting, dialogues, movement, and music. Research into history and art history and production of a 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.

**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 and Policy Studies 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.

**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.

**125. Interpretations of Shakespeare in Theater and Film in the 20th Century. (4)** Seminar, three hours. Textual content of five Shakespearean dramas and their film and stage interpretations in the 20th century, including participation in rehearsals of production of *All's Well that Ends Well*. P/NP or letter grading.

**126. Making Citizens/Making Societies: Political Cultivation in Cross-Cultural Perspective. (4)** (Formerly numbered 31.) Seminar, three hours. Examination of how a 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.

**M128. Latinos and Literacy. (5)** (Formerly numbered 128.) (Same as Chicana and Chicano Studies M170.) Seminar, three hours; field project, three hours. Preparation: Spanish fluency or completion of two years of university-level Spanish. Study of theory and practice of teaching literacy, including field-based work in adult literacy centers in the city. P/NP or letter grading.

**129. Cultural Construction of Gender and Sexuality: Homosexualities. (4)** Seminar, three hours. Not open for credit to students with credit for Anthropology M134 or Lesbian, Gay, Bisexual, and Transgender Studies M134. Cross-cultural analysis of construction of gender and sexuality in formation of homosexual, bisexual, transsexual, and transgendered identities and patterns of behavior. 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)** (Formerly numbered 26.) Seminar, four hours. The Bible treated as a political text, addressing the prepolitical condition, formation of a political community, the state, survival without a state, and messianism, with focus both on institutions and on intellectual history. P/NP or letter grading.

**133. Concepts of Nothing in Science, Literature, and Arts: Writing Course. (4)** Seminar, four hours. Limited to juniors/seniors. Writing intensive seminar that invites students to pursue their own interests in concept of Nothing while exploring richness of "non" entities in physics, mathematics, neuroscience, literature, astronomy, and arts. 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 a 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.

**136. History of Evolutionary Views. (5)** Seminar, four hours. Examination of concept of evolution in Western culture, beginning with novelties introduced in the 18th century, specific problems of natural history and taxonomy (in light of their historical and social background), and developments in embryology and morphology, then moving on to Darwin, *The Origin of Species*, and reception of his work. 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. Hard Choices: Economic and Social Implications of Using Nonrenewable Mineral Resources. (5)** Lecture, two hours; laboratory, three hours. Study of alternatives, opportunities, and constraints imposed on society by peculiarities and distributions of economically usable but nonrenewable earth materials. P/NP or letter grading.

**191. Writing and Editing of Books. (4)** Preparation: submission of approved manuscript. Theory and method in design, organization, writing, and editing of books.

**199. Directed Honors Studies. (4)** Tutorial, two hours. Preparation: minimum of 4 units completed in Honors Collegium with a grade of B or better, overall UCLA grade-point average of 3.0 or better. Special research/writing tutorial with a director of one of the Honors Collegium courses in order to pursue in greater depth a significant topic from one of the collegium courses. P/NP or letter grading.

## HUMAN GENETICS

*School of Medicine*

UCLA  
6506 Gonda Center  
Box 957088  
Los Angeles, CA 90095-7088  
(310) 794-5423  
<http://www.medsch.ucla.edu/som/humgen/>

Leena Peltonen, M.D., Ph.D., *Chair*

### Professors

Kenneth L. Lange, Ph.D.  
Stanley F. Nelson, M.D., Ph.D.  
Leena Peltonen, M.D., Ph.D.

### Assistant Professors

Esteban Dell'Angelica, Ph.D.  
Gouping Fan, Ph.D.  
Stephan Horvath, Ph.D.  
York Marahrens, Ph.D.  
Chiara Sabatti, Ph.D.  
N. Carolyn Schanen, M.D., Ph.D.  
Lisa Schimmenti, Ph.D.  
Janet Sinsheimer, Ph.D.  
Eric J. N. Vilain, M.D., Ph.D.

### Adjunct Assistant Professor

Linda L. McCabe, 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 doctoral degree is emphasized. Under special circumstances, master's candidates are considered after consultation with faculty members and the chair.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Human Genetics offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Human Genetics.

## Admission

### M.S./Ph.D. in Human Genetics

The department accepts students into the M.S. program only rarely and under special circumstances.

Doctoral students generally are admitted to the program through UCLA ACCESS to Programs in the Molecular, Cellular, and Integrative Life Sciences. Information may be obtained from UCLA ACCESS, 172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu). The department may also admit students directly into the doctoral training program during the first year if positions are available.

Undergraduate requirements for the Ph.D. program are similar to those of ACCESS. The requirements include a bachelor's degree, with preparation in physics, biology, and chemistry, and exposure through upper division courses in specific areas that may include genetics,

biochemistry, molecular biology, cell biology, developmental biology, microbiology, virology, physiology, and immunology. Because of the high mathematical content of some areas of human genetics, advanced courses in mathematics may be substituted for biologically oriented courses. More advanced degrees (M.S., M.D., or equivalent) are also acceptable.

The Graduate Record Examination (GRE) General Test, three letters of recommendation, and a statement of purpose are required. The GRE Subject Test is recommended. International applicants whose first language is not English must take and submit a score on the Test of English as a Foreign Language (TOEFL) or International English Testing System (IELTS) examination and are encouraged to take and submit a score on the Test of Spoken English (TSE).

## M.D./Ph.D. Program

Applicants may apply for the M.D./Ph.D. program by submitting simultaneous applications to the School of Medicine and the Medical Scientist Training Program (MSTP). The application process must include completion of the *UCLA Application for Graduate Admission*. Information regarding the MSTP may be obtained by calling (310) 794-1817, e-mail: [mstp@mednet.ucla.edu](mailto:mstp@mednet.ucla.edu). Acceptance by both programs is necessary. Some common coursework between the programs means that the degrees can be completed together in somewhat less time than when completed separately.

## Master's Degree

For areas of study, see Doctoral Degree.

The M.S. degree is offered through the comprehensive examination and thesis plans. Students on the comprehensive plan are required to write and orally defend an original proposal formulated on a topic in human genetics that is not directly related to their dissertation research. The thesis plan is for students on the laboratory research track. Those pursuing laboratory research take similar core courses in the first year as doctoral students. Students focused on biomathematics and statistical modeling in human genetics may substitute advanced courses in biomathematics for more biologically oriented courses.

In addition, all M.S. students must take courses in advanced human genetics and ethics in human genetics. Elective courses are taken to complete the minimum 36 units required for the M.S. degree.

## Doctoral Degree

The field of human genetics is a discipline that includes genomics, cytogenetics, biochemical and molecular genetics, medical genetics, immunogenetics, cancer genetics, developmental genetics, population genetics, and bioinformatics. The study of animal models is also an essential part of human genetics.

Students entering the program through UCLA ACCESS follow ACCESS course requirements in the first year. The requirements include a biological chemistry course that provides grounding in the chemical and biological properties of nucleic acids and proteins, and a selection from several courses that emphasize cellular function and organization. Knowledge of nucleic acid and protein structure and function as well as cell biology is essential for genetics. Students may select from several specialty courses; for those who have already decided to specialize in human genetics, a biological chemistry course on basic concepts and techniques in the genetics of lower and higher organisms is recommended.

As part of the ACCESS program during the first year, students also take three 2-unit seminar courses on current research topics, and a course on ethics in research. The Human Genetics Department faculty offers at least one seminar course in the field of human genetics. Courses in advanced human genetics and ethics in human genetics are required of predoctoral students. Four additional units of coursework are required for the Ph.D. degree, preferably in seminar format.

Students who enter the department directly have a choice between two tracks: (1) a laboratory track that has course requirements similar to those of the ACCESS program and (2) a bioinformatics track that has course requirements that include macromolecular structure and function, applied genetic modeling, molecular genetics, advance human genetics, and two courses in a minor in bioinformatics, mathematics/statistics, or computer science.

Students admitted through ACCESS are required to serve as teaching assistants for two quarters.

Written and oral qualifying examinations are required. The written examination consists of two short written research proposals that must be defended orally. Following successful completion of the written examination, students take the University Oral Qualifying Examination, which consists of a discussion of the proposals and of additional questions that probe their general knowledge and understanding of human genetics.

## Human Genetics

### Upper Division Courses

**CM153G. Macromolecular Structure. (6)** (Same as Biological Chemistry CM153G and Chemistry CM153G.) Lecture, five hours. Requisites: Chemistry 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM253. 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. Strongly recommended: Molecular, Cell, and Developmental Biology 100 or C139 or M140. 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.

**CM169. Cell Structure, Signaling, and Differentiation. (6)** (Same as Biological Chemistry CM169 and Molecular, Cell, and Developmental Biology CM169.) Lecture, five hours. Requisites: Chemistry 153A, 153B, 153C. Recommended: course CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM267. Letter grading.

**CM178. Molecular Genetics. (6)** (Same as Biological Chemistry CM178 and Molecular, Cell, and Developmental Biology CM178.) Lecture, five hours. Requisites: Chemistry 153A, 153B, Life Sciences 3, 4, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM248. 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

**M201. Use of the Computer in Biology. (2)** (Same as Microbiology and Immunology M241 and Molecular, Cell, and Developmental Biology M201.) Lecture, two hours; laboratory, one hour. Introduction to use of IBM PC microcomputer and VAX minicomputer in biological research. S/U grading.

**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 a variety of other biological and medical disciplines. S/U or letter grading.

**M207A. Theoretical Genetic Modeling. (4)** (Same as Biomathematics M207A and Biostatistics M237A.) Lecture, three hours; discussion, one hour. Preparation: coursework equivalent to Mathematics 115A, 131A. 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 M237B.) Lecture, three hours; laboratory, one hour. Preparation: coursework equivalent to Biostatistics 110A, 110B. Methods of computer-oriented genetic analysis. Topics may include segregation analysis, parametric and nonparametric linkage analysis, quantitative methods, and phylogenetics. 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.

**220. Ethical Issues in Human Genetics. (2)** Discussion, 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. S/U or letter grading.

**236. Advanced Human Genetics. (6)** Lecture, five hours. In-depth overview of human genetics that forms basis for firm grasp of linkage mapping, genomics, development of animal models to study human disease, and current status of gene therapy. S/U or letter grading.

**CM248. Molecular Genetics. (6)** (Same as Biological Chemistry CM248, Microbiology M248, and Molecular, Cell, and Developmental Biology CM248.) Lecture, five hours. Requisite: course CM153G or Chemistry CM153G. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM178. Letter grading.

**CM253. Macromolecular Structure. (6)** (Same as Biological Chemistry CM253 and Chemistry CM253.) Lecture, five hours. Requisites: Chemistry 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM153G. 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. Strongly recommended: Molecular, Cell, and Developmental Biology 100 or C139 or M140. 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 CM156. Independent research project required of graduate students. Letter grading.

**M260. Bioinformatics and Genomics. (4)** (Same as Chemistry CM260.) Lecture, three hours; discussion, one hour. Genomics and bioinformatics results and methodologies, with emphasis on concepts behind rapid development of these fields. Focus on how to think genomically via case studies showing how genomics questions map to computational problems and their solutions. S/U or letter grading.

**CM267. Cell Structure, Signaling, and Differentiation. (6)** (Same as Biological Chemistry CM267, Chemistry M267, and Molecular, Cell, and Developmental Biology CM223.) Lecture, five hours. Requisites: Chemistry 153A, 153B, 153C. Recommended: course CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM169. 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 or letter 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 or letter 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.

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## HUMANITIES

See Comparative Literature

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## INDO-EUROPEAN STUDIES

*Interdepartmental Program  
College of Letters and Science*

UCLA  
100 Dodd Hall  
Box 951417  
Los Angeles, CA 90095-1417  
(310) 825-4171  
<http://www.humnet.ucla.edu/pies/home.html>

Brent H. Vine, Ph.D., *Chair*

### Professors

Henning Andersen, Ph.D. (*Slavic Languages and Literatures*)  
Raimo A. Anttila, Ph.D. (*Linguistics*)  
Jesse L. Byock, Ph.D. (*Germanic Languages*)  
Robert K. Englund, Ph.D. (*Near Eastern Languages and Cultures*)  
Vyacheslav Ivanov, Ph.D. (*Slavic Languages and Literatures*)  
Joseph F. Nagy, Ph.D. (*English*)  
Brent H. Vine, Ph.D. (*Classics*)

### Professors Emeriti

Henrik Birnbaum, Ph.D. (*Slavic Languages and Literatures*)  
Bengt T.M. Löfstedt, Ph.D. (*Classics*)  
Jaan Puhvel, Ph.D. (*Classics*)  
Hartmut E. Scharfe, Ph.D. (*East Asian Languages and Cultures*)  
Hanns-Peter Schmidt, Ph.D. (*Near Eastern Languages and Cultures*)

### Associate Professor

Christopher M. Stevens, Ph.D. (*Germanic Languages*)

## 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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degree

The Indo-European Studies Program offers the Doctor of Philosophy (Ph.D.) degree in Indo-European Studies.

## Admission

To be admitted to the Ph.D. program, applicants must have a B.A. degree with a major in

an Indo-European language field (for example, German, Slavic, Celtic, Romance languages, Latin, Greek), linguistics (with concentration in historical and comparative linguistics), anthropology, or archaeology. In addition, all applicants, including those who do not have a B.A. degree in Classics or Latin, should be able to demonstrate competence in classical Latin. Letters of recommendation (at least two, preferably three or four) and a writing sample, normally consisting of a recent term paper (preferably on a linguistic topic) are required. The program does not require the Graduate Record Examination (GRE).

Potential applicants are invited to view the program's website for further information. Admission to the program itself constitutes admission to the doctoral program; there is no master's degree offered. Should deficiencies exist in requisites to specific work at the graduate level, applicants may be granted provisional admission and directed to remove those deficiencies in the initial period of enrollment.

## Doctoral Degree

The Ph.D. degree is offered with three alternative major emphases: (1) Indo-European linguistics, (2) specialized study in an Indo-European language area, such as Indo-Iranian, Anatolian, or Celtic, (3) European and related archaeology. At present, the archaeology specialization is not available.

Course requirements vary among the three major fields of specialization. General requirements for all students include a proseminar in Indo-European studies, knowledge of Vedic Sanskrit and Homeric Greek, and basic competence in Indo-European linguistics, mythology, and archaeology.

For students specializing in linguistics, requirements include an advanced seminar in comparative grammar, Hittite (and one other ancient Anatolian language), a fourth ancient Indo-European language (chosen from a branch other than Indic, Greek, or Anatolian), and additional units in courses offered by the Linguistics Department and related departments.

For students specializing in an Indo-European language area, requirements include an advanced seminar in comparative grammar, a minimum of two ancient Indo-European languages from different sub-branches, and additional units in the area of specialization.

For students specializing in European and related archaeology, requirements include a minimum of one ancient Indo-European language, an advanced seminar in European archaeology, a course in analytical methods in archaeology, and additional units in archaeology, anthropology, and related fields. All additional units are to be chosen in consultation with the adviser.

Written and oral qualifying examinations are required. Students must submit a qualifying paper that demonstrates their ability to conduct

original research. Also, a series of written examinations covering the major and minor fields are administered. These consist of translation and analysis of set texts from the ancient Indo-European languages and diagnostic examinations in the other fields.

Following successful completion of the written examinations, students take the University Oral Qualifying Examination, which is based on the written examinations and the dissertation prospectus, and probes their grasp of the entire field.

There is a language requirement for this degree.

## Indo-European Studies

### Upper Division Courses

**131. European Archaeology: Proto-Civilizations of Europe. (4)** Survey of European cultures from beginning of the food-producing economy in the 7th millennium B.C. to beginning of the Bronze Age in the 3rd millennium B.C.

**132. European Archaeology: Bronze Age. (4)** Requirement: 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. (4)** (Same as Linguistics M150.) Lecture, three hours. Recommended prerequisite: 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. Letter grading.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged.

### 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 Linguistics: Advanced Course I. (4)** Seminar, three hours. Preparation: one year of college-level study of either Greek or Latin, knowledge of at least one other ancient Indo-European language, reading knowledge of French, German, or Russian. Prerequisites: course M150, Linguistics 110. Comparative study of phonology and nominal morphology. Problems in analysis and reconstruction. S/U or letter grading.

**210. Indo-European Linguistics: Advanced Course II. (4)** Seminar, three hours. Prerequisite: course 205. Comparative study of verbal morphology, syntax, and lexicon. Problems in analysis and reconstruction. S/U or letter grading.

**250A-250B. European Archaeology. (4-4)** Studies in ancient European archaeological materials and their relationship to the Near East, Western Siberia, and Central Asia. May be repeated for credit. In Progress grading.

**260. 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. S/U or letter grading.

**280A-280B. Seminars: Indo-European Linguistics. (4-4)** Seminar, three hours. Prerequisite: 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.

**597. Preparation for Ph.D. Qualifying Examinations. (2 to 8)** Tutorial, to be arranged.

**599. Research for Ph.D. Dissertation. (2 to 8)** Tutorial, to be arranged.

## Related Courses

### Ancient Near East (Near Eastern Languages)

160A-160B. Introduction to Near Eastern Archaeology

161A-161B-161C. Archaeology of Mesopotamia

260. Seminar: Ancient Near Eastern Archaeology

261. Practical Field Archaeology

### Anthropology

110. World Archaeology

112. Old Stone Age Archaeology

C115R. Strategy of Archaeology

183. History of Archaeology

### Archaeology

259. Fieldwork in Archaeology

### Armenian (Near Eastern Languages)

230A-230B-230C. Elementary Classical Armenian

231A-231B-231C. Intermediate Classical Armenian

232A-232B-232C. Advanced Classical Armenian

### Classics

166A. Greek Religion

166B. Roman Religion

168. Comparative Mythology

180. Introduction to Classical Linguistics

230A-230B. Language in Ancient Asia Minor

251A. Seminar: Classical Archaeology — Aegean Bronze Age

260. Topics in Ancient Religion

268. Seminar: Comparative Mythology

### English

M111D. Celtic Mythology

M111E. Survey of Medieval Celtic Literature

M111F. Celtic Folklore

211. Old English

216A-216B. Old Irish

217A-217B. Medieval Welsh

218. Celtic Linguistics

263. Celtic Literature

### Folklore and Mythology

M112. Survey of Medieval Celtic Literature

M122. Celtic Mythology

M126. Baltic and Slavic Folklore and Mythology

M127. Celtic Folklore

228. Seminar: Topics in Celtic Folklore and Mythology

### German (Germanic Languages)

230. Survey of Theory in Historical Linguistics

231. Gothic

232. Old High German

233. Old Saxon

252. Seminar: Historical and Comparative Germanic Linguistics

### Greek (Classics)

240A-240B. History of the Greek Language

242. Greek Dialects and Historical Grammar

243. Mycenaean Greek

### Indic (East Asian Languages)

110A. Elementary Sanskrit

110B. Intermediate Sanskrit

110C. Advanced Sanskrit

115. Readings in Sanskrit

M222A-M222B. Vedic

230. Selected Readings in Sanskrit Texts

234A-234B. Introduction to Panini's Grammar

236A-236B. Pali and Prakrits

### Iranian (Near Eastern Languages)

169. Civilization of Pre-Islamic Iran

170. Religion in Ancient Iran

190A-190B. Introduction to Modern Iranian Studies

M222A-M222B. Vedic

230A-230B. Old Iranian

231A-231B. Middle Iranian

### Latin (Classics)

240. History of the Latin Language

242. Italic Dialects and Latin Historical Grammar

### Linguistics

103. Introduction to General Phonetics

110. Introduction to Historical Linguistics

120A. Phonology I

120B. Syntax I

### Old Norse Studies (Germanic Languages)

C140. Viking Civilization and Literature

151. Elementary Old Norse

152. Intermediate Old Norse

245A. Germanic and Scandinavian Mythology

### Semitics (Near Eastern Languages)

140A-140B. Elementary Akkadian

141. Advanced Akkadian

220A-220B. Ugaritic

### Slavic (Slavic Languages)

M179. Baltic and Slavic Folklore and Mythology

201. Introduction to Old Church Slavic

202. Introduction to Comparative Slavic Linguistics

241A-241B. Advanced Old Church Slavic

242. Comparative Slavic Linguistics

251. Introduction to Baltic Linguistics

## INFORMATION STUDIES

*Graduate School of Education and  
Information Studies*

UCLA  
Office of Student Services  
1009 Moore Hall  
Box 951521  
Los Angeles, CA 90095-1521

(310) 825-5269  
<http://is.gseis.ucla.edu/>

Michèle V. Cloonan, Ph.D., *Chair*

### Professors

Marcia J. Bates, Ph.D.  
Christine L. Borgman, Ph.D.  
Beverly P. Lynch, Ph.D.  
Mary Niles Maack, D.L.S.  
John V. Richardson, Ph.D.

### Professors Emeriti

Page Ackerman, B.A., B.S.L.S.  
Harold Borko, Ph.D.  
Robert M. Hayes, Ph.D.  
Seymour Lubetzky, M.A., LL.D.  
Russell Shank, D.L.S.  
Elaine Svenonius, Ph.D.  
Diana M. Thomas, Ph.D.

### Associate Professors

Philip E. Agre, Ph.D.  
Howard Besser, Ph.D.  
Clara Chu, Ph.D.  
Michèle V. Cloonan, Ph.D.  
Leah Lievrouw, Ph.D.  
Virginia A. Walter, Ph.D.

### Assistant Professors

Jonathan Furner, Ph.D.

Anne Gilliland-Swetland, Ph.D.

Gregory H. Leazer, D.L.S.

### Lecturers

Jacqueline Ayala, M.L.I.S.  
Murtha Baca  
Jay Baker, M.L.I.S.  
Stuart Biegel, J.D.  
Keri Botello, M.L.S.  
Lynn Boyden, M.L.I.S.  
David Cappoli, M.L.S.  
Rod Cave, Ph.D.  
Chris Chandler, M.A.U.P.  
Anita Sundaram Coleman, Ph.D.  
Michael Gorman  
Esther Grassian, M.L.S.  
Robert M. Hayes, Ph.D., *Emeritus*  
Joan Kaplowitz, Ph. D.  
Bill Landis  
Penny Markey  
Elizabeth Martinez, M.S.L.S.  
Susan McGlamery, J.D., M.L.S.  
Stacey McKeever, M.L.I.S.  
Cynthia Mediavilla, M.L.S.  
Elaine Meyers, M.L.S.  
Ann O'Brien, Ph.D.  
Teresa Portilla Omidisalar  
Steve Ricci  
James M. Turner, Ph.D.

### Adjunct Professor

Anthony Maddox, Ph.D.

## 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.

Applicants may write to the Department of Information Studies, 1009 Moore Hall, UCLA, Box 951521, Los Angeles, CA 90095-1521, for the department's announcement and application materials.

Note: Information Studies 110 may not be applied toward the M.L.I.S. degree; courses in the 111 series may be applied toward the M.L.I.S. degree with approval of faculty advisers.

Upper division undergraduate students must obtain consent of instructor to enroll in 200-series courses and consent of the chair to enroll in 400-series courses.

Graduate students from other schools or departments who wish to take courses in the Department of Information Studies must obtain consent of instructor prior to enrolling.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases,

even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Information Studies offers the Master of Library and Information Science (M.L.I.S.) degree and the Doctoral of Philosophy (Ph.D.) degree in Library and Information Science.

## Admission

### Master of Library and Information Science

Students are admitted to the M.L.I.S. program in Fall Quarter only. In addition to Graduate Division requirements and application procedures, the department requires

1. A statement of purpose
2. A resumé
3. An official report of a score on the Graduate Record Examination (GRE) taken within the past five years. For students whose native language is not English, an official report of a score on the Test of Written English (TWE) and the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination is required
4. Three letters of recommendation
5. Satisfaction of the following entrance requirements: (a) a college-level course in statistics (3 semester units or 4 quarter units) within the last five years with a minimum grade of C. The course must have covered descriptive and inferential statistics. In exceptional circumstances it is possible to meet this requirement by passing a competency examination in statistics administered by the department; (b) a college-level course in computer programming (3 semester units or 4 quarter units) within the last five years with a minimum grade of C. Most standard languages such as BASIC, Visual Basic, C++, COBOL, FORTRAN, JAVA, or PERL are acceptable, as is a college-level course in the use of data management systems such as FileMaker, Microsoft Access, or Oracle. At least one third of the course grade should be based on programming assignments. In exceptional circumstances it is possible to meet this requirement by passing a competency examination in computer programming administered by the department

Entrance requirements should be completed before beginning the M.L.I.S. program. However, one requirement may be satisfied in the Fall Quarter of the student's first year.

While work experience is not a requirement for admission, consideration is given to such experience in reviewing the total application.

The admissions committee may request a report of an interview by the chair of the depart-

ment or by a person designated by the chair as qualified to conduct an interview. Interviews are rarely conducted, and only for the purpose of clarifying a candidate's academic background and career objectives.

### Information Studies M.L.I.S./History M.A.

The M.L.I.S./History M.A. is a concurrent degree program within the Department of Information Studies and the Department of History. Students can obtain two degrees: the M.L.I.S. and the M.A. in History. The best sequence of coursework should be discussed with the advisers from both this department and the History Department.

### Information Studies M.L.I.S./Latin American Studies M.A.

The M.L.I.S./Latin American Studies M.A. is an articulated degree program within the Department of Information Studies and the Latin American Studies Program. Students can obtain two degrees: the M.L.I.S. and the M.A. in Latin American Studies.

### Information Studies M.L.I.S./Management M.B.A.

The John E. Anderson Graduate School of Management and the Department of Information Studies offer a three-year concurrent degree program designed to provide an integrated set of courses for students who seek careers that draw on general and specialized skills in the two professional fields. Application materials should be requested separately from both schools.

### Ph.D. in Library and Information Science

Students are admitted to the Ph.D. program in Fall Quarter only. They may enter with the M.L.S. or M.L.I.S. degree, other advanced degree, or directly from a bachelor's degree program. If the prior graduate degree does not include coursework equivalent to the core identified for the M.L.I.S. program, applicants must complete the core after admission.

In addition to Graduate Division requirements and application procedures, the department requires satisfaction of the following entrance requirements:

1. A statistics requirement, satisfied by completing a college-level course with a minimum grade of C
2. Recommended: Applicants should have general knowledge of and basic experience in the use of computers (e.g., for word processing, statistics, online searches, spreadsheets, graphics, or web browsing)
3. A statement of purpose that identifies the applicant's proposed area of specialization, accompanied by appropriate evidence of qualifications for pursuing a doctoral program
4. A resumé

5. Graduate Record Examination (GRE) scores taken within the last five years. There is no minimum score for the GRE, but high scores are regarded favorably. Admitted students typically score above the 75th percentile in all areas
6. In cases where the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination and the Test of Written English (TWE) are required, the department expects a minimum score of 600 (paper and pencil test) or 250 (computer-based test) on the TOEFL, overall band score of 7.0 on the IELTS, and 4.5 on the TWE. Only in exceptional cases are applicants recommended for provisional admission who do not meet the minimum scores; in such cases, strong evidence of competency in English (such as a high verbal GRE score) must be provided
7. Evidence of research and writing such as published work, master's thesis, or two research papers written in English
8. Three letters of recommendation
9. Favorable consideration may be given to applicants who have made distinguished contributions to the profession while working as a practicing professional, for instance in publications and/or work with professional societies
10. A personal interview is required. The committee seeks evidence of an appreciation of research and knowledge of potential research topics. The committee is particularly interested in the applicant's commitment to a career in library and information science education and research, signs of originality and inquisitiveness, and good communication skills

## Master's Degree

The M.L.I.S. degree is offered through the comprehensive examination and thesis plans. The comprehensive examination consists of a basic component (a portfolio presentation) and a specialization component (a major paper produced in an elective course, normally in the area of specialization).

Eighteen courses (72 units) are required, including core courses, a course in research methods, and 48 units of electives. Coursework must provide evidence both of basic professional competencies and knowledge in a field of specialized competence (completion of 12 additional courses, which may include internships). Completion of a course of study is required as evidence of knowledge of a field of specialization in information policy and management, information access, information systems, or information organization. Relevant coursework in other departments or schools is encouraged.

During the second year, students may apply for an internship of one to three quarters either on

campus or off campus at an approved library or information center.

## Doctoral Degree

Ph.D. students are expected to specialize in a subfield in one of three major areas of the curriculum: information storage and retrieval systems; information seeking and use; policies and issues in library and information science.

A minimum of 18 to 21 courses, depending on the student's previous experience and coursework, is required. Students must take four required courses: a course in research design and methodology and at least three doctoral seminars from among those offered by the department, giving them three areas of specialization; three additional research methods courses; and three additional elective courses. In addition, students are required to participate in the Doctoral Research Colloquium.

Written and oral qualifying examinations are required. Students are required to pass one integrative written examination covering the content of three core doctoral seminars and the major research and theory traditions in information studies, and are required by their major area to submit one paper of publishable quality.

After successful completion of the written qualifying examinations, students take the University Oral Qualifying Examination, which is based on the oral defense of the dissertation proposal.

## Information Studies

### 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. (4)** Lecture, one hour; discussion, two hours; laboratory, one hour. Designed for sophomores/juniors/seniors. Not open for credit to M.L.I.S. students. Introduction to bibliographic and information resources and relevant research methodology, covering both general and specialized materials. Designed to facilitate knowledgeable use of libraries and efficient retrieval of information. Some sections focus on specific subject areas (such as science and technology). P/NP or 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 the 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; **111C.** Latino History and Culture; **111D.** Asian American History and Culture; **M111E.** Jewish History and Culture. (Same as Jewish Studies M111E.)

**182. 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.

## 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. Information Structures. (4)** Lecture, three 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.

**203. 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.

**204. Introduction to Information Technology. (4)** Lecture, four hours. Requisite: course 201. Introduction to theories and principles of information technologies. Topics include social issues of information technologies and design and development of information systems. Background for further studies in information retrieval and design and maintenance of information systems. S/U or letter grading.

**205. Historical Methodology of Library and Information Science. (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 the field. Critical analysis of selected histories of various areas in the profession. Problem-oriented approach. 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. 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.

**210. Seminar: Descriptive and Bibliographical Cataloging. (4)** Seminar, four hours. Requisites: courses 410, 411. Specialized studies in selected areas of descriptive and bibliographical cataloging (e.g., purposes, principles, instructional development, potentialities of automation). May be repeated once. S/U or letter grading.

**211. Seminar: Subject Control of Library Materials. (4)** Seminar, four hours. Requisites: courses 410, 411. Study of selected problems in design and use of verbal subject headings and classification systems. Manual and mechanized systems. May be repeated once. S/U or letter grading.

**213. Proseminar: Information Storage and Retrieval. (4)** Seminar, three hours. Designed for Ph.D. students. Introduction to principles of information organization, theoretical models for organization and retrieval, and current research in information system design and evaluation, including experimental systems. Letter grading.

**214. Proseminar: Information Policy and Issues. (4)** Seminar, three hours. Designed for Ph.D. students. Introduction to political, economic, legal, and social issues affecting information and institutions, including relevant social theory, historical scholarship, and analytical methods. Introduction to policy-making and players/stakes involved in information creation and use. Letter grading.

**215. Proseminar: Information Seeking and Use. (4)** Seminar, three hours. Designed for Ph.D. students. Introduction to cognitive, affective, and behavioral factors affecting information seeking at individual and social levels; current theory and research on searching, navigation, and information system use; research literature on information seeking and use. Letter grading.

**220. Information Access. (4)** Lecture, four hours. Requisites: courses 200, 201. 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.

**221. Bibliography of Science and Engineering. (4)** Lecture, four hours. Requisite: course 220. Patterns of communication and flow of information among scientists and engineers. Scientific and technical literature, with emphasis on online sources, special types of publications, research material, reference and bibliographical aids to the natural sciences and engineering. Letter grading.

**222. Bibliography of the Health and Life Sciences. (4)** Lecture, four hours. Requisite: course 220. Literature of the medical and life sciences. Information needs of health professionals. Emphasis on online sources, special types of publications, reference and bibliographic aids to the health sciences. Letter grading.

**223. Literature of the Social Sciences. (4)** Seminar, four hours. Requisite: course 220. Seminar on literature of the social sciences, including review of classics in the various fields, monumental source collections, periodicals, bibliographies, catalogs, abstracts, bibliographic and nonbibliographic databases, etc. Trends in scholarly and popular writing. Interdisciplinary nature of the literature. Letter grading.

**224. Literature of the Humanities and Fine Arts. (4)** Seminar, four hours. Requisite: course 220. Seminar on literature of the humanities and fine arts, including review of classics in the various fields, comparisons of editions, periodicals, bibliographical apparatus, and reviewing media. Trends in scholarly and popular writing. 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.

**226. General Reference Work. (4)** Lecture, four hours. Requisite: course 220. 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.

**M229B. Africana Bibliography and Research Methods. (4)** (Same as African Studies M229B.) Discussion, four hours. Problems and techniques of research methodologies related to African 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 grading.

**230. 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 the setting of cultural history. Letter grading.

**240. 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.

**241. 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.

**242. Information Retrieval Systems. (4)** Lecture, four hours. Prerequisites: courses 201, 220. Survey of methods of file organization, retrieval techniques, and search strategies in control of information in computerized form. Letter grading.

**243. 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.

**245. 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.

**246. Social Aspects of Information-Oriented Society. (4)** Lecture, 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.

**247. User-Centered Design of Information Retrieval Systems. (4)** Lecture, two hours; discussion, two hours. Prerequisites: courses 201, 220. Design implications of interaction between users and the features of automated information systems and interfaces that are specific to the information-seeking process. Emphasis on search strategy and subject access through use of thesauri and other vocabularies. Letter grading.

**249. Seminar: Special Topics in Information Science. (4)** Seminar, four hours. Preparation: at least one course from 242, 243, 247, 280, 405. Prerequisites: courses 200, 201. 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.

**253. 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 the librarian in responding to needs and abilities of children through individualized reading guidance. S/U or letter grading.

**260. Historical Bibliography. (4)** Lecture, four hours. Prerequisites: courses 200, 402. 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 the field, including antiquarian, Anglo-American, and *histoire du livre* approaches. Letter grading.

**261. Analytical Bibliography. (4)** Lecture, four hours. The book as a physical object and its relationship to transmission of the 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.

**271. 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.

**272. Research Seminar: Library and Information Science. (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.

**273. Doctoral Seminar: Information Storage and Retrieval Systems. (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.

**274. Doctoral Seminar: Policies and Issues in Library and Information Science. (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.

**275. Doctoral Seminar: Information Seeking and Use. (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.

**280. 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. S/U or letter grading.

**281. Information Resources for Business. (4)** Lecture, four hours. Prerequisite: course 220. Introduction to information needs of the business world. Business guides, encyclopedias, directories, yearbooks, indexes, loose-leaf services, government publications, databases, and other sources of business literature. Letter grading.

**282. 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.

**283. Legal Research and Bibliography. (4)** Lecture, four hours. Introduction to source materials of the law, with emphasis on primary authority, but covering as well secondary authority, and indexes and finding aids used to gain access to legal information. Letter grading.

**284. Seminar: Legal Informatics. (4)** Seminar, four hours. Information problems of legal profession, including history of legal information systems, relationship between cognitive authority and legal authority, bibliometrics of law, value-added processes for legal information, and techniques and impact of new legal research technology. Letter grading.

**285. 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.

**286. Seminar: Information Access. (4)** Seminar, four hours. Preparation: one course from 221, 223, 224, 226, 281, 283, 425, 473. Prerequisite: course 220. 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.

**287. Seminar: Special Issues in Library and Information Science. (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.

**288. 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.

**289. Information Services in Culturally Diverse Communities. (4)** Lecture, four hours. Issues in provision of information services in a multiethnic and multilingual society. Understanding role of information institutions in promoting cultural diversity and preserving ethnic heritage. Letter grading.

**290. Research Methodology. (4)** Lecture, four hours. Role of research in bibliography, librarianship, and information science. Identification and design of research problems. Historical, statistical, analytical, and descriptive techniques. S/U or letter grading.

**291. 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.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

**402. Fundamentals of Bibliography. (4)** Lecture, four hours. Prerequisite: 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.

**405. Automation of Library Processes. (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.

**410. 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.

**411. Introduction to Subject Access: Alphabetic-Subject and Systematic Indexing. (4)** Lecture/discussion, four hours. Prerequisite: course 410. 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.

**412. Cataloging and Classification of Nonbook Materials. (4)** Lecture, four hours. Prerequisites: courses 410, 411. Problems in cataloging and classification of selected nonbook materials (e.g., films, maps, pictorial works, sound recordings) as separate collections and integrated collections. S/U or letter grading.

**414. 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 a variety of types of materials and for preparing informative and indicative abstracts. Letter grading.

**425. Computer-Based Information Resources (Online Searching).** (4) Lecture, four hours. Prerequisite: course 220. 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.

**426. User Education/Bibliographic 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 a 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.

**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. S/U or letter grading.

**441. 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.

**442. Library Personnel Administration.** (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 the library setting. S/U or letter grading.

**446. 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 the teenager. S/U or letter grading.

**461. 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 a part. Functions of research libraries and work of their staffs in serving scholars. S/U or letter grading.

**463. 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.

**465. 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.

**466. 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 or letter grading.

**470. 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.

**471. Health and Life Sciences Libraries.** (4) Lecture, four hours. Prerequisite or corequisite: course 441. Organization, administration, services, and problems of health and life sciences libraries; relationships with institutions of which they are a part and with the community. Letter grading.

**473. Government Information.** (4) Lecture, four hours. Introduction to nature and scope of government information promulgated by the federal government, as well as by state, municipal, international, and foreign governments. Problem-oriented approach. S/U or letter grading.

**485. 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.

**486. Issues and Problems in Preservation of Library Materials.** (4) Lecture, four hours. Introduction to fields of library conservation and preservation, with emphasis on preservation administration. Letter grading.

**488. Seminar: Advanced Issues in Archival Science.** (4) Seminar, three hours. Prerequisite: course 485. In-depth examination of theoretical issues and contemporary problems facing the archival profession. Topics revolve each term and include development and role of archival appraisal, management of audiovisual materials, and management of medical, scientific, and technological documentation. Letter grading.

**491. 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 an organizational environment and on effective communication styles in decision making, managing conflict, and implementing change. S/U grading.

**497. Fieldwork in Libraries or Information Organizations.** (4 or 8) Fieldwork, to be arranged. Supervised field experience in approved library or information organization. Concentration must be on managerial or other professional problems of the site. Students spend full time in the field for most of the period. 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

Center for Interdisciplinary Instruction

UCLA  
1652 Hershey Hall  
Box 951496  
Los Angeles, CA 90095-1496  
(310) 825-5008  
fax: (310) 825-9663  
<http://www.ioe.ucla.edu>

Richard P. Turco, Ph.D., *Director*

### Center Faculty

#### Professors

Kal Raustiala, Ph.D., J.D., *Acting (Law)*  
Richard P. Turco, Ph.D.

#### Visiting Professor

Gregor Hodgson, Ph.D.

#### Visiting Lecturer

Madelyn J. Glickfeld, Ph.D.

### Affiliated Faculty

#### Professors

Richard F. Ambrose, Ph.D. (*Environmental Health Sciences*)  
Jeanne E. Arnold, Ph.D. (*Anthropology*)  
Kenneth D. Bailey, Ph.D. (*Sociology*)  
Mario E. Baur, Ph.D. (*Chemistry and Biochemistry*)  
Richard A. Berk, Ph.D. (*Statistics*)  
Trudy A. Cameron, Ph.D. (*Economics*)  
Ann E. Carlson J.D., *Acting (Law)*  
Yoram Cohen, Ph.D. (*Chemical Engineering*)  
Nicholas J. Entrikin, Ph.D. (*Geography*)  
Jody Freeman, LL.B., LL.M., S.J.D. (*Law*)  
Sheldon K. Friedlander, Ph.D. (*Chemical Engineering*)  
John R. Froines, Ph.D. (*Environmental Health Sciences*)  
Michael Ghil, Ph.D. (*Atmospheric Sciences*)  
Malcolm S. Gordon, Ph.D. (*Organismic Biology, Ecology, and Evolution*)  
William M. Hamner, Ph.D. (*Organismic Biology, Ecology, and Evolution*)  
Susanna B. Hecht (*Urban Planning*)  
Glen M. MacDonald, Ph.D. (*Geography*)  
James C. McWilliams, Ph.D. (*Atmospheric Sciences*)  
Carlos R. Mechoso (*Atmospheric Sciences*)  
Park S. Nobel, Ph.D. (*Organismic Biology, Ecology, and Evolution*)  
Jeannie L. Oakes, Ph.D. (*Education*)  
Paul M. Ong, Ph.D. (*Urban Planning*)  
Antony R. Orme, Ph.D. (*Geography*)  
Theodore M. Porter, Ph.D. (*History*)  
Philip W. Rundel, Ph.D. (*Organismic Biology, Ecology, and Evolution*)  
Selim M. Senkan, Ph.D. (*Chemical 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*)  
Stanley W. Trimble, Ph.D. (*Geography*)  
Hartmut S. Walter, Ph.D. (*Geography*)  
Arthur M. Winer, Ph.D. (*Environmental Health Sciences*)  
Benjamin M. Zuckerman, Ph.D. (*Physics and Astronomy*)

#### Professors Emeriti

Samuel Aroni, Ph.D. (*Architecture and Urban Design*)  
Richard Schoen, M.Arch (*Architecture and Urban Design*)

#### Associate Professors

Robert G. Fovell, Ph.D. (*Atmospheric Sciences*)  
Thomas C. Harmon, Ph.D. (*Civil and Environmental Engineering*)  
David A. Paige, Ph.D. (*Earth and Space Science*)  
Suzanne E. Paulson, Ph.D. (*Atmospheric Sciences*)  
Marilyn N. Raphael, Ph.D. (*Geography*)  
Mary R. Reid, Ph.D. (*Earth and Space Science*)  
Richard R. Vance, Ph.D. (*Organismic Biology, Ecology, and Evolution*)  
Robert E. Weiss, Ph.D. (*Biostatistics*)

#### Assistant Professors

Charles J. Corbett, Ph.D. (*Management*)  
J.R. DeShazo, Ph.D. (*Economics, Policy Studies*)  
Rebecca J. Emigh, Ph.D. (*Sociology*)  
Peggy M. Fong, Ph.D. (*Organismic Biology, Ecology, and Evolution*)  
David K. Jacobs, Ph.D. (*Organismic Biology, Ecology, and Evolution*)  
Laurence C. Smith, Ph.D. (*Geography*)

#### Lecturers

David A. Kirsch, Ph.D. (*Management*)  
Jeffrey K. Lew, Ph.D. (*Atmospheric Sciences*)

#### Visiting Professors

Nikolay Nezlin Ph.D. (*Organismic Biology, Ecology, and Evolution*)  
Terry Root, Ph.D. (*Geography*)  
Stephen Schneider, Ph.D. (*Geography*)

## Scope and Objectives

The UCLA Institute of the Environment (IoE) offers multidisciplinary academic programs that address the full complexity of current environmental problems. The IoE seeks to enhance the educational experience of students by introducing them to virtually every aspect of the environment. The mission is to explore the full complexity of today's environmental problems on local, regional, and global scales through innovative, integrative, multidisciplinary teaching, research, and outreach programs.

Los Angeles is often described as "the world in microcosm." As such, it provides an unparalleled laboratory in which to conduct detailed investigations of a host of complex socioenvironmental issues. Accordingly, the academic program focuses on Southern California and its connections to the Pacific Rim. The educational program is supported by faculty from a broad range of disciplines — the sciences, public policy, engineering, law, business, public health — who are collaborating to develop an interdisciplinary, cutting-edge curriculum.

Students are able to augment their classroom experience with participation in the IoE diverse research programs, including fieldwork at facilities such as the UCLA Stunt Ranch Santa Monica Mountains Reserve and the UCLA Marine Science Center. These opportunities provide valuable hands-on experience in land, air, and water research.

## General Education Cluster

The Institute of the Environment sponsors Environment/General Education Clusters M1A, M1B, M1C 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 field trips in which students explore specialized environmental topics such as the history of environmental thought, environmental policy, and the impacts of human population. Each course carries 5 units of academic credit, and the cluster satisfies general education credit for four courses.

## Environment

### Lower Division Courses

**M1A-M1B-M1C. Global Environment. (5-5-5)** (Formerly numbered 1A-1B-1C.) (Same as GE Clusters M1A-M1B-M1C.) Course M1A is enforced requisite to M1B, which is enforced requisite to M1C. 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. **M1C.** Special Topics. Seminar, three hours. Small groups address environmental topics like smog, deforestation, and recycling. Exercises include field trips and oceanographic cruises.

### Upper Division Courses

**M111. Earth and Its Environment. (4)** (Same as Atmospheric 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.

**112. Science of the Environment. (4)** Lecture, three hours. Scientific principles of environmental issues, designed for upper division humanities and social sciences students. Use of case-study approach, covering urban and indoor air pollution, coastal and drinking water pollution, population dynamics, biodiversity, stratospheric ozone depletion, and global climate change. 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.

**122. International Integrated Coastal Management. (4)** Lecture, three hours. The coast is one of most complex and interesting environments because of interactions among several ecosystems. The 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 the conflicts in manner that allows sustainable development. Focus on how ICM is being used in the U.S. and around the world to solve pressing ecological and socioeconomic problems. Letter grading.

**M127. Soils and Environment. (5)** (Same as Geography M127 and Organismic Biology M127.) Lecture, five hours; discussion, one hour; field trips. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL. 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. Letter grading.

**M133. Environmental Sociology. (4)** (Same as Sociology M115.) Lecture, three hours. 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.

**M153. Introduction to Sustainable Architecture and Community Planning. (4)** (Same as Architecture and Urban Design CM191.) 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.

**M161. Global Environment and World Politics. (4)** (Formerly numbered 161.) (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.

**163. Management, Technology, and Environment. (4)** Lecture, four hours. Exploration of management of environmental issues by private companies in dynamic context of rapidly changing public expectations; specific focus on industrial ecology framework to evaluate effectiveness of firm-level efforts to moderate environmental impacts of economic activity. Letter grading.

**M165. Nuclear Weapons: Critical Decisions. (4)** (Same as Honors Collegium M119 and Policy Studies 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.

### Related Courses

#### Anthropology

132. Technology and Environment

#### Atmospheric Sciences

102. Climate Change and Climate Modeling  
103. Physical Oceanography  
104. Fundamentals of Air and Water Pollution  
130. Circulation of Santa Monica Basin  
M140. Environmental Chemistry Laboratory  
C160. Remote Sensing

#### Chemical Engineering

113. Air Pollution Engineering  
C118. Multimedia Environmental Assessment  
C140. Fundamentals of Aerosol Technology

#### Chemistry and Biochemistry

103. Environmental Chemistry  
M104. Environmental Chemistry Laboratory

#### Civil and Environmental Engineering

151. Introduction to Water Resources Engineering  
153. Introduction to Environmental Engineering Science  
154. Introduction to Environmental Aquatic Chemistry  
156A. Environmental Chemistry Laboratory  
160. Environmental Monitoring and Data Analysis  
163. Introduction to Atmospheric Chemistry and Air Pollution

#### 166. Environmental Microbiology

#### Earth and Space Sciences

100. Principles of Earth Science  
116. Paleontology  
150. Remote Sensing for Earth Sciences  
153. Oceans and Atmospheres

#### Economics

134A. Environmental Economics

#### Environmental Health Sciences

100. Introduction to Environmental Health

#### Geography

100. Principles of Geomorphology  
101. Coastal Geomorphology  
103. Paleoclimatology and Ice-Age Environments  
104. Climatology  
105. Hydrology

110. Population and Natural Resources

M128. Global Environment and Development: Problems and Issues

131. Environmental Change

137. Historical Geography of American Environment

#### Organismic Biology, Ecology, and Evolution

C109. Introduction to Marine Science

116. Conservation Biology

C119. Mathematical Ecology

120. Evolution

122. Ecology

147. Biological Oceanography

C151A. Tropical Ecology

#### Policy Studies

C115. Environmental and Resource Economics and Policy

#### Urban Planning

CM128. Global Environment and Development: Problems and Issues

CM189. Environmentalism: Past, Present, and Future

# INTEGRATED MANUFACTURING ENGINEERING

*Interdepartmental Program  
Henry Samueli School of Engineering  
and Applied Science*

UCLA  
48-121 Engineering IV  
Box 951597  
Los Angeles, CA 90095-1597  
(310) 206-1840  
fax: (310) 825-7793  
e-mail: imeinfo@ime.ucla.edu  
http://ime.ucla.edu

H. Thomas Hahn, Ph.D., *Director*

## Professors

Nasr M. Ghoniem, Ph.D. (*Mechanical and Aerospace Engineering*)  
H. Thomas Hahn, Ph.D. (*Mechanical and Aerospace Engineering*)  
Stephen E. Jacobsen, Ph.D. (*Electrical Engineering*)  
Chang-Jin (C-J) Kim, Ph.D. (*Mechanical and Aerospace Engineering*)  
Aly H. Shabaik, Ph.D. (*Materials Science and Engineering*)  
Daniel C.H. Yang, Ph.D. (*Mechanical and Aerospace Engineering*)  
Jenn-Ming Yang, Ph.D. (*Materials Science and Engineering*)

## Scope and Objectives

The Integrated Manufacturing Engineering (IME) Program is an interdepartmental program based in the Mechanical and Aerospace Engineering Department. The main purpose is to educate future manufacturing engineers.

The curriculum is centered around an integrated approach to product development, while clean environment, agility, and cost-effectiveness are emphasized. Instruction is computer-aided, and teaching/learning laboratories are used to provide students with hands-on experience in advanced manufacturing technologies such as rapid prototyping, robotics, automated material handling, new manufacturing processes, and production planning and scheduling. Team teaching is employed to offer a balanced understanding of principles and methods required.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degree

The Integrated Manufacturing Engineering Program offers the Master of Engineering (M.Engr.) degree in Integrated Manufacturing Engineering.

## Admission

The M.Engr. program is an interdepartmental program within the Departments of Electrical Engineering, Materials Science and Engineering, and Mechanical and Aerospace Engineering.

In addition to meeting the requirements of the Graduate Division, applicants to the M.Engr. program are required to take the General Test of the Graduate Record Examination (GRE). Applicants may be admitted to the program through any one of the three departments listed above.

More information may be obtained at <http://ime.ucla.edu> or by contacting the program coordinator, Integrated Manufacturing and Engineering, 48-121 Engineering IV, UCLA, Box 951597, Los Angeles, 90095-1597, (310) 206-1840.

## Master's Degree

The M.Engr. degree is offered through the comprehensive examination plan. The examination consists of a group project. A total of 12 courses (39 units) is required, including six 400-level core courses, three electives (to be selected in consultation with the faculty adviser), and three seminar courses.

# INTERNATIONAL DEVELOPMENT STUDIES

*Interdepartmental Program  
College of Letters and Science*

UCLA  
10347 Bunche Hall  
Box 951487  
Los Angeles, CA 90095-1487  
(310) 825-2927  
<http://www.isop.ucla.edu/ids/>

Joshua S.S. Muldavin, Ph.D., *Chair*

## Faculty Advisory Committee

Carole H. Browner, Ph.D.  
Robert Buswell, Ph.D., *ex officio*  
Lucie C. Cheng, Ph.D.  
Sondra Hale, Ph.D.  
Dean T. Jamison, Ph.D.  
Edmond Keller, Ph.D.  
Nancy Levine, Ph.D.  
Joshua S.S. Muldavin, Ph.D., *Chair*  
Geffery Robinson, Ph.D.  
Allen J. Scott, Ph.D.  
Kenneth L. Sokoloff, Ph.D.  
Carlos A. Torres, Ph.D.  
Mary A. Yeager, Ph.D.  
Maurice Zeitlin, Ph.D.

## Affiliated Faculty

### Professors

Edward A. Alpers, Ph.D. (*History*)  
Robert P. Brenner, Ph.D. (*History*)  
Carole H. Browner, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Judith A. Carney, Ph.D. (*Geography*)  
Lucie C. Cheng, Ph.D. (*Sociology*)  
Sebastian Edwards, Ph.D. (*Economics*)  
John N. Hawkins, Ph.D. (*Education*)  
Susanna B. Hecht, Ph.D. (*Urban Planning*)  
Philip C. Huang, Ph.D. (*History*)  
Dean T. Jamison, Ph.D. (*Education*)  
Edmond Keller, Ph.D. (*Political Science*)  
Nancy Levine, Ph.D. (*Anthropology*)  
Michael F. Lofchie, Ph.D. (*Political Science*)  
Glen M. MacDonald, Ph.D. (*Geography*)  
Allen J. Scott, Ph.D. (*Geography*)  
Kenneth L. Sokoloff, Ph.D. (*Economics*)  
Michael Storper, Ph.D. (*Urban Planning*)  
Edward E. Telles, Ph.D. (*Sociology*)  
Hartmut Walter, Ph.D. (*Geography*)  
James W. Wilkie, Ph.D. (*History*)  
Maurice Zeitlin, Ph.D. (*Sociology*)

### Professors Emeriti

Robert N. Burr, Ph.D. (*History*)  
Gerry A. Hale, Ph.D., (*Geography*)  
Peter B. Hammond, Ph.D. (*Anthropology*)  
Nikki Keddie, Ph.D. (*History*)  
Afaf Marsot, D.Phil. (*History*)  
Merrick Posnansky, Ph.D. (*Anthropology, History*)  
Georges Sabagh, Ph.D. (*Sociology*)  
Richard L. Sklar, Ph.D. (*Political Science*)

### Associate Professors

Richard D. Anderson, Jr., Ph.D. (*Political Science*)  
Barbara Geddes, Ph.D. (*Political Science*)  
David E. López, Ph.D. (*Sociology*)  
Michael G. Morony, Ph.D. (*History*)  
José C. Moya, Ph.D. (*History*)  
Geoffery Robinson, Ph.D. (*History*)  
Gi-Wook Shin, Ph.D. (*Sociology*)  
James Tong, Ph.D., (*Political Science*)  
Mary A. Yeager, Ph.D. (*History*)

### Assistant Professors

Joshua S.S. Muldavin, Ph.D. (*Geography*)

### Lecturers

George Leddy, Ph.D. (*Geography*)  
Linda Rodriguez, Ph.D. (*History*)

### Adjunct Professor

Sondra Hale, Ph.D. (*Anthropology*)

## Scope and Objectives

The undergraduate International Development Studies major aims to provide a liberal education in relation to the critical issues, experiences, and problems common to developing countries from a global or theme-oriented perspective. It is designed for students who are interested in careers related to international development in academia, public or private agencies, or nonprofit organizations.

## Undergraduate Study

### International Development Studies B.A.

#### Preparation for the Major

No specific courses are required as preparation for the major, but students should have some beginning experience in the social sciences at the college level and be in good academic standing. Recommended preparation: Anthropology 9, Economics 1, Geography 3 or



4 or 5, Political Science 20 or 30 or 50, Statistics 10, two years of one modern foreign language.

### Transfer Students

To be admitted as International Development Studies majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one sociocultural anthropology course, one principles of economics course, one course in cultural geography, economic geography, or people and ecosystems, one comparative politics course, one statistics course, and two years of one modern foreign language.

### The Major

*Required:* Fifty-six units of upper division courses (including International Development Studies 100A, M100B, and Economics 110 or 111 or 112), taken for a letter grade, and the foreign language requirement. (For the social statistics and methodology requirement, some lower division courses are accepted in place of upper division courses.) Courses applied toward the major may be selected from the list in item 5 below. Substitutions may be made only with consent of the chair or program counselor.

The major consists of six parts (courses marked with an asterisk have prerequisites):

1. International Development Studies 100A, M100B
2. Economics \*110 or \*111 or \*112
3. Four core courses (two must be from the same discipline) from Anthropology \*130, \*150, \*161, Economics \*112, \*191, Geography \*M128, 133, Political Science \*124, \*167A, Sociology 173, \*183, 184
4. One course in social statistics and methodology from Anthropology 139, \*180, 186, Biostatistics \*100A, Economics M40, Geography M40, \*M171, Political Science 6, \*102, Sociology \*M18, 104, \*C112, \*113, 211A, \*211B, Statistics 10
5. Twenty-four units of elective courses, including at least 16 units to be divided equally between two of the world's developing areas (e.g., sub-Saharan Africa, Middle East/North Africa, East Asia/East-Central Asia, South and Southeast Asia/Pacific Islands, Eastern Europe/West-Central Asia, Latin America/Caribbean Basin), selected from Anthropology \*130, \*150, \*M151, 152, 153, \*153P, \*M154Q, M155Q, \*161, \*165, 167, M168, 171, 173Q, 174P, 175R, 175T, \*175U, 175V, \*175W, 176, 177, Berber 130, Community Health Sciences 132, 200, M251, \*280, \*434A, Economics \*110, \*111, \*112, \*120, \*130, \*150, \*151, \*M158, \*171, \*180, \*M188A through \*188Z, \*191, \*192, \*286A, \*286B, 287A, 287B, Education \*M108, C191E, 204B through 204F, 234, 238, \*252B, M252C, 253B, 253C, 253D, Epidemiology \*415, Film and Television 106C, 112, Geography 110, 121, \*122, \*124, \*M128, 133, 135, 140, 142, \*148,

\*155, 181, 182A, 182B, 184, 185, 186, 187, 190, 230, 234, Health Services \*240, History 106A, 106B, 106C, 107A, 107B, 109A, 109B, 110A, 110B, 111A, 111B, 111C, 112A, 112B, 112C, 113, 124A, 124B, 124C, 131A through 131D, 134A, 134B, 144, 165A, 165C, 166, 167A through 167D, 168, \*169, 170A, 170C, 171, 172, 173, 174, \*175B, \*175C, \*175E, 176A, 176B, 176C, 177, 178A, 178B, 179A, 179B, 182A, 182B, 183A, 183B, 183C, 184, 188A, 188B, 188C, 189A, 189C, 190A, 190B, 190C, 197 (with counselor approval), International Development Studies \*195A, \*197, Iranian 169, Jewish Studies 142, Korean \*180A, \*180B, \*180C, Latin American Studies 197, \*199, Political Science \*124, 130, 151A, 151B, 151C, 154A, 154B, 156A through 156D, 157, 159A, 159B, \*167A, \*168, \*C197A through \*C197D, M197W, Sociology 101, 116, 156, 157, 160, \*M175, 184, 186, 187, 188, 190, 191, 192, 193, Turkic Languages 170, Urban Planning \*CM128, M230, 234A, \*234B, M234C, \*235A, \*235B, M236A, 269, Women's Studies \*M123, \*M154Q. Consult the program counselor regarding other possible electives that may be applied toward the major

6. Twenty-four quarter units in one modern foreign language or the equivalent in transfer units. Students may also take a proficiency examination administered and evaluated by members of the program faculty (or by outside faculty for languages not familiar to program faculty)

### Honors Program

Majors who have completed International Development Studies 100A and M100B 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 195A, 195B, and 195C, 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 195A, 195B, 195C) and an overall GPA of 3.0.

Highest honors are awarded to students who complete the major (including courses 195A, 195B, 195C) with a 3.75 GPA and who produce an exceptional thesis.

## International Development Studies

### Upper Division Courses

**100A-M100B. Introduction to Development Studies. (4-4)** Seminar, three hours. Two-term seminar for undergraduates designed to examine concepts and issues arising from economic, social, and political change in the Third World. **100A.** Economic Development and Culture Change. Preparation: some beginning experience in social sciences at college level. Requisite: Anthropology 9. **M100B.** Political Economy of Development. (Same as Political Science M197G and Sociology M180.) Designed for juniors/seniors. Analysis of determinants of underdevelopment, with focus on impact of colonialism, foreign investment, and trade, and on political economy.

**195A-195B-195C. Directed Studies for Honors. (4-4-4)** Preparation: 3.5 grade-point average in courses offered for the major, formal application to honors program. Requisites: courses 100A, M100B. **195A.** Research, discussion, and planning of honors thesis. **195B-195C.** Research, preliminary drafting, and final writing of honors thesis. In Progress grading for course 195B (credit to be given only on completion of course 195C).

**197. Special Topics in International Development. (4)** Seminar, three hours. Preparation: some beginning experience in social sciences at college level. Lecture/seminar format on selected topics in international development. Course either features visiting instructors in field of development studies or allows program's affiliated faculty to engage specific contemporary issues. May be repeated for credit with topic change.

## INTERNATIONAL RELATIONS

*College of Letters and Science*

UCLA  
4256 Bunche Hall  
Box 951472  
Los Angeles, CA 90095-1472

(310) 825-3862  
<http://www.polisci.ucla.edu/>

### Scope and Objectives

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.

## Undergraduate Study

### International Relations Specialization

#### 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, 10A, 10B, 11A, 11B; Sociology 1 or 31.

#### 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, 165, 167, 171, 173Q, 174P, 175R, 175T, 175U, 177, Sociology 182, 183, 186, 187, 188, 189, 190; two courses from Economics 110, 111, 112, 180, 181A, 181B, 182, 190, 191, 192; one course from Geography 110, 121, 125, M128, 133, 140, 181, 182A, 182B, 183, 184, 185, 186, 187, 190; two courses from History 116A, 116B, 117A, 127A, 127B, 142A, 142B, 148C, 152A, 152B, 168.

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, East 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.

All courses 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 political science undergraduate counselor in the program office.

## ISLAMIC STUDIES

*Interdepartmental Program  
College of Letters and Science*

UCLA  
10286 Bunche Hall  
Box 951480  
Los Angeles, CA 90095-1480  
(310) 825-1181  
<http://www.isop.ucla.edu/cnes/academics>

Irene A. Bierman, Ph.D., *Chair*

#### Professors

Edward A. Alpers, Ph.D. (*History*)  
Leonard Binder, Ph.D. (*Political Science*)  
Andras E. Bodrogligeti, Ph.D. (*Near Eastern Languages and Cultures*)  
Robert L. Brown, Ph.D. (*Art History*)  
Khaled Abou El Fadl, Ph.D., J.D., *Acting (Law)*  
Benjamin A. Elman, Ph.D. (*History*)  
Osman M. Galal, M.D., Ph.D. (*Community Health Sciences*)  
Gail G. Harrison, Ph.D. (*Community Health Sciences*)  
Daniel M. Neuman, Ph.D. (*Ethnomusicology*)  
Ismail K. Poonawala, Ph.D. (*Near Eastern Languages and Cultures*)  
A. Jihad Racy, Ph.D. (*Ethnomusicology*)  
Anthony Reid, Ph.D. (*History*)  
Allen F. Roberts, Ph.D. (*World Arts and Cultures*)  
Teofilo F. Ruiz, Ph.D. (*History*)  
Hirome Lorraine Sakata, Ph.D. (*Ethnomusicology*)  
Steven L. Spiegel, Ph.D. (*Political Science*)  
Hossein Ziai, Ph.D. (*Near Eastern Languages and Cultures*)

#### Professors Emeriti

Amin Banani, Ph.D. (*Near Eastern Languages and Cultures, History*)  
Seeger A. Bonebakker, Ph.D. (*Near Eastern Languages and Cultures*)  
Robert I. Burns, S.J., Ph.D. (*History*)  
Herbert A. Davidson, Ph.D. (*Near Eastern Languages and Cultures*)  
Gerry A. Hale, Ph.D. (*Geography*)  
Richard G. Hovannisian, Ph.D. (*History*)  
Nazir A. Jairazbhoy, Ph.D. (*Ethnomusicology*)  
Nikki Keddie, Ph.D. (*History*)  
Afaf Marsot, D.Phil. (*History*)  
Georges Sabagh, Ph.D. (*Sociology*)  
Damodar R. SarDesai, Ph.D. (*History*)  
Stanford J. Shaw, Ph.D. (*History*)  
Stanley A. Wolpert, Ph.D. (*History*)

#### Associate Professors

Ali Behdad, Ph.D. (*English*)  
Irene A. Bierman, Ph.D. (*Art History*)  
Michael G. Morony, Ph.D. (*History*)  
Aamir R. Mufti, Ph.D. (*Comparative Literature*)

#### Assistant Professors

Michael D. Cooperson, Ph.D. (*Near Eastern Languages and Cultures*)  
Ghislaine E. Lydon, Ph.D., *in Residence (History)*  
Steven D. Nelson, Ph.D. (*Art History*)

#### Adjunct Professor

Sondra Hale, Ph.D. (*Anthropology*)

## Scope and Objectives

The undergraduate major in this discipline is called Near Eastern Studies. For details, see the program by that name later in this section.

The designation of the interdepartmental degree program in Islamic Studies is meant to convey the broadest cultural concern with peoples and places influenced by Islam, rather than a narrow approach to Islam as religion alone. Islam as a culture-forming force in his-

tory may be studied and understood through the literate sources of Islamic civilization and/or through systematic observation and examination of behavioral patterns and social relations of Muslim peoples. The commonality of an "idealized" and a "functional" or "practical" Islam does not preclude a multiple number of valid and varied approaches to Islamic studies. The program, with its core emphasis on the major languages of the Islamic Middle East, is intended to provide an internal view of the dynamics of Islamic culture.

The interdepartmental program for the Master of Arts and Ph.D. degrees in Islamic Studies is designed primarily for students desiring to prepare for an academic career. It may, however, be found useful for students seeking a general education and desiring a special emphasis in this particular area or for those who plan to live and work in this area, whose career will be aided by a knowledge of the people, languages, and institutions. (Such a career might be centered on teaching, research, business, engineering, journalism, librarianship, or government service.) Subject to the limitations of the program, the special course of studies is formulated for candidates according to their experience and requirements.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Islamic Studies Program offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Islamic Studies.

## Admission

### M.A./Ph.D. in Islamic Studies

In addition to the general University requirements, a B.A. degree in Near Eastern Studies or in a related field with an emphasis on the Near East is required. Applicants are normally expected to have completed the equivalent of Arabic 102A, 102B, and 102C, or Iranian 102A, 102B, and 102C, or Turkic Languages 101A, 101B, and 101C at the time of application. In addition, applicants should have completed the equivalent of two years of Near Eastern history (classical and modern); some coursework in Islamic culture and institutions may be applied toward the history requirement. Should there be any deficiencies in these requisites, the requirements must be satisfied by taking the appropriate courses without credit toward the advanced degree.

Students intending to work for the Ph.D. in Islamic Studies are normally expected first to fulfill all requirements for the M.A. degree. Students entering the program with an M.A. from another university should have attained a level of preparation in languages, history, and social sciences equivalent to that required for the M.A. at UCLA. In addition, students are expected to show proficiency in a second Near Eastern language, one of which must be Arabic. Students who have not done so should make up any deficiencies by taking the appropriate courses without credit toward the degree.

The Graduate Record Examination (GRE) is required of graduates of American universities and recommended for international applicants. No screening examination is necessary.

A score of 560 (paper and pencil test) or 220 (computer-based test) on the Test of English as a Foreign Language (TOEFL) or overall band score of 7.0 on the International English Language Testing System (IELTS) examination is required of all applicants whose native language is not English and who have not attended English-speaking universities.

The application deadline is March 1. No special application form is required in addition to the *UCLA Application for Graduate Admission*.

### **Islamic Studies M.A./ Public Health M.P.H.**

The School of Public Health and the Islamic Studies Program have a concurrent degree program whereby students can work for the M.A. in Islamic Studies and the M.P.H. A maximum of 12 units of coursework in public health may be applied toward both degrees. Applicants interested in this concurrent program should write to the Islamic Studies Program and the Student Services Office, UCLA School of Public Health.

### **Master's Degree**

For major fields, see Doctoral Degree.

The M.A. degree is offered through the comprehensive examination plan. A minimum of nine courses is required, five of which must be at the graduate level. Students must take no fewer than four courses at the appropriate level in one Near Eastern language of their choice. Additionally, students must take no fewer than five relevant upper division and graduate-level courses selected from two of the major fields and subdisciplines listed below. The omission of history as one of the fields is approved only in exceptional cases.

There is a language requirement for this degree.

### **Doctoral Degree**

Major fields include anthropology, Arabic, economics, geography, history, Islamic art history and architecture, music, Persian, political science, sociology, and Turkish.

For students entering directly into the Ph.D. program, course requirements are the same as

for the M.A. Beyond this students take, on specific advisement of the program, advanced courses in two Near Eastern languages, in Near Eastern history, and in one of the social sciences.

Written and oral qualifying examinations are required. The written examinations are in four fields: two Near Eastern languages and literatures as approved by the advisory committee, the whole range of Near Eastern history, and one of the other nonlanguage major fields listed above.

Following successful completion of the written qualifying examinations, students take the University Oral Qualifying Examination.

There is a language requirement for this degree.

## **Islamic Studies**

### **Course List**

#### **Anthropology**

- 130. Study of Culture
- 150. Study of Social Systems
- M154P. Gender Systems: North American
- M154Q. Gender Systems: Global
- 156. Comparative Religion
- 161. Development Anthropology
- 167. Urban Anthropology
- 215. Field Training in Archaeology
- 230Q. Theories of Culture
- 273. Cultures of the Middle East

#### **Arabic (Near Eastern Languages)**

- 102A-102B-102C. Intermediate Literary Arabic
- 111A-111B-111C. Elementary Spoken Egyptian Arabic
- 112A-112B-112C. Advanced Spoken Egyptian Arabic
- 113A-113B-113C. Elementary Spoken Levantine Arabic
- 114A-114B-114C. Spoken Moroccan Arabic
- 120. Islamic Texts
- 130. Classical Arabic Texts
- 132. Philosophical and Kalam Texts
- 141. Modern Arabic Literature
- 150. Introduction to Arabic Literature and Culture
- 199. Special Studies in Arabic
- 220. Seminar: Islamic Texts
- 230. Medieval Literary Texts
- 240. Seminar: Arab Historians and Geographers
- 250. Seminar: Arabic Literature
- 596. Directed Individual Study
- 597. Examination Preparation
- 599. Ph.D. Dissertation Research and Preparation

#### **Archaeology**

- 259. Fieldwork in Archaeology
- 596. Individual Studies for Graduate Students
- 597. Preparation for Ph.D. Qualifying Examinations

#### **Armenian (Near Eastern Languages)**

- 210. History of the Armenian Language
- 220. Armenian Literature of the Golden Age (A.D. 5th Century)
- 230A-230B-230C. Elementary Classical Armenian
- 231A-231B-231C. Intermediate Classical Armenian
- 232A-232B-232C. Advanced Classical Armenian

#### **Art History**

- 104A. Western Islamic Art
- 104B. Eastern Islamic Art
- C104C. Problems in Islamic Art

- 105E. Byzantine Art
- 213. Advanced Studies in Islamic Art
- C214. Problems in Islamic Art

#### **Berber (Near Eastern Languages)**

- 101A-101B-101C. Elementary Berber
- 102A-102B-102C. Advanced Berber
- 130. The Berbers
- 199. Special Studies in Berber Languages

#### **Classics**

- M170. Power and Imagination in Byzantium

#### **Ethnomusicology**

- 147. Survey of Classical Music in India
- 240. Music of Arabic-Speaking Near East
- 241. Music of Iran and Other Non-Arabic-Speaking Communities
- 248A-248B. Classical Music of India

#### **French**

- 121A. Contemporary Francophone Literature: French-African Literature
- 221A. French-African Literature: Introduction to Study of French-African Literatures
- 221C. French-African Literature: French-African Literature of Berbero-Sudanese and Arabo-Islamic Africa
- 257A-257B. Studies in French-African Literature

#### **Geography**

- 187. Middle East

#### **Greek (Classics)**

- 231A-231B-231C. Later Greek and Byzantine Literature

#### **Hebrew (Near Eastern Languages)**

- 230. Seminar: Medieval Hebrew Literature
- 231. Texts in Judeo-Arabic

#### **History**

- 106A-106B-106C. Survey of the Middle East from 500 to the Present
  - 107A-107B. Islamic Civilization
  - 108A-108B. History of the Arabs
  - 109A-109B. History of North Africa from the Moslem Conquest
  - 110A-110B. Iranian History
  - 111A-111B. History of the Turks
  - 114. Topics in Middle Eastern History
  - 123A-123B. Byzantine History
  - 188B-188C. History of British India I, II
  - 190A-190B. History of Southeast Asia
  - 204A-204B. Seminars: Near and Middle Eastern History
  - 205A-205B. Seminars: Medieval Middle Eastern History
  - 206A-206B. Seminars: Social History of the Middle East
  - 209A-209B. Seminars: Ottoman and Modern Turkish History
  - 216A-216B. Seminars: Byzantine History
  - 596. Directed Studies
  - 597. Directed Studies for Graduate Examinations
  - 599. Ph.D. Research and Writing
- #### **Iranian (Near Eastern Languages)**
- 102A-102B-102C. Intermediate Persian
  - 103A-103B-103C. Advanced Persian
  - 140. Persian Belles Lettres (Adabiyât)
  - 141. Persian Analytical Prose
  - 150A-150B. Survey of Persian Literature in English
  - 169. Civilization of Pre-Islamic Iran
  - 170. Religion in Ancient Iran
  - 190A-190B. Introduction to Modern Iranian Studies
  - 199. Special Studies in Iranian
  - 220A-220B. Classical Persian Texts
  - 221. Rumi, Mystic Poet of Islam
  - 250. Seminar: Classical Persian Literature

251. Seminar: Contemporary Persian Literature  
 596. Directed Individual Study  
 597. Examination Preparation  
 599. Ph.D. Dissertation Research and Preparation

#### Islamic (Near Eastern Languages)

110. Introduction to Islam  
 596. Directed Individual Study  
 597. Examination Preparation  
 599. Ph.D. Dissertation Research and Preparation

#### Linguistics

220. Linguistic Areas  
 225. Linguistic Structures

#### Near Eastern Languages

200. Bibliography and Method of Near Eastern Languages and Literatures  
 210. Survey of Afro-Asiatic Languages  
 M241. Folklore and Mythology of the Near East  
 290. Seminar: Paleography  
 596. Directed Individual Study  
 597. Examination Preparation  
 599. Ph.D. Dissertation Research and Preparation

#### Philosophy

104. Topics in Islamic Philosophy

#### Political Science

132A-132B. International Relations of the Middle East  
 157. Government and Politics in the Middle East  
 C245. Middle Eastern Politics

#### Semitics (Near Eastern Languages)

215B. Syriac

#### Sociology

134. Culture and Personality  
 187. Population and Society in the Middle East

#### Turkic Languages (Near Eastern Languages)

101A-101B-101C. Elementary Turkish  
 102A-102B-102C. Advanced Turkish  
 111A-111B-111C. Elementary Uzbek  
 112A-112B-112C. Advanced Uzbek  
 114A-114B-114C. Bashkir  
 160. Turkish Tradition  
 180. Modern Turkic Languages and Peoples  
 199. Special Studies in Turkic Languages  
 210A-210B-210C. Introduction to Ottoman  
 211. Ottoman Diplomats  
 220A-220B-220C. Classical Uzbek (Chagatay)  
 230A-230B-230C. Historical and Comparative Survey of Turkic Languages  
 235A-235B. Middle Turkic  
 240A-240B-240C. Advanced Ottoman  
 250A-250B-250C. Islamic Texts in Chagatay  
 280A-280B. Seminars: Modern Turkish Literature  
 290A-290B. Seminars: Classical Turkic Literature  
 596. Directed Individual Study  
 597. Examination Preparation  
 599. Ph.D. Dissertation Research and Preparation

## ITALIAN

*College of Letters and Science*

UCLA  
 212 Royce Hall  
 Box 951535  
 Los Angeles, CA 90095-1535  
 (310) 825-1940  
 fax: (310) 825-9754  
 e-mail: italian@humnet.ucla.edu

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

Massimo Ciavolella, Ph.D., *Chair*

#### Professors

Michael J.B. Allen, Ph.D., D.Litt.  
 Luigi Ballerini, Dottore in Lettere  
 Franco Betti, Ph.D.  
 Massimo Ciavolella, Ph.D.  
 Lucia Re, Ph.D., Dottore in Lettere  
 Edward F. Tuttle, Ph.D.

#### Professors Emeriti

Mirella Cheeseman, Dottore in Legge  
 Marga Cottino-Jones, Ph.D., Dottore in Lettere  
 Pier-Maria Pasinetti, Ph.D., Dottore in Lettere

#### Associate Professor

Thomas J. Harrison, Ph.D.

#### Lecturers

Maria Grazia Pellegrini, Dottore in Lettere  
 Elissa Togozi, Ph.D.

#### Assistant Adjunct Professor

Marco Codebo, Dottore in Lettere

## 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). In addition, the department participates extensively in the interdepartmental graduate programs in Romance Linguistics and Literature, Comparative Literature, and Folklore and Mythology.

## 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

To be admitted as Italian majors, transfer students 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.

### The Major

*Required:* Thirteen upper division Italian courses, including 100, 103A, 103B, 113, 114A or 114B, 116A or 116B; one course from 118 or 119; one course from 120 or 121; four courses from 114A through 197; 190. 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 this 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

To be admitted as Italian and Special Fields majors, transfer students 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.

### 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, 190, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; five courses from Anthropology 110, 111, 112, M115A, M115B, C115R, 130, 132, 133Q, 135A, 135B, 135C, 135S, 135T, 138, 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 197 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, 40 or 41, and Greek 1, 2, 3 or Latin 1, 2, 3, or equivalent.

**The Major**

*Required:* Italian 100, 103A or 103B, 190, 195, and two courses from 113 through 197 selected in consultation with the undergraduate adviser; Greek 100 or Latin 100, one course from Classics 141 through 197 (except 195), 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 197 selected in consultation with the undergraduate adviser; four courses from English 100, M101A through 119, 121, 140A through M197A 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 197 selected in consultation with the undergraduate adviser; six courses from Film and Television 106A, 106B, 106C, 107, 108, 110A, 110C, 112 through 116, 127, 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 197 selected in consultation with the undergraduate adviser; one course from French 114A, 114B, 114C, and three courses from 115A 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, 88B through 88E, 88Q, 88U.

**The Major**

*Required:* Italian 100, 103A or 103B, 190, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; six courses from History 100, 102, 119M through 121D, 125A through 127B, 132A, 132B, 135A through 137B 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, 190 or 222A, 195, 222B, and two courses from 113 through 197 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 197 selected in consultation with the undergraduate adviser; five courses from Music History 126A through 127G, 135A, 135B, 135C, 156 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 197 selected in consultation with the undergraduate adviser; Philosophy 100A, 100B, 100C, and three courses from M101A through 189 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 197 selected in consultation with the undergraduate adviser; six courses from Political Science 111A

through 113, 116 through 119Z, 137A, 137B, 139A through 139Z, 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, 190, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; three courses from Portuguese 120A through 197 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, 190, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; one course from Spanish 120A, 120B and three courses from 122 through M161 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 197 selected in consultation with the undergraduate adviser; one course from Theater 101A, 101B, 101C and five courses from 105, 111A, 111B, 111C, Classics 143, 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 197 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 advan-

tage of summer language workshops and study programs, including UCLA's own programs in Italy and Los Angeles. For additional information, contact the Education Abroad Program, 1333 Hershey 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 are eligible to participate in the honors program. Requirements: 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.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Italian offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Italian.

## Admission

Applicants to the M.A. and Ph.D. programs must submit the *UCLA Application for Graduate Admission* and meet University minimum requirements for graduate admission. Three letters of recommendation should be sent to the Graduate Adviser, Department of Italian. Applicant files of those who meet University minimum requirements are screened by the departmental committee on admissions. Admission on a provisional basis may be recommended in the case of applicants with deficiencies in preparation.

For admission to the Ph.D. program, applicants must hold an M.A. degree in Italian literature from UCLA or its equivalent from another university in the U.S.

## Master's Degree

The M.A. degree is available with specializations in Italian literature and Italian language.

The M.A. degree is offered through the comprehensive examination and thesis plans; the latter requires a special petition. For the Italian literature specialization, 12 courses are required, including studies in criticism and turn-of-the-century literature. The other nine courses must be distributed in three main literary periods, with at least two courses in each period: Middle Ages, Renaissance, modern.

For the Italian language specialization, requisites include a general grasp of linguistics and a broad familiarity with Italian literary and cultural history. Twelve courses are required, including studies in the history of Italian language and a specified course in linguistics or its equivalent. At least nine courses must be in the 200 series.

There is a language requirement for this degree.

## Doctoral Degree

Two centuries of Italian literature selected from the medieval, Renaissance and baroque, or modern areas comprise the major fields; two other centuries of Italian literature selected from any of these areas comprise the minor fields. Students may select a major or minor in a literary genre outside the department if it is related to their major field of specialization and has the approval of the entire faculty.

In addition to those required for the master's degree, at least 10 more courses are required. Students also must take such courses as their guidance committee prescribes for the qualifying examinations.

Written and oral qualifying examinations are required. The comprehensive examination for the M.A. in Italian also serves as Part I of the written qualifying examinations for the Ph.D. degree. The written examination consists of two parts: an examination in the student's major field and an examination in the minor field.

Following successful completion of the written examinations, students take the University Oral Qualifying Examination.

There is a language requirement for this degree.

## Italian

### Lower Division Courses

**1. Elementary Italian — Beginning. (4)** Lecture, five hours. P/NP or letter grading.

**1A. Elementary Italian — Accelerated. (8)** Lecture, 10 hours; laboratory, two hours. Designed for those students having capacity and desire to learn the language at a much faster pace than normal. Encompasses material ordinarily intended for courses 1 and 2.

**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.

**2A. Elementary Italian — Accelerated (Continued). (8)** Lecture, 10 hours; laboratory, two hours. Enforced requisite: course 1A or 2. Designed for those students having capacity and desire to learn the language at a much faster pace than normal. Encompasses material ordinarily intended for courses 3 and 4.

**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.

**3A. Intermediate Italian — Accelerated. (8)** Lecture, six hours; laboratory, two hours. Enforced requisite: course 2A or 3. Designed for those students having capacity and desire to learn the language at a much faster pace than normal. Encompasses material ordinarily intended for courses 4 and 5.

**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)** (Formerly numbered 25.) Lecture, five hours. Enforced requisite: course 5. Advanced grammar and composition course with readings from select literary works. P/NP or letter grading.

**7. Elementary Italian Conversation. (4)** Lecture, five hours (first six-week summer session). Encompasses conversational material included in course 1, with emphasis on traveler's vocabulary.

**8A-8B-8C. Italian Conversation. (2-2-2)** Discussion, three hours. Enforced requisite: course 2. Each course may be repeated once for credit. P/NP or letter grading.

**42A-42B. Italy through the Ages in English. (4-4)** Lecture, three 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, literature, painting, and politics from time of Charlemagne to High Renaissance. **42B.** Late Renaissance to Postmodern Period. Baroque sculpture and architecture, Galileo, Enlightenment, unification of Italy, Fascism, Communism, terrorism, neorealistic cinema, and "moral revolution" of the 1980s and 1990s.

**46. Italian Cinema and Culture. (4)** Lecture, two hours; discussion, one hour; film screenings, two to three hours. Survey of development of Italian cinema and culture from the 1900s to the present through analysis of principal aesthetic, literary, artistic, and philosophical movements in Italy as reflected in works of the nation's filmmakers and writers.

**50A-50B. Masterpieces of Italian Literature in English. (4-4)** Lecture, three hours. P/NP or letter grading.

**50A.** Middle Ages and Renaissance. Philosophical, religious, and sociopolitical issues examined in authors such as St. Francis, Guinizelli, Cavalcanti, Dante, Boccaccio, Petrarca, Poliziano, Lorenzo de' Medici, Machiavelli, Castiglione, and Ariosto. **50B.** Baroque Period to the Present. Close reading of major works selected from such writers as Tasso, Bruno, Campanella, Vico, Parini, Alfieri, Foscolo, Leopardi, Manzoni, Verga, and Pirandello.

## Upper Division Courses

**100. Composition and Style. (4)** Lecture, three hours. Requisite: course 6. 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. Prerequisite: course 100. Italian literature from 1150 to the 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. Beginning with generation dominated by St. Francis, love poets of court of Frederick II to three classic writers of Italian literature: Dante, Petrarch, and Boccaccio. Renaissance rediscovery of human individuality, dignity, and creativity in works of Pico della Mirandola and Castiglione.

**103B.** Power and Beauty. 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.

**103C.** Romanticism, Politics, and Disillusionment. 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.

**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. Prerequisite: course 100. 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. Prerequisite: course 100. 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 the time.

**116A-116B. Italian Renaissance. (4-4)** Lecture, three hours. Prerequisite: course 100. P/NP or letter grading. **116A.** Renewal of Art and Thought. Study of the *Quattrocento* and its representatives in the arts and humanistic thought (i.e., Mantegna, Botticelli, Pico, Valla, and Ficino). **116B.** Power and Imagination in the 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 the Roman Papacy and Medici, Gonzaga, and D'Este courts.

**118. Age of Enlightenment. (4)** Lecture, three hours. Prerequisite: course 100. 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. Prerequisite: course 100. Study of the *Ottocento*, the rich period of Italian history and culture from Romanticism to decadentism when philosophical and political issues affected not only the mind but also the 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 the 20th Century. (4)** Lecture, three hours. Prerequisite: course 100. Analysis of novel, poetry, and drama of the 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; discussion, one hour. Comparative study of specific literary works and their translation into film and of different techniques in the 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; discussion, one hour. Study of dramatic works from the Renaissance to the present and their theatrical presentation. P/NP or letter grading.

**131. Reading and Reciting. (4)** Lecture, three hours. Preparation: sufficient knowledge of Italian. Emphasis on diction, interpretation, and performance of one-act plays as vehicles for perfection of pronunciation, comprehension, and fluency. May be repeated twice for credit.

**M140. Italian Novella from Boccaccio to Basile. (4)** (Same as Folklore M140.) Lecture, three hours. Analysis of development of the Italian novella in its structure, historical context, and folk material. Special emphasis on how the 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.

**190. History of the Italian Language. (4)** Lecture, three hours. Main forces which have shaped literary or standard Italian and specific ways in which the 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.

**195. Special Fields Research. (4)** Limited to senior Italian and Special Fields majors. Unscheduled tutorial in which paper (20 to 25 pages) is to be written in either Italian or English which requires students to unify and synthesize their experience of combining two disciplines of study. Paper graded by ad hoc committee of faculty from department, with the chair in charge. P/NP or letter grading.

**197. Variable Topics in Italian Studies. (4)** Seminar, three hours. Seminar focusing on themes and issues outside the uniquely Italian literature topics covered in regular departmental undergraduate courses. May be repeated for credit. P/NP or letter grading.

**199. Special Studies. (2 to 4)** Course of independent studies for advanced undergraduates who wish to pursue a special research project under direction and close supervision of a faculty member.

## Graduate Courses

**201. Bibliography and Methods of Research. (4)** Lecture, three hours.

**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-222C. Studies in History of Italian Language. (4-4-4)** Lecture, three hours. Designed for graduate students. S/U or letter grading:

**222A.** History of the Italian Language. (4) Lecture, three hours. Designed for graduate students. Historical survey of development of the language from medieval times to unification of the country (1861). *Questione della lingua*, general acceptance of Florentine speech, and its evolution into the national language. S/U or letter grading.

**222B.** Structure of Modern Italian. (4) Lecture, three hours. Designed for graduate students. Various tendencies in modern and contemporary Italian. Foreign influences in today's Italian language. Relationship between national language and the various dialects. S/U or letter grading.

**222C.** Italian Dialectology. (4) Lecture, three hours. Designed for graduate students. Historical differentiation of Italian dialects considered in its areal dimension. Specific geolinguistic problems and solutions illustrating growth of the discipline up to its present merging with sociolinguistics as Italian dialects become more vertically defined. S/U or letter grading.

**M230A-M230B. Folk Tradition in Italian Literature. (4-4)** (Same as Folklore M230A-M230B.) Lecture, two hours.

**250A-250D. Seminars: Dante. (4 each)** Seminar, three hours.

**251. Seminar: Petrarch. (4)** Seminar, three hours.

**252. Seminar: Boccaccio. (4)** Seminar, three hours.

**253A-253B-253C. Seminars: Chivalric Poetry in Italy. (4-4-4)** Seminar, three hours. Relationship between the genre and its French medieval sources, with study of its evolution in Italy through Pulci, Boiardo, Ariosto, and Tasso.

**254. Seminar: Machiavelli. (4)** Seminar, three hours.

**255A-255B. Seminars: Baroque. (4-4)** Seminar, three hours.

**256A-256B. Seminars: 18th Century. (4-4)** Seminar, three hours.

**257A-257B. Seminars: Romanticism. (4-4)** Seminar, three hours.

**258A-258B. Seminars: Contemporary Italian Literature. (4-4)** Seminar, three hours.

**M260A. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature. (4)** (Same as Folklore M261.) Lecture, three hours. Open to undergraduates with consent of instructor. The conspicuous diversity animating Italian society articulated through class, gender, and ethnolinguistic groups to be studied across a range of texts, some selected from the literary canon, but others purely oral (tales, songs, proverbs, cures and curses, secular and ritual drama).

**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.

**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.

**370. Problems and Methods in Teaching Italian. (4)** Lecture, two hours.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**495A-495B-495C. Teaching Italian at College Level. (2 to 4 each)** (Formerly numbered 495A-495D.) 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

*Interdepartmental Program  
College of Letters and Science*

UCLA  
6350B Public Policy Building  
Box 951478  
Los Angeles, CA 90095-1478  
(310) 794-5983  
<http://labor.spsr.ucla.edu/specialization.htm>

Daniel J.B. Mitchell, Ph.D., *Chair*

### Faculty Advisory Committee

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John H.M. Laslett, D.Phil.  
Daniel J.B. Mitchell, Ph.D., *Chair*  
Paul Ong, Ph.D.  
Karen J. Orren, Ph.D.

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#### Professors

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Janet Currie, Ph.D. (*Economics*)  
Miriam A. Golden, Ph.D. (*Political Science*)  
Jeffrey T. Grogger, Ph.D. (*Policy Studies*)  
V. Joseph Hotz, Ph.D. (*Economics, Policy Studies*)  
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Daniel J.B. Mitchell, Ph.D. (*Management, Policy Studies*)  
Karen J. Orren, Ph.D. (*Political Science*)  
Kenneth L. Sokoloff, Ph.D. (*Economics*)  
Roger Waldinger, Ph.D. (*Sociology*)  
Maurice Zeitlin, Ph.D. (*Sociology*)

#### Professor Emeritus

Nancy M. Henley, Ph.D. (*Psychology*)

#### Associate Professor

Christopher L. Erickson, Ph.D. (*Management*)  
Kathleen M. McGarry, Ph.D. (*Economics*)

## Scope and Objectives

The Labor and Workplace Studies undergraduate specialization is intended to coordinate and enrich offerings on the workplace's connections to the social, political, and economic forces that surround it. Students become acquainted with institutions of the labor market such as public policies, employment practices, and unions. Faculty members from various disciplines are actively engaged in research on some aspect of employee relations, employee organizations, or workplace concerns in the U.S. or other countries. Administration of the program is coordinated through the Institute of Industrial Relations.

## Undergraduate Study

### Labor and Workplace Studies Specialization

The Labor and Workplace Studies specialization must be taken in conjunction with a major in the social sciences or in Psychology. Students with other majors may be admitted by petition.

### Upper Division Requirements

*Required:* Management 150; Political Science 142C or History 155B; three other courses selected from Chicana and Chicano Studies 120, Economics 150, 151, 152, 181B, 183, Geography 155, History 155A, 155B, Political Science 142C, 169, Psychology M137E, Sociology M163, 171, 173, Women's Studies M163, 171. All students take a one-term specialization seminar designed for the exchange of disciplinary perspectives and directed research toward the end of the program.

Courses in the specialization may also be applied toward the requirements of the major where appropriate.

For further information, contact the Institute of Industrial Relations (310-794-5983) or Professor Daniel J.B. Mitchell (310-825-1504).

## LATIN AMERICAN STUDIES

*Interdepartmental Program  
College of Letters and Science*

UCLA  
10347 Bunche Hall  
Box 951447  
Los Angeles, CA 90095-1447  
(310) 206-6571  
<http://www.isop.ucla.edu/las/>

Allen W. Johnson, Ph.D., *Administrative Head and Cochair*  
James W. Wilkie, Ph.D., *Cochair*

### Faculty Advisory Committee

Sebastian Edwards, Ph.D.  
Barbara Geddes, Ph.D.



Susanna B. Hecht, Ph.D.  
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 Kevin B. Terraciano, Ph.D.  
 Carlos A. Torres, Ph.D.  
 James W. Wilkie, Ph.D., *Cochair*

#### Affiliated Faculty

##### Professors

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 Rodolfo Alvarez, Ph.D. (*Sociology*)  
 Rosina M. Becerra, Ph.D. (*Social Welfare*)  
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 Duncan Thomas, Ph.D. (*Economics*)  
 Carlos A. Torres, Ph.D. (*Education*)  
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 James Diego Vigil, Ph.D. (*Anthropology*)  
 James W. Wilkie, Ph.D. (*History*)  
 Maurice Zeitlin, Ph.D. (*Sociology*)

##### Professors Emeriti

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 Henry J. Bruman, Ph.D. (*Geography*)  
 Leland S. Burns, Ph.D. (*Urban Planning*)  
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 O. Raynal Hunt, Ph.D. (*Organismic Biology, Ecology, and Evolution*)  
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 C.P. Otero, Ph.D. (*Spanish and Portuguese*)  
 Richard L. Perrine, Ph.D. (*Civil and Environmental Engineering*)  
 Jorge R. Preloran, B.A. (*Film, Television, and Digital Media*)  
 Douglass R. Price-Williams, Ph.D. (*Anthropology, Psychiatry and Biobehavioral Sciences*)  
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 Jonathan D. Sauer, Ph.D. (*Geography*)  
 Charles A. Schroeder, Ph.D. (*Organismic Biology, Ecology, and Evolution*)  
 Carol Scothorn, M.A. (*World Arts and Cultures*)  
 Allegra Fuller Snyder, M.A. (*World Arts and Cultures*)  
 Robert M. Stevenson, Ph.D. (*Musicology*)  
 Norman J.W. Thrower, Ph.D. (*Geography*)  
 Johannes Wilbert, Ph.D. (*Anthropology*)

##### Associate Professors

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 Adriana Bergero, Ph.D. (*Spanish and Portuguese*)  
 Verónica Cortínez, Ph.D. (*Spanish and Portuguese*)  
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 José Moya, Ph.D. (*History*)  
 Alfred E. Osborne, Jr., Ph.D. (*Management*)  
 John V. Richardson, Ph.D. (*Information Studies*)  
 Raymond A. Rocco, Ph.D. (*Political Science*)  
 Marta Savigliano, Ph.D. (*World Arts and Cultures*)  
 A. John Skirius, Ph.D. (*Spanish and Portuguese*)  
 Charles L. Stanish, Ph.D. (*Anthropology*)  
 William Summerhill, Ph.D. (*History*)  
 Edward E. Telles, Ph.D. (*Sociology*)  
 Aaron Tornell, Ph.D. (*Economics*)  
 Concepción Valadez, Ph.D. (*Education*)  
 Jane L. Valentine, Ph.D. (*Environmental Health Sciences*)  
 Edit Villarreal, Ph.D. (*Theater*)

##### Assistant Professors

Alfredo J. Artiles, Ph.D. (*Education*)  
 Stephen A. Bell, Ph.D. (*Geography*)  
 Clara Chu, Ph.D. (*Information Studies*)  
 Alberto Diaz-Cayeros, Ph.D. (*Political Science*)  
 Raul Hinojosa-Ojeda, Ph.D. (*Urban Planning*)  
 Richard Lesure, Ph.D. (*Anthropology*)  
 Elizabeth A. Marchant, Ph.D. (*Spanish and Portuguese*)  
 Mark Q. Sawyer, Ph.D. (*Political Science*)  
 Kevin B. Terraciano, Ph.D. (*History*)  
 Charlene Villaseñor-Black, Ph.D. (*Art History*)  
 C. Fabian Wagmister, M.F.A. (*Film, Television, and Digital Media*)

##### Lecturers

José M. Cruz-Salvadores, M.A. (*Spanish and Portuguese*)  
 Susan C. Schaffer, Ph.D. (*Spanish and Portuguese*)

##### Adjunct Assistant Professor

Bonnie Taub, Ph.D. (*Community Health Sciences*)

## 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 courses 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 Policy and Social Research 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

To be admitted as Latin American Studies majors, transfer students 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.

### 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 undergraduate advisers of both departments involved, initiating the appropriate petition with the undergraduate adviser in Latin American Studies.

### Study in Latin America

Students are encouraged to spend up to one year in Latin America either (1) to study with an education abroad program, (2) to study in Latin American universities, (3) to conduct research, or (4) to complete an internship in an international or development agency. Full credit is granted according to the individual programs arranged in consultation with the undergraduate adviser. For information on studying in Mexico, Costa Rica, Chile, or Brazil, contact the Education Abroad Program, 1105 Hershey Hall, (310) 794-9820.

### 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 99 (or 197 with department consent); Spanish and Portuguese M44; Art History 55A or 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

Special courses which may be applied toward the M.A. degree requirements with advanced departmental approval are indicated with asterisks. These courses do not have any exclusive focus on Latin America but provide an opportunity for students to relate a particular perspective or phenomenon to Latin America.

#### (1) Literature and Folklore Field

##### Folklore and Mythology

M149. Folk Literature of the Hispanic World

##### History

169. Latin American Eliteloire

##### Portuguese (Spanish and Portuguese)

130A-130B. Brazilian Literature and Identity: Introduction

C132. 19th-Century Brazilian Literature and Culture

C133. Machado de Assis

C134. Brazilian Modernism

C135. 20th-Century Brazilian Literature

141. Brazilian Film and Literature

##### Spanish (Spanish and Portuguese)

120A-120D. Literature in the Hispanic World

137. Literature of Colonial Spanish America

139. Romanticism and Realism in Spanish-American Literature

140. *Modernismo*

142. 20th-Century Spanish-American Literature: Fiction and the Essay

143. 20th-Century Spanish-American Literature: Poetry and Drama

144. Mexican Literature

M149. Folk Literature of the Hispanic World

151B. Women in Hispanic Literature: Spanish America

M161. Film and Literature of the Spanish-Speaking World

170. Senior Honors Tutorial

197A. Studies in Hispanic Culture and Civilization

#### Theory and Methods

##### Folklore and Mythology

M101. Introduction to Folklore

190. Selected Topics in Folklore and Mythology Studies

199. Special Studies in Folklore

##### Portuguese (Spanish and Portuguese)

199. Special Studies

##### Spanish (Spanish and Portuguese)

119A. Introduction to Study of Literature: Prose

119B. Introduction to Study of Literature: Poetry and Drama

199. Special Studies

#### (2) Fine Arts Field

##### Art History

\*110F. Selected Topics in Modern Art: Latin America

\*110G. Art and Politics in the Contemporary Americas: Latin America

\*C110H. Latin American Art of the 20th Century

C117A. Pre-Columbian Art of Mexico

C117B. Pre-Columbian Art of the Maya

C117C. Pre-Columbian Art of the Andes

C117D. Aztec Art

118A. Arts of Oceania

##### Ethnomusicology

M108A-108B. Music of Latin America

113. Music of Brazil

M115. Musical Aesthetics in Los Angeles

M131. Development of Latin Jazz

191K. Advanced Music of Mexico

##### Film and Television

106C. History of African, Asian, and Latin American Film

##### World Arts and Cultures

108B. Dance in Latin American Cultures

120. Selected Topics in Cultural Studies: Latin America

M125A, M125B, M125C. Beyond the Mexican Mural CM139. Afro-Caribbean Ritual Arts, Vodou, and Santería

\*CM140. Women, Healers, Ritual, and Transformation: Latin America

#### Theory and Methods

##### Art History

\*199. Special Studies in Art

##### Ethnomusicology

\*M180. Analysis of Traditional Music

\*190. Study of Ethnomusicology

\*199E. Special Studies in Ethnomusicology

##### Film and Television

199. Special Studies in Film and Television

##### World Arts and Cultures

\*199. Special Studies in World Arts and Cultures

#### (3) Linguistics Field

##### Portuguese (Spanish and Portuguese)

100A. Phonology and Morphology

\*100B. Syntax

\*M118A. History of Portuguese and Spanish: Phonology

\*M118B. History of Portuguese and Spanish: Morphology and Syntax

##### Spanish (Spanish and Portuguese)

\*100A. Introduction to Study of Spanish Grammar: Phonology and Morphology

\*100B. Introduction to Study of Spanish Grammar: Syntax

\*115. Applied Linguistics

\*M118A. History of Portuguese and Spanish: Phonology

\*M118B. History of Portuguese and Spanish: Morphology and Syntax

\*119A. Introduction to Study of Literature: Prose

\*119B. Introduction to Study of Literature: Poetry and Drama

\*170. Senior Honors Tutorial

#### Theory and Methods

##### Linguistics

\*103. Introduction to General Phonetics

\*110. Introduction to Historical Linguistics

\*120A. Phonology I

\*120B. Syntax I

M146. Language in Culture

\*165A. Phonology II

\*165B. Syntax II

\*170. Language and Society: Introduction to Sociolinguistics

\*199. Special Studies in Linguistics

#### Portuguese (Spanish and Portuguese)

\*199. Special Studies

#### Spanish (Spanish and Portuguese)

\*199. Special Studies

### (4) Arts and Humanities Electives

#### Ethnomusicology

\*M110A-M110B. African American Musical Heritage

#### Film and Television

112. Film and Social Change

#### Folklore and Mythology

\*M118. Folk Art and Aesthetics

\*190. Selected Topics in Folklore and Mythology Studies

#### Latin American Studies

197. Interdisciplinary Topics in Latin American Studies

199. Special Studies in Latin American Studies

#### Theater

M103C. Origins and Evolution of Chicano Theater

## Core II: Social Sciences

### Preparation

*Required:* Two courses from History 8A, 8B, 8C; Latin American Studies 99 (or 197 with department consent); Economics 1 and 2, or 100; Economics M40 or Sociology M18 or 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

Special courses which may be applied toward the M.A. degree requirements with advanced departmental approval are indicated with as-

terisks. These courses do not have any exclusive focus on Latin America but provide an opportunity for students to relate a particular perspective or phenomenon to Latin America.

### (1) Anthropology and Sociology Field

#### Anthropology

114P. Ancient Civilizations of Western Middle America (Nahuatl Sphere)

114Q. Ancient Civilizations of Eastern Middle America (Maya Sphere)

114R. Ancient Civilizations of Andean South America

173Q. Latin American Communities

174P. Ethnography of South American Indians

#### Sociology

186. Latin American Societies

### Theory and Methods

#### Anthropology

C114S. Comparative Study of Ancient States: Latin America

\*115P. Archaeological Field Training

\*C115R. Strategy of Archaeology

\*M136Q. Laboratory for Naturalistic Observations: Developing Skills and Techniques

\*138. Methods and Techniques of Ethnohistory

\*139. Field Methods in Cultural Anthropology

M140. Language in Culture

\*180. Quantitative Methods in Anthropology

\*186. Models and Modeling in Anthropology

\*199. Special Studies in Anthropology

#### Sociology

\*104. Introduction to Sociological Research Methods

\*C112. Introduction to Mathematical Sociology

\*199. Special Studies

### (2) Economics Field

#### Economics

\*110. Economic Problems of Underdeveloped Countries

\*111. Theories of Economic Growth and Development

\*112. Policies for Economic Development

\*190. International Economics

\*191. International Trade Theory

\*192. International Finance

### Theory and Methods

#### Economics

\*M135. Economic Models of Public Choice

\*M188A-188Z. Upper Division Research Seminars: Applications of Economic Theory

\*199. Special Studies in Economics

#### Management

\*197. Special Topics in Management

### (3) History Field

#### History

165A. Early Latin America

165C. Indians of Colonial Mexico

166. Latin America in the 19th Century

167A-167D. Latin America in the 20th Century

168. History of Latin American International Relations

169. Latin American Eliteloire

170A. Latin American Cultural History

170B. Classic Travel Accounts of Latin America since 1735

170C. Issues in Latin American History

171. Mexican Revolution since 1910

172. History of Argentina

173. Modern Brazil

174. Brazilian Intellectual History

197A-197Z. Undergraduate Seminars: Latin America

### Theory and Methods

#### History

197A-197Z. Undergraduate Seminars: Latin America

\*199. Special Studies in History

#### Information Studies

111C. Ethnic Groups and Their Bibliographies: Latino History and Culture

### (4) Political Science Field

#### Political Science

130. Politics of Latin American Economic Development

131. Latin American International Relations

\*139A-139Z. Special Studies in International Relations: Latin America

\*149. Special Topics in American Government and Politics

154A-154B. Government and Politics in Latin America

\*169. Special Studies in Comparative Politics: Latin America

199. Readings in Political Science: Latin America

### Theory and Methods

#### Political Science

\*102. Statistical Analysis of Political Data

\*104A-104B. Introduction to Survey Research

\*M105. Economic Models of Public Choice

\*113. Problems in 20th-Century Political Theory

\*119A-119Z. Special Studies in Political Theory

\*137A-137B. International Relations Theory

\*168. Comparative Political Analysis

### (5) Geography Field

#### Geography

121. Conservation of Resources: Underdeveloped World

\*126. Geography of Extinction

\*M128. Global Environment and Development: Problems and Issues

133. Cultural Geography of the Modern World

\*142. Population Geography

181. Mexico, Central America, Caribbean

182A. Spanish South America

182B. Brazil

\*199. Special Studies

### Theory and Methods

#### Geography

\*M171. Introduction to Spatial Statistics

### (6) Social Sciences Electives

#### Anthropology

\*153. Evolution of Human Societies

\*M154Q. Gender Systems: Global

\*161. Development Anthropology

\*167. Urban Anthropology

\*M168. Culture, Illness, and Healing

#### Chicana and Chicano Studies

\*142. Mesoamerican Literatures

\*169. Representations of Indigenous Peoples in the Americas

#### Economics

\*120. Introduction to Urban and Regional Economics

\*180. Comparative Systems: Transformation of Socialist Economies

#### Geography

\*108. World Vegetation

\*111. Forest Ecosystems

\*M115. Environmentalism: Past, Present, and Future

\*129. Seminar: Environmental Studies

\*140. Political Geography

**History**

M159A, M159B. History of the Chicano Peoples

**Latin American Studies**

197. Interdisciplinary Topics in Latin American Studies

199. Special Studies in Latin American Studies

**Political Science**

\*M122B. Global Environment and World Politics

\*124. International Political Economy

M144A. Ethnic Politics: Chicano/Latino Politics

\*167A. Ideology and Development in World Politics

\*167B. Comparative Development and Administration

\*168. Comparative Political Analysis

\*M197G. Introduction to Development Studies: Political Economy of Development

**Sociology**

\*116. Social Demography

\*154. Race and Ethnicity: International Perspectives

\*157. Social Stratification

\*182. Political Sociology

184. Social Change

**Core III: Ecology and Environment****Preparation**

*Required:* Two courses from History 8A, 8B, 8C; Latin American Studies 99; 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 environment 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**

Special courses which may be applied toward the M.A. degree requirements with advanced departmental approval are indicated with asterisks. These courses do not have any exclusive focus on Latin America but provide an opportunity for students to relate a particular perspective or phenomenon to Latin America.

**Community Health Sciences**

132. Health, Disease, and Health Services in Latin America

**Geography**

121. Conservation of Resources: Underdeveloped World

\*M128. Global Environment and Development: Problems and Issues

133. Cultural Geography of the Modern World

\*142. Population Geography

181. Mexico, Central America, Caribbean

182A. Spanish South America

182B. Brazil

\*199. Special Studies

**Theory and Methods****Anthropology**

\*180. Quantitative Methods in Anthropology

\*186. Models and Modeling in Anthropology

**Geography**

\*M171. Introduction to Spatial Statistics

**Electives****Anthropology**

\*153. Evolution of Human Societies

\*167. Urban Anthropology

M168. Culture, Illness, and Healing

**Community Health Sciences**

\*130. Nutrition and Health

**Economics**

\*120. Introduction to Urban and Regional Economics

**Geography**

\*108. World Vegetation

\*111. Forest Ecosystems

\*M115. Environmentalism: Past, Present, and Future

\*126. Geography of Extinction

\*M128. Global Environment and Development: Problems and Issues

\*129. Seminar: Environmental Studies

\*132. Food, Environment, and Agriculture

\*140. Political Geography

**Latin American Studies**

197. Interdisciplinary Topics in Latin American Studies

199. Special Studies in Latin American Studies

**Sociology**

\*116. Social Demography

**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. For further information, contact Carolyn Ramirez-La Faso at (310) 206-6571.

*Required Lower Division Courses (8 units):* History 8A or 8B or 8C or Latin American Studies 99, 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). 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.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

**Graduate Study**

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

**Graduate Degree**

The Latin American Studies Program offers the Master of Arts (M.A.) degree in Latin American Studies.

**Admission****M.A. in Latin American Studies**

In addition to University minimum requirements, the B.A. degree in Latin American Studies constitutes the normal basis for admission to the M.A. program. Applicants with a degree in another field can be admitted but must complete certain undergraduate requisites subsequent to admission. Applicants with Latin American field experience or special methodological studies background are given special consideration. All applicants should meet minimum requirements in at least one language of Latin America. The following items are required:

1. Three academic letters of recommendation, unless the applicant has been away from school for some time, in which case one of the letters may be from an employer
2. A minimum 3.0 or B average in the junior/senior years of college
3. A statement of purpose discussing the applicant's background in Latin American studies, proposed program of study, and future career plans
4. A minimum score of 1,000 on the General Test (combined verbal and quantitative sections) of the Graduate Record Examination (GRE)
5. Optional: a résumé or curriculum vitae describing both academic and Latin American experience

Students are admitted each quarter. Application deadlines are November 1 for Winter Quarter, December 31 for Spring Quarter, and

December 15 (to be considered for financial assistance) or May 1 for Fall Quarter.

Several options are available to combine the M.A. in Latin American Studies with a professional degree. After acceptance by both the Latin American Studies Program and the respective professional school, students may pursue both degrees simultaneously.

### Latin American Studies M.A./ Education M.Ed.

The Department of Education and the Latin American Studies Program offer an articulated degree program that allows students to combine study for the M.A. in Latin American Studies and the M.Ed., with an emphasis in curriculum. Articulated programs do not allow course credit to be applied toward more than one degree. The program is not currently accepting applications.

### Latin American Studies M.A./ Information Studies M.L.I.S.

The M.L.I.S./Latin American Studies M.A. is an articulated degree program within the Department of Information Studies and the Latin American Studies Program. Students can obtain two degrees: the M.L.I.S. and the M.A. in Latin American Studies. Further details may be obtained from the graduate advisers in both departments.

### Latin American Studies M.A./ Management M.B.A.

The John E. Anderson Graduate School of Management and the Latin American Studies Program offer a three-year concurrent degree program designed for individuals preparing for careers in international management with a special focus on the Latin American region. The program is predicated on the belief that individuals employed in the area of international business and management are better equipped to meet the challenges of their employment with complementary preparation in language and regional studies. Application materials should be requested separately from both schools.

### Latin American Studies M.A./ Public Health M.P.H.

The School of Public Health and the Latin American Studies Program have arranged an articulated degree program, organized to permit specializations within the M.A. in Latin American Studies and the M.P.H., with the award of both degrees after approximately three years of graduate study. Qualified students apply to the graduate adviser of the Latin American Studies M.A. program and to a relevant area of public health, such as (1) environmental and nutritional sciences, (2) epidemiology, (3) health education, (4) population and family health.

Potential applicants should contact the Graduate Adviser, Latin American Studies, UCLA Latin American Center, and/or the Public Health/Latin American Studies Articulated De-

gree Program Adviser, UCLA School of Public Health.

### Latin American Studies M.A./ Urban Planning M.A.

The Latin American Studies Program and the Department of Urban Planning offer a two and one-half to three-year concurrent degree program leading to an M.A. degree in each program. Issues related to migration and settlement, comparative urbanization, human resources development and distribution, and rural economics are all of direct concern to planners and other policymakers working in Latin America. The program provides an integrated curriculum through which students can develop professional knowledge and skills while receiving advanced area studies and language training.

Further details may be obtained from the graduate advisers in both departments.

## Master's Degree

M.A. students are expected to develop and integrate two or three fields in Latin American studies, to be selected from the following: anthropology, art, economics, education, engineering, folklore, geography, history, law, library science, linguistics, management, music, political science, Portuguese, public health, sociology, Spanish, theater arts, and urban planning. At least one of the chosen fields must be a social science.

The M.A. degree is offered through the comprehensive examination and thesis plans; the latter requires a special petition. For students under the comprehensive examination plan a minimum of nine courses is required; five must be at the graduate level. For students under the thesis plan, a minimum of 10 courses is required; five must be at the graduate level. A core course is required of all students.

There is a language requirement for this degree.

## Latin American Studies

### Lower Division Course

**99. Introduction to Latin American Problems. (4)** Limited to 15 students. Interdisciplinary seminar for lower division students. May be repeated for credit with topic change.

### Upper Division Courses

**197. Interdisciplinary Topics in Latin American Studies. (4)** Advanced interdisciplinary course for juniors/seniors. May be repeated for credit with topic change.

**M197A.** Introduction to Caribbean Literature. (Same as Spanish M197A.) Lecture, two hours; discussion, two hours. Interdisciplinary introduction to literature of French, Spanish, and English Caribbean.

**199. Special Studies in Latin American Studies. (4 or 8)** Limited to juniors/seniors. Intensive directed research program in which students conduct interdisciplinary research or complete internship with an international agency or program dealing with Latin America. Faculty sponsorship and written reports required.

## 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 the Americas. (4)** (Same as Anthropology M266 and Community Health Sciences M260.) Lecture, three hours; discussion, one hour. Preparation: bilingual skills (English/Spanish) for Spanish discussion section. Recommended requisite: Community Health Sciences 132. Health issues throughout the Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. 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 a 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. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of an interdisciplinary nature. In Progress 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.

## Course List

### Approved Graduate Courses

Special courses which may be applied toward the M.A. degree requirements with advanced departmental approval are indicated with asterisks. These courses do not have any exclusive focus on Latin America but provide an opportunity for students to relate a particular perspective or phenomenon to Latin America.

Refer to the Latin American Studies undergraduate section for the lists of approved undergraduate courses.

## Fine Arts

### Art History

- \*201. Topics in Historiography of Art History
- C218A. Pre-Columbian Art of Mexico
- C218B. Pre-Columbian Art of the Maya
- C218C. Pre-Columbian Art of the Andes
- C218D. Aztec Art
- 219B. Pre-Columbian Art
- 220. Oceanic, Pre-Columbian, African, and Native North American Art
- C254. Latin American Art of the 20th Century
- 596. Directed Individual Study or Research

### Ethnomusicology

- 201. History of Ethnomusicology
- 208. Seminar: Latin American Music
- \*290. Seminar: Ethnomusicology
- 596. Directed Individual Studies

### Film and Television

- 276. Seminar: Non-Western Films — Mexican Cinema
- \*298A-298B. Special Studies in Film and Television

### Theater

- \*210. Topics in World Theater and Drama

### World Arts and Cultures

- \*281A-281B. Advanced Studies in Dance Ethnology

## Languages

### Indigenous Languages of the Americas (Linguistics)

- \*18A-18B-18C. Elementary Quechua

### Portuguese (Spanish and Portuguese)

- \*1. Elementary Portuguese
- 2. Elementary Portuguese
- 3. Intermediate Portuguese
- 25. Advanced Portuguese
- 102A-102B. Intensive Portuguese
- \*105. Advanced Composition and Style

### Spanish (Spanish and Portuguese)

- \*1. Elementary Spanish
- \*1G. Reading Course for Graduate Students
- 2. Elementary Spanish
- 2G. Reading Course for Graduate Students
- 3. Elementary Spanish
- 4. Intermediate Spanish
- 5. Intermediate Spanish
- 25. Advanced Spanish and Composition
- \*105. Spanish Composition

## Linguistics

### Anthropology

- 204. Core Seminar: Linguistic Anthropology

### Linguistics

- \*210A. Field Methods I
- \*210B. Field Methods II
- \*220. Linguistic Areas
- \*225. Linguistic Structures
- M246C. Topics in Linguistic Anthropology

### Portuguese (Spanish and Portuguese)

- \*202. Synchronic Morphology and Phonology
- \*204A-204B. Generative Grammar
- \*M205A-M205B. Development of Portuguese and Spanish Languages

### Spanish (Spanish and Portuguese)

- \*202A. Phonology
- \*202B. Morphology

- \*204A-204B. Generative Syntax and Semantics
- \*M205A-M205B. Development of Portuguese and Spanish Languages
- \*209. Dialectology
- \*256A-256B. Studies in Spanish Linguistics
- \*257. Studies in Dialectology

## Literature

### Portuguese (Spanish and Portuguese)

- C231. Colonial Brazilian Literature and Culture
- C232. 19th-Century Brazilian Literature and Culture
- C233. Machado de Assis
- C234. Brazilian Modernism
- C235. 20th-Century Brazilian Literature
- M249. Folk Literature of the Spanish and Portuguese Worlds
- 254. Studies in Early Brazilian Literature
- 255. Studies in Modern Brazilian Literature

### Spanish (Spanish and Portuguese)

- 237. Literature of the Spanish Conquest
- 238. Baroque, Enlightenment, and Neoclassicism in Colonial Literature
- 239. Romanticism and Realism in Spanish-American Literature
- 240. Major Currents in Modern Spanish-American Literature
- 241A-241B. Contemporary Spanish-American Short Story
- 243A-243B. Contemporary Spanish-American Poetry
- 244A-244B. Contemporary Spanish-American Novel
- 245. Contemporary Spanish-American Essay
- 246. Contemporary Spanish-American Drama
- M249. Folk Literature of the Spanish and Portuguese Worlds
- 277A-277B. Studies in Colonial Spanish-American Literature
- 278A-278B. Studies in 19th-Century Spanish-American Literature
- 280A-280B. Studies in Contemporary Spanish-American Literature
- \*M286A-M286B. Studies in Hispanic Folk Literature
- 290. Special Topics: Latin American Literature

## Professional

### Community Health Sciences

- 200. Global Health Problems
- 210. Community Health Sciences
- M216. Qualitative Research Methodology
- \*231. Maternal and Child Nutrition
- M232. Determinants of Health
- M239. Race and Ethnicity as a Concept in Practice and Research
- M260. Health and Culture in the Americas
- M264. Latin America: Traditional Medicine, Shamanism, and Folk Illness
- 282. Communication in Health Promotion and Education

### Education

- \*C203. Educational Anthropology
- \*204B. Introduction to Comparative Education
- \*204C. Education and National Development
- 204D. Minority Education in Cross-Cultural Perspective
- 204E. International Efforts in Education
- 204F. Nonformal Education in Comparative Perspective
- \*C207. Politics of Education
- \*238. Cross-National Analysis of Higher Education
- \*252B. Seminar: Education and Social Change
- \*253A. Seminar: Current Problems in Comparative Education
- 253D. Seminar: Latin American Education

- \*253F. Seminar: Education in Revolutionary Societies
- \*253H. Seminar: The Chicano/Hispanic and Education
- 262F. Seminar: Research Topics in Bilingual/Multicultural Education
- \*596. Directed Independent Study

### Engineering

- \*596. Directed Individual or Tutorial Studies (selected from any of the engineering departments)

### Epidemiology

- 220. Principles of Infectious Disease Epidemiology
- 227. AIDS: A Major Public Health Challenge
- 280. Parasitic Diseases and Global Health
- 290. Seminar: Epidemiology — Infectious and Tropical Disease
- \*291. Seminar: Epidemiology — Methodology
- 293. International HIV/AIDS Seminar

### Health Services

- \*240. Health Care Issues in International Perspective

### Information Studies

- \*207. International Issues and Comparative Research in Library and Information Science
- \*223. Literature of the Social Sciences
- \*224. Literature of the Humanities and Fine Arts
- M225. Latin American Research Resources
- \*596. Directed Individual Study or Research

### Law

- \*270A. International Trade Law
- \*271. International Business Transactions
- \*290A. International Environmental Law

### Management

- \*205A. International Business Economics
- \*205B. Comparative Market Structure and Competition
- 209. Selected Topics in Business Economics
- \*234A. International Financial Markets
- \*234B. Financial Management of Multinational Corporations
- \*261B. Global Marketing Management
- \*M293B. Morality of Capitalism
- \*296A. International Business Management
- \*297A. Comparative and International Management
- \*297C. International Business Law
- \*297D. International Business Negotiations
- \*298B. Special Topics in International and Comparative Management
- \*298C. Special Topics in Sociotechnical Systems
- \*298D. Special Topics in Management
- 596. Research in Management

### Public Health

- \*596. Directed Individual Study or Research (selected from any of the public health departments)

### Urban Planning

- \*M230. Introduction to Regional Planning: Evolution of Regional Planning Doctrines
- 234A. Development Theory
- 234B. Rural Development Issues
- M234C. Resource-Based Development
- \*235A-235B. Urbanization in Developing World I, II
- \*M236A. Theories of Regional Economic Development I
- \*236B. Theories of Regional Economic Development II
- 236C. Regional World: Territorial Development in Global Economy
- 239. Special Topics in Urban and Regional Development Policy
- \*C265. Environmentalism: Past, Present, and Future
- C266. Global Environment and Development: Problems and Issues

269. Special Topics in Environmental Analysis and Policy  
596. Research in Planning

## Social Sciences

### Anthropology

- \*214. Selected Topics in Prehistoric Civilizations of the New World  
M241. Topics in Linguistic Anthropology  
242. Ethnography of Communication  
\*260. Urban Anthropology  
M264. Latin America: Traditional Medicine, Shamanism, and Folk Illness  
M266. Health and Culture in the Americas  
M272. Indians of South America  
M284. Qualitative Research Methodology  
285P. Selected Topics in Anthropological/Archaeological Theory

### Archaeology

- \*259. Fieldwork in Archaeology  
596. Individual Studies for Graduate Students

### Economics

- \*281A. International Trade Theory  
\*281B. International Finance  
\*282A-282Z. Topics in International Economics: Latin America  
\*286A. Economic Development  
\*286B. Cost-Benefit Analysis of Development Projects  
287A-287Z. Topics in Development Economics  
596. Individual Study

### Folklore and Mythology

- \*200B. Fieldwork  
248. Theory and Method in Latin American Folklore Studies  
\*M249. Folk Literature of the Spanish and Portuguese Worlds  
\*M286A-M286B. Studies in Hispanic Folk Literature

### Geography

- \*223. Seminar: Humid Tropics  
\*M229. Resource-Based Development  
\*231. Terminology and Theory in Political Economy: Deconstruction and Reconstruction of Approaches in Research, Writing, and Practice  
233. Seminar: Cultural Geography — Latin America  
\*234. Environment and Subsistence in Indigenous Countries  
\*240. Advanced Political Geography: Geopolitics  
\*242. Advanced Population Geography  
\*292. Advanced Regional Geography: Selected Regions — Latin America  
596. Directed Individual Study or Research

### History

- 200I. Advanced Historiography: Latin America  
201I. Topics in History: Latin America  
M265. Latin American Research Resources  
266A-266B. Seminars: Colonial Latin American History  
267A-267B. Seminars: Latin American History, 19th and 20th Centuries  
M268A-M268B. Seminars: Recent Latin American History

### Latin American Studies

- M200. Latin American Research Resources  
205. Latin Americanist Scholarship  
M250A. Indians of South America  
250B. Interdisciplinary Seminar: Latin American Studies  
250C. Interdisciplinary Topics in Latin American Studies

### Political Science

220. International Relations Theory

- \*C227. Foreign Policy Process  
230. Contending Perspectives on International Political Economy  
\*231. International Political Economy I  
\*C239. Selected Topics in International Relations  
240A-240B. Seminars: Comparative Politics  
C244. Latin American Politics  
255. Seminar: Political Change  
\*259. Selected Topics in Comparative Politics  
**Sociology**  
231. Race and Ethnicity: International Perspectives  
\*235. Theories of Ethnicity  
\*259. Social Structure and Economic Change: Historical and Comparative Perspectives  
\*263. Social Stratification  
278. Sociology of Latin America  
285A. Special Topics in Sociology: Social Movements in Latin America  
285C. Special Topics in Sociology: Race Relations in Brazil

## LAW

### School of Law

UCLA  
1242 Law  
71 Dodd Hall, *Admissions*  
Box 951476  
Los Angeles, CA 90095-1476

(310) 825-4841  
(310) 825-4041, *Admissions*  
<http://www.law.ucla.edu/>

Jonathan D. Varat, J.D., *Dean*

### Professors

- Richard L. Abel, LL.B., Ph.D. (*Connell Professor of Law*)  
Khaled Abou El Fadl, M.A., Ph.D., J.D., *Acting*  
Norman Abrams, J.D.  
Iman Anabtawi, M.A., J.D., *Acting*  
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Peter Arenella, J.D.  
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William D. Warren, J.D., J.S.D. (*Connell Professor Emeritus of Law*)  
Kenneth H. York, LL.B.

### Assistant Professor

- Seana Shriffrin, B.Phil, D.Phil.

### Lecturers.

- Kimberly Hall Barlow, J.D.  
Stuart Biegel, J.D.  
Jill Brown, J.D.  
George S. Cardona, J.D.  
Brian Cartwright, J.D., Ph.D.  
Steven K. Derian, M.A., J.D.  
Bryant Edwards, J.D.  
Scott Epstein, J.D.  
Leanne J. Fisher, J.D.  
Caroline M. Gentile, J.D.  
Susan Cordell Gillig, J.D.  
Bernard Gold, B.S., J.D.  
Thomas Holm, J.D.  
Kristen Holmquist, J.D.  
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Kristine S. Knaplund, J.D.  
Kathleen Koch-Weser, M.A., J.D.  
Roderick D. Margo, B.Com., LL.B., Ph.D.  
Clifford Marshall, J.D.  
Edward McAniff, LL.B.  
Schuyler Moore, J.D.  
John J. Power, M.B.A.  
Laurence H. Pretty, B.Sc., J.D.  
Joel Rabinovitz, LL.B.  
Mark Rosenbaum, J.D.  
Catherine Sabatini, M.A., J.D.

Robert Bradley Sears, J.D.  
Kenneth Ziffren, J.D.

#### Visiting Professor

Elliot Dorff, M.H.L., Ph.D.  
Edward McCaffery, M.A., J.D.  
Guy Scoffoni, M.A., LL.M., PH.D.  
Peter Wendel, M.A., J.D.

## Scope and Objectives

The School of Law, one of two academic units at UCLA that operate on a semester (rather than quarter) system, offers a three-year curriculum leading to the J.D. degree. The school is accredited by the California Committee of Bar Examiners, is a member of the Association of American Law Schools, and is on the approved list of the American Bar Association. Graduates of the school are qualified to apply for admission to practice in any state in the U.S.

The school 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. Students do not undertake a specific major but have the opportunity to enroll in a wide variety of courses dealing with various legal fields.

## Professional Study

### 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. The faculty has concluded that the quality of the education of students is affected in significant ways by the presence of vital diverse viewpoints; students of all backgrounds select UCLA in significant part because of the school's outstanding achievement in creating a highly diverse educational environment.

In evaluating applicants the school places substantial weight on traditional measures of academic ability, namely grades and LSAT scores, and recognizes that other factors and attributes contribute greatly to people's ability to succeed as law students and lawyers. When assessing academic promise and achievement, an 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, placing special emphasis on socioeconomic

disadvantage. Also evaluated are work experience and career achievement, community or public service, career goals (with particular attention to the likelihood of applicants representing underrepresented communities), 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 applicants may significantly diversify the student body or make a distinctive contribution to the school or the legal profession.

UCLA 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 in the *Bulletin of the UCLA School of Law* or from the School of Law website given at the beginning of this listing.

For information on the proficiency in English requirements for international graduate students, refer to Graduate Admission in the Graduate Study section of this catalog.

### 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 which 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. In addition to the courses in the regular law school curriculum, students may take two courses for credit in other 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 which 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 requirement which is a requisite for graduation.

## Concurrent Degree Programs

The School of Law offers seven concurrent degree programs that allow students to fulfill the requirements of the J.D. and another graduate degree simultaneously. Students may also design a tailored program from other disciplines in UCLA's curriculum or from another high-quality institution, but must arrange this in consultation with the School of Law and the other program selected. Students interested in pursuing a joint degree must apply simultaneously to both schools.

### Law J.D./Afro-American Studies M.A.

The School of Law and the Afro-American Studies Program offer a concurrent degree program whereby students may pursue the M.A. in Afro-American Studies and J.D. degrees at the same time. For admission, applicants are required to satisfy the regular admission requirements of both schools. Twelve units of law coursework may be double-counted toward the M.A. degree. Applicants interested in the program should contact the School of Law and the Afro-American Studies Program for further information.

### Law J.D./American Indian Studies M.A.

The School of Law and the American Indian Studies Program offer a concurrent plan of study over four years leading to both a J.D. and an M.A. in American Indian Studies. This integrated program is designed to produce law graduates with a rich understanding of tribal cultures that expands their knowledge, facilitates their practice in the field of Indian law, and enhances their service to Indian nations. Legal study includes relevant tribal, U.S., and



international law. Courses in American Indian studies address the diverse histories, world views, values, languages, and practices of North American tribes.

### Law J.D./Education Graduate Degree

The Department of Education and the School of Law offer a concurrent degree program that allows students to design a program of study leading to the J.D. and any advanced degree in education (M.Ed., M.A., Ed.D., or Ph.D.). If the program meets the degree requirements in both schools, students are awarded both degrees on its completion. The program is not currently accepting applications.

### Law J.D./Management M.B.A.

The John E. Anderson School of Management and the School of Law offer a concurrent degree program that enables students to prepare for a career where law and management overlap and where understanding of both fields is necessary. Examples of such areas include public service, international trade, industrial relations, corporate law, and specialized areas of management consulting. The program makes it possible to earn the J.D. and M.B.A. in four academic years. Application should be made to both schools simultaneously.

### Law J.D./Policy Studies M.P.P.

The Department of Policy Studies and the School of Law offer a concurrent degree program whereby students may pursue the M.P.P. and the J.D. at the same time. Applicants are required to satisfy the regular admission requirements for both programs. During the first year students follow the required law curriculum, taking 33 units. The second year is spent in the M.P.P. program taking 36 units toward the M.P.P. degree. During the third and fourth years students take the remaining 24 units of the M.P.P. curriculum and 40 units of law courses to complete the J.D. degree. Applicants interested in the concurrent program should contact the School of Law and the graduate adviser in the Policy Studies Department for further information.

### Law J.D./ Social Welfare M.S.W.

The School of Law and the Department of Social Welfare offer a concurrent plan of study over four years leading to both a J.D. and an M.S.W. This integrated plan provides preparation for lawyers who want to focus on social welfare law and programs. Social workers interested in legal issues related to social welfare policy would also benefit from this preparation. Applicants are required to satisfy the regular admission requirements of both programs; contact the School of Law and the Social Welfare Department for further information.

### Law J.D./Urban Planning M.A.

The School of Law and the Department of Urban Planning offer a concurrent plan of study providing an integrated curriculum for students planning to specialize in the legal aspects of urban problems. Education in planning offers

an overview of theories and methods that permit identification and treatment of urban problems; education in law offers insight into the institutional causes and possibilities for treatment of these problems. Students pursue studies in both areas and receive both the J.D. and M.A. in Urban Planning degrees at the end of four years.

### Master of Laws Degree

The school offers a graduate law program leading to the Master of Laws (LL.M.) degree to outstanding international students interested in pursuing graduate studies. Law school graduates with outstanding records who may be interested in this program should contact Professor Joel Handler, LL.M. Program, School of Law, 1242 Law, UCLA, Box 951476, Los Angeles, CA 90095-1476, for further information.

## Law

### Lower Division Course

**88. Lower Division Seminar: Special Topics in Law. (4)** Seminar, three hours; outside study, nine hours. Prerequisite: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in law approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

## LESBIAN, GAY, BISEXUAL, AND TRANSGENDER STUDIES

*College of Letters and Science*

UCLA  
251A Kinsey Hall  
Box 951384  
Los Angeles, CA 90095-1384

(310) 206-0516  
<http://www.humnet.ucla.edu/humnet/lgbts/>

James A. Schultz, Ph.D., *Director*

### Faculty Advisory Committee

Eric R. Avila, Ph.D.  
Karen B. Brodtkin, Ph.D.  
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Alicia Gaspar de Alba, Ph.D., *Acting Chair*  
David H. Gere, Ph.D.  
Sandra Harding, Ph.D.  
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John E. Horton, Ph.D.  
Lynn A. Hunt, Ph.D.  
Arthur L. Little, Jr., Ph.D.  
Christine A. Littleton, J.D., *ex officio*  
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Mitchell B. Morris, Ph.D.  
David S. Rodes, Ph.D.  
William B. Rubenstein, J.D.  
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Sandra Harding, Ph.D. (*Education*)

Lynn A. Hunt, Ph.D. (*History*)  
Christine A. Littleton, J.D. (*Law*)  
William B. Rubenstein, J.D., *Acting (Law)*  
James A. Schultz, Ph.D. (*Germanic Languages*)

#### Professor Emeritus

John E. Horton, Ph.D. (*Sociology*)

#### Associate Professors

Alicia Gaspar de Alba, Ph.D. (*César Chávez Center for Chicana and Chicano Studies*)  
Arthur L. Little, Jr., Ph.D. (*English*)  
Mark S. Litwin, M.D., M.P.H. (*Health Services, Urology*)

#### Assistant Professors

Eric R. Avila, Ph.D. (*César Chávez Center for Chicana and Chicano Studies*)  
David H. Gere, Ph.D. (*World Arts and Cultures*)  
Mitchell B. Morris, Ph.D. (*Miscology*)

#### Senior Lecturer S.O.E.

David S. Rodes, Ph.D. (*English*)

#### Lecturers

Alice Echols, Ph.D.  
Linda Garnets, Ph.D. (*Psychology*)  
Robert A. Hennig, Ph.D. (*Political Science*)  
Vernon Rosario, M.D., Ph.D.  
Ronni Sanlo, Ed.D. (*Education*)

## 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. This challenge led to a dramatic increase in research on same-sex desire, most of it the work of scholars without academic affiliations. Inspired by these accomplishments, students and faculty at colleges and universities eventually mustered the courage 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 decade, 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 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.

First offered in Fall Quarter 1997, 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, 196, 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.

All minor courses must be taken for a letter grade, with 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 the 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.

**M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies. (4)** (Formerly numbered M14.) (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.

**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.) 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. Gay and Lesbian Perspectives in Pop Music. (4)** (Same as Music History M137.) Lecture, four hours. Survey of English-language popular music in the 20th century, with focus on lesbians, gay men, and members of other sexual minorities as creators, performers, and audience members. Letter grading.

**150. Speaking Out: Public Speaking on Lesbian, Gay, Bisexual, and Transgender Issues. (1)** Discussion. 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 Sociology M167 and 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.

**196. Senior Internship Seminar: Lesbian, Gay, Bisexual, and Transgender Studies. (4)** Seminar, three hours. Preparation: completion of four courses toward the minor. Requisite: course M114. Limited to seniors. Internship in a lesbian, gay, bisexual, or transgender community organization coupled with a weekly seminar. Consideration of theoretical and political issues involved in such work and relation of those issues to ideas explored in minor courses already taken.

**197. Selected Topics in Lesbian, Gay, Bisexual, and Transgender Studies. (4)** 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.

**M197D. Special Topics in Lesbian and Gay Literature. (5)** (Same as English M197D.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in lesbian and gay literature. Topics focus on a 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.

**199. Special Studies in Lesbian, Gay, Bisexual, and Transgender Studies. (2 to 4)** Requisite: course M114. Directed program of independent study or research on a specific topic within lesbian, gay, bisexual, and transgender studies.

## LIFE SCIENCES

*College of Letters and Science*

UCLA  
2305 Life Sciences  
Box 951606  
Los Angeles, CA 90095-1606  
(310) 825-6614  
<http://www.lscore.ucla.edu/>

### Scope and Objectives

Students who wish to study life sciences have a choice of nine majors, all of which lead to a Bachelor of Science degree: Biology, Ecology, Behavior, and Evolution, Marine Biology, and Plant Biology (Organismic Biology, Ecology, and Evolution Department), Microbiology and Molecular Genetics (Microbiology and Molecular Genetics Department), Molecular, Cell, and Developmental Biology (Molecular, Cell, and Developmental Biology Department), Neuroscience (Neuroscience Interdepartmental Program), Physiological Science (Physiological Science 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 the website at <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 nine 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.

### 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.

All core curriculum courses must be passed with a grade of C– or better and 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 students 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.

## Life Sciences

### Lower Division Courses

**1. Evolution, Ecology, and Biodiversity. (4)** Lecture, three hours; demonstration, two hours. 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. Letter grading.

**2. Cells, Tissues, and Organs. (5)** Lecture, three hours; discussion/laboratory, three hours (alternate weeks). Enforced requisite: Chemistry 14A or 20A or former course 10A. Not open for credit to students with credit for course 2W. Introduction to basic principles of cell structure, organization of cells into tissues and organs, and principles of organ systems. Letter grading.

**2W. Cells, Tissues, and Organs. (6)** Lecture, four hours; discussion/laboratory, three hours (alternate weeks). Enforced requisites: Chemistry 14A or 20A or former course 10A, English Composition 3 or 3H. Not open for credit to students with credit for course 2. Introduction to basic principles of cell structure, organization of cells into tissues and organs, and principles of organ systems. Satisfies Letters and Science Writing II requirement. Letter grading.

**3. Introduction to Molecular Biology. (5)** Lecture, three hours; discussion/laboratory, three hours (alternate weeks). Enforced requisites: course 2 or 2W, Chemistry 14C or 30A or former course 10D or 30. 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 requisites: course 2 or 2W, Chemistry 14C or 30A or former course 10D or 30. Honors course parallel to course 3, but at a more advanced level. Letter grading.

**4. Genetics. (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 3. 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.

**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.

### Upper Division Course

**130. Science Classroom Observation and Participation. (1 to 2)** Seminar, one hour; classroom observation and participation, two hours. Observation, participation, or tutoring in science classes at middle school and secondary levels, offered for 1 unit in Fall and Winter Quarters and for 2 units in Spring Quarter (project required). May be repeated for credit. P/NP grading.

**194. Teaching Practicum in Life Sciences. (2 or 4)** Lecture, two hours; discussion, three hours; laboratory, three or six hours. Training and supervised practicum for advanced undergraduates in teaching courses related to life sciences. Students assist in preparation of materials and development of innovative programs under guidance of faculty and teaching assistants. Consult Life Sciences Core Curriculum Office for further information. Letter grading.

## LINGUISTICS

*College of Letters and Science*

UCLA  
3125 Campbell Hall  
Box 951543  
Los Angeles, CA 90095-1543  
(310) 825-0634  
fax: (310) 206-5743

e-mail: [linguist@humnet.ucla.edu](mailto:linguist@humnet.ucla.edu)  
<http://www.linguistics.ucla.edu/>

Edward L. Keenan, Ph.D., *Chair*

### Professors

Raimo A. Anttila, Ph.D.  
Susan R. Curtiss, Ph.D.  
Bruce P. Hayes, Ph.D.  
Thomas J. Hinnebusch, Ph.D.  
Nina M. Hyams, Ph.D.  
Patricia A. Keating, Ph.D.  
Edward L. Keenan, Ph.D.  
Hilda J. Koopman, Ph.D.  
Pamela L. Munro, Ph.D.  
Terence Parsons, Ph.D.  
Russell G. Schuh, Ph.D.  
Dominique L. Sportiche, Ph.D.  
Edward P. Stabler, Ph.D.  
Donca Steriade, Ph.D.  
Timothy A. Stowell, Ph.D.

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George D. Bedell, Ph.D.  
William O. Bright, Ph.D.  
Mazisi R. Kunene, Ph.D.  
Peter N. Ladefoged, Ph.D.  
Paul M. Schachter, Ph.D.  
Robert P. Stockwell, Ph.D.

### Associate Professors

Sun-Ah Jun, Ph.D.  
Anoop Mahajan, Ph.D.

### Assistant Professors

Daniel Büring, Ph.D., *Acting*  
Carson T. Schütze, Ph.D.  
Colin C. Wilson, 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 which 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 science 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 which 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 three types: (1) a major which concentrates entirely on general linguistics, (2) several majors which combine the basic courses of the general program with a language concentration or other related fields, and (3) a major which concentrates entirely on an African language area. The combined majors in conjunction with instructional certification programs are especially appropriate for students who have nonuniversity teaching careers as goals, and the African major is for students with specific African interests.

A 2.0 grade-point average in linguistics courses is required for all Linguistics Department majors.

## Linguistics B.A.

The B.A. degree program 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 in each of two foreign languages or the sixth term in one foreign language and the third term in each of two other foreign languages.

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

To be admitted as Linguistics majors, transfer students with 90 or more units must complete the following introductory courses 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 two foreign languages or two years of one foreign language and one year in each of two other foreign languages (at least one year must be in a language other than those in the Romance, Slavic, or Germanic families).

## The Major

*Required:* A minimum of 13 upper division or graduate courses, including Linguistics 103, 110, 120A, 120B, 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 seven courses are electives, three of which must be linguistics courses. The other four may be in linguistics or in certain other fields as follows: Anthropology 143, Classics 180, English 121, 122, Philosophy 127A, 127B, 172, Psychology 120, 124E, 133C, or upper division courses 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 195, or 196A and 196B, 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 which 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 sixth term in each of two foreign languages or the sixth term in one foreign language and the third term in each of two other foreign languages (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

To be admitted as Linguistics and Anthropology majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one introduction to linguistics course and two years of two foreign languages or two years of one foreign language and one year in each of two other foreign languages (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.

### The Major

*Required:* Thirteen upper division courses as follows: Linguistics 103, 110, 120A, 120B or 127, 125, 170, one other upper division linguistics course (recommended: 114), Anthropology M140, either 144 or M145, one course from Anthropology 141, 142A, 143, or Sociology CM124A, and three upper division electives from Anthropology 141, 142A, 143, 144, M145, the 130 series (one course only), the 170 series (one course only), Sociology CM124A, CM124B. 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 Computer Science B.A.

### Preparation for the Major

*Required:* Linguistics 20, Mathematics 31A, 31B, Philosophy 31, Program in Computing 10A, 10B, 10C, 30, completion of the sixth term in one foreign language or the third term in each of two foreign languages. Admission to the major is contingent on passing the following courses with grades of C or better and a grade-point average of 3.3 or better: Linguistics 20, Philosophy 31, Program in Computing 10A, 10B, 10C. Mathematics 31A and 31B must also be passed with grades of C or better. Mathematics 61 is recommended.

### Transfer Students

To be admitted as Linguistics and Computer Science majors, transfer students with 90 or more units must complete the following introductory courses 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.

### The Major

*Required:* Twelve upper division courses as follows: Linguistics 103, 120A, 120B, 125, 165A or 165B, C180, C185A, Computer Science 131, 132, 161 or 163, 181, and one upper division elective in linguistics or computer science. Linguistics 104 and C185B are strongly recommended.

## Linguistics and East Asian Languages and Cultures B.A.

### Preparation for the Major

*Required:* Completion of the sixth term in either Chinese, Japanese, or Korean; Linguistics 20, Philosophy 31; one cultural anthropology course; either Chinese 50, Japanese 50, or Korean 50, as appropriate; completion of the sixth term in one other foreign language or the third term in each of two other foreign languages.

### Transfer Students

To be admitted as Linguistics and East Asian Languages and Cultures majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of either Chinese, Japanese, or Korean, one introduction to linguistics course, one symbolic logic course, one cultural anthropology course, one Chinese, Japanese, or Korean civilization course, and two years of one other foreign language or one year in each of two other foreign languages.

## The Major

*Required:* 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; for the classical Japanese track: Japanese 100A, 100B, CM122, 140A, 140B, 140C, C149; for the modern Japanese track: Japanese 100A, 100B, 100C, M120, CM122, CM123 or CM127, 130B; for the classical Chinese track: Chinese 110A, 110B, 110C, four courses from 140A, 140B, 140C, 165, 170, 195; for the modern Chinese track: Chinese 100A, 100B, 100C, 101A, 101B, 130A, 130B; for the Korean track: Korean 100A, 100B, 100C, CM120, three courses from 101A, 101B, 101C, CM127, 130A, 130B.

## Linguistics and English B.A.

### Preparation for the Major

*Required:* Linguistics 20, English 4W or 4HW, 10A, 10B, 10C, Philosophy 31, completion of the sixth term in each of two foreign languages or the sixth term in one foreign language and the third term in each of two other foreign languages.

### Transfer Students

To be admitted as Linguistics and English majors, transfer students with 90 or more units must complete the following introductory courses 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 two foreign languages or two years of one foreign language and one year in each of two other foreign languages.

## The Major

*Required:* Fourteen 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, English 121, 122 (or Applied Linguistics and Teaching English as a Second Language C116), 140A, and four 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 sixth term in one other foreign language or the third term in each of two other foreign languages.

### Transfer Students

To be admitted as Linguistics and French majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of French, one introduction to linguistics course, one French literature course, one French diction course, and two years of one

other foreign language or one year in each of two other foreign languages.

## The Major

*Required:* Fourteen 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, French 100, 101, 102, 105, 107, and two elective upper division French literature courses.

## Linguistics and Italian B.A.

### Preparation for the Major

*Required:* Linguistics 20, Italian 1, 2, 3, 4, 5, 6, Latin 1, 2, 3, completion of the third term in one other foreign language or the sixth term in Latin, Philosophy 31, one cultural anthropology course.

### Transfer Students

To be admitted as Linguistics and Italian majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Italian, one year of Latin, one introduction to linguistics course, one symbolic logic course, one cultural anthropology course, and one year of one other foreign language or the second year of Latin.

## 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, 190, and three upper division electives in Italian.

## Linguistics and Philosophy B.A.

### Preparation for the Major

*Required:* Linguistics 20, Philosophy 31, 32, and two courses from 1, 6, 7, 21; completion of the sixth term in each of two foreign languages or the sixth term in one foreign language and the third term in each of two other foreign languages.

### Transfer Students

To be admitted as Linguistics and Philosophy majors, transfer students with 90 or more units must complete the following introductory courses 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 two foreign languages or two years of one foreign language and one year in each of two other foreign languages.

## The Major

*Required:* Thirteen upper division courses as follows: Linguistics 103, 120A, 120B, 165B (or 200B with a grade of A in 120B and consent of instructor), three upper division electives in lin-

guistics; six upper division courses in philosophy, including at least five from Philosophy 124 through 135B, 170, 172, 184, 186, 187, 188, 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 sixth term in one foreign language and the third term in a second foreign language. Program in Computing 10A is strongly recommended.

### Transfer Students

To be admitted as Linguistics and Psychology majors, transfer students with 90 or more units must complete the following introductory courses 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.

## The Major

*Required:* Thirteen upper division courses as follows: Linguistics 103, 120A, 120B, C130, C132, two upper division electives in linguistics, Psychology 120, 121, 133B, 133E, and two electives to be selected from 115, 116, M117C, 118, M119L, 124A, 124B, 124C, 124E, 130, 133C, 133E, 133F, 133G, M137J, 186A, 186B. Linguistics C135 and 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor) are strongly recommended.

## 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 sixth term in one other foreign language or the third term in each of two other foreign languages.

### Transfer Students

To be admitted as Linguistics and Scandinavian Languages majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of either Swedish, Norwegian, or Danish, one introduction to linguistics course, and two years of one other foreign language or one year in each of two other foreign languages.

## The Major

*Required:* Thirteen 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, two courses from Scandinavian 105, 110, 115 (or one of these courses twice), 199 (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, 25, M42, M44, completion of the sixth term in one other foreign language or the third term in each of two other foreign languages.

### Transfer Students

To be admitted as Linguistics and Spanish majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Spanish, one Spanish civilization course, one Spanish American civilization course, one introduction to linguistics course, and two years of one other foreign language or one year in each of two other foreign languages.

### The Major

*Required:* Fourteen 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 additional upper division courses in linguistics (preferably C130 and 170), Spanish 100A, 100B, 115 or M118A, 119A, 119B, and two additional upper division Spanish courses.

## African Languages B.A.

### Preparation for the Major

*Required:* Linguistics 20, nine courses from African Languages 1A through 42C and 199 (six in one language and three in another).

### Transfer Students

To be admitted as African Languages majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one introduction to linguistics course and two years of one language and one year of one other language.

### The Major

*Required:* A minimum of 13 upper division courses, including three courses in an African language; African Languages M190, Linguistics 103; two courses from Film and Television 106C, Folklore M155, French 121A, Theater 102E, or one or more special 4-unit African Languages 199 tutorials focusing on literature in an African language; three courses from English 114, Ethnomusicology C136A, C136B, History 125A, 125B, 125C, 126A, 126B, 127A, 127B, 128A, 128B, Linguistics 110, 120A, 120B or 127, 140, 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.

## 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 195 or in 196A and 196B. 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, C185A. 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 (4 units):* Linguistics 20.

*Required Upper Division Courses (24 units):* Six courses, which must include Linguistics 103, 120A, 120B, two elective courses selected from 104 through C185B, and an additional elective linguistics course, which may be upper or lower division.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined

in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Linguistics offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Linguistics.

## Admission

The department only considers applicants whose degree objective is the Ph.D. Students are normally admitted to begin residence in Fall Quarter only (exceptions may be made by the admissions director). The deadline for submission of applications for Fall Quarter is December 31 of the previous year.

Applicants are required to submit a statement of purpose that includes their background for graduate study in linguistics and immediate and long-range goals in the field; a copy of a research paper or other piece of writing in linguistics or a closely related field; letters of recommendation from three scholars under whom they have studied; and scores (no minimum scores are required) on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE).

While not required for admission, Linguistics 103, 110, 120A, and 120B are requisite to graduate courses in the corresponding areas. An admitted applicant is notified by the department which, if any, of the above courses must be taken or audited. Any question of whether courses taken elsewhere are equivalent to the above courses is discussed with the adviser.

If earlier graduate work was done at UCLA, admission into the Ph.D. program is considered on the basis of the following: (1) completion of all requirements for the M.A. and (2) the faculty's evaluation of the quality of the M.A. thesis and of overall work and promise.

If applicants previously received an M.A. in Linguistics from another department or institution, all the requirements expected of an M.A. candidate, including the coursework, must be fulfilled unless work elsewhere is deemed equivalent and satisfies the course requirements. Then there are two possible procedures: (1) a master's thesis written at another institution or department may be submitted or (2) if a thesis was not written elsewhere, a paper equal in depth and scope to a thesis may be submitted. In either case an evaluation committee is appointed. The committee makes a recommendation to the entire faculty, which then assesses the applicant's qualifications for admission into the Ph.D. program.

## Master's Degree

For specializations, see Doctoral Degree.

The M.A. degree is offered through the comprehensive examination and thesis plans; the former is for terminal M.A. students only. The M.A. degree requires the completion of nine graduate courses in linguistics. All students are

required to take four core courses. The remaining courses must be chosen from a specific list of courses. All first-year students must take a research course sequence, and all second-year students must take a thesis preparation seminar.

There is a language requirement for this degree.

## Doctoral Degree

Students may specialize in syntax, semantics, phonology, phonetics, language change, typology, neurolinguistics, psycholinguistics, computational linguistics, and many language areas, notably African languages and American Indian languages. Other specializations may be possible, depending on the availability of faculty expertise.

Students are required to take 36 units of graduate coursework beyond the M.A. requirements. The units must include a field methods sequence and 8 units in an area distinct from that of the student's major area of concentration. It is a requirement for some of the student's research to be presented at a meeting of the Linguistics Department Colloquium.

Written and oral qualifying examinations are required. The written examination consists of two substantive research papers in different areas or fields of linguistics.

Following successful completion of the written examinations, students submit a dissertation prospectus and take the University Oral Qualifying Examination, which is based primarily on the topic of the dissertation research and includes all the background necessary to pursue research on the specific topic.

There is a language requirement for this degree.

## 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.

**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 Eleme3 ntary 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.

**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.

**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.

**97. Elementary and Intermediate Studies in African Languages. (1 to 6)** Seminar, to be arranged. 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. 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.

**M190. 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.

**199. Special Studies in African Languages. (1 to 6)** Tutorial, to be arranged. 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. 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, 199. Investigation of relationships among the 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.

## Indigenous Languages of the Americas

### Lower Division Courses

**17. Intensive Elementary Quechua. (12)** Lecture, 15 hours; laboratory, five hours. Intensive course equivalent to courses 18A, 18B, 18C. Language of the 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)** Lecture, five hours. Course 18A is enforced requisite to 18B, which is enforced requisite to 18C. Language of the Incas and its present-day dialects, as spoken in Andean South America.

## Upper Division Courses

**119A-119B-119C. Advanced Quechua. (4-4-4)** 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.

## Graduate Course

**596. Directed Studies in Quechua. (1 to 8)** 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. (4)** 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.

**2. Language in the U.S. (4)** 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.

**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.

**10. Structure of English Words. (4)** Lecture, three to four hours. 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.

**20. Introduction to Linguistics. (4)** 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.

**88. Lower Division Seminar. (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 a specific term. May be repeated for credit. P/NP or letter grading.

**99. Special Studies in Linguistics. (2 to 4)** Supervised research or training. May be repeated for credit. P/NP or letter grading.

### Upper Division Courses

**103. Introduction to General Phonetics. (4)** Lecture, four hours; discussion, one hour. Preparation: one prior linguistics course or course 20 concurrently. Phonetics of a variety of languages and phonetic phenomena that occur in languages of the world. Extensive practice in perception and production of such phenomena.

**104. Experimental Phonetics. (4)** 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.

**110. Introduction to Historical Linguistics. (4)** Requisites: courses 20, 103, 120A. Methods and theories appropriate to historical study of language, such as comparative method and method of internal reconstruction. Sound change, grammatical change, semantic change.

**C111. Intonation. (4)** Lecture, two hours; laboratory, two hours. Requisites: courses 20, 103, 120A or 120B. Recommended: course 104 or 204. 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. Concurrently scheduled with course C211.

**114. American Indian Linguistics. (4)** 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.

**M115. Survey of African Languages. (4)** (Same as African Languages M190.) Requisite: course 20. Introduction to languages of Africa, their distribution and classification, and their phonological and grammatical structures; elementary practice in several languages.

**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. (4)** 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.

**120B. Syntax I. (4)** 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.

**125. Semantics. (4)** Lecture, four hours; discussion, one hour. Requisite: course 120B. Survey of most important theoretical and descriptive claims about the nature of meaning.

**127. Syntactic Typology and Universals. (4)** 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.

**C128A-C128B. Romance Syntax: French. (4-4)** Lecture, four hours. Preparation: some knowledge of French (or a Romance language). Requisite: course 120B. Course C128A is requisite to C128B. Aspects of structure of French language, with emphasis on properties of construction not found in English. Concurrently scheduled with courses CM228A-CM228B. P/NP or letter grading.

**C130. Language Development. (4)** 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. Concurrently scheduled with course C233.

**C132. Language Processing. (4)** (Formerly numbered 132.) Lecture, four hours; discussion/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. Concurrently scheduled with course C232.

**C135. Neurolinguistics. (4)** Lecture, four hours; discussion, one hour. Requisites: courses 1 or 20, and C130. 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.

**140. Linguistics in Relation to Language Teaching. (4)** Requisites: courses 120A, 120B. Aspects of linguistics in relation to teaching of language, with particular focus on special problems entailed in teaching non-European languages.

**M146. Language in Culture. (4)** (Same as Anthropology M140.) Lecture, three hours; discussion, one hour. Requisite: course 20 or Anthropology 33. Study of language as an aspect of culture; relation of habitual thought and behavior to language; and language and the 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. (4)** (Same as Indo-European Studies M150.) Lecture, three hours. Recommended 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. Letter grading.

**160. Field Methods. (6)** Discussion, four hours; individual or group sessions, one to two hours. Requisites: courses 103, 120A, 120B. Analysis of a language unknown to members of class from data elicited from a native speaker of the language.

**165A. Phonology II. (4)** 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.

**165B. Syntax II. (4)** 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.

**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. (4)** Requisites: courses 110, 120A, 120B. Principles of linguistic change as exemplified through detailed study of history of English pronunciation, lexicon, and syntax.

**M176A. Structure of Japanese I. (4)** (Same as Japanese CM122.) Lecture, three hours. Recommended preparation: two years of Japanese. Requisite: Japanese M120. Discussion of many seemingly idiosyncratic characteristics of Japanese syntax and semantics in light of word-order typology and universal grammar, often in form of a contrastive analysis of Japanese and English. Letter grading.

**M176B. Structure of Japanese II. (4)** (Same as Japanese CM123.) Lecture, three hours. Recommended preparation: two or more years of Japanese language study. Survey of Japanese language at three different levels of organization: (1) word level — word class, verbal morphology and semantics; (2) clause/sentence level — grammatical constructions; (3) discourse level — point of view, ellipsis, topicalization. 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. (4)** Lecture, four hours. 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.

**C185A. Computational Linguistics I. (4)** 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. Concurrently scheduled with course C209A.

**C185B. Computational Linguistics II. (4)** Requisite: course C185A or C209A. 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. Concurrently scheduled with course C209B.

**195. Senior Essay. (4)** Limited to senior linguistics majors. Extended piece of writing is undertaken on a linguistic topic selected by the student to be completed under supervision of a faculty member. Consult professor in charge to enroll.

**196A. Honors Essay. (4)** 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 196A is taken. Draft of extended piece of writing on a linguistic topic selected by the student is prepared under supervision of a faculty member. Consult professor in charge to enroll. In Progress grading (credit to be given only on completion of course 196B).

**196B. Honors Essay. (2)** Requisite: course 196A. Piece of writing drafted in course 196A is presented in a seminar, revised, and put into final form under supervision of a faculty member. Consult professor in charge to enroll.

**197. Special Topics in Linguistics. (4)** Requisite: course 1 or 20. Variable topics selected from any undergraduate linguistics course area in which students desire greater in-depth knowledge. May be repeated for credit with topic change.

**199. Special Studies in Linguistics. (2 to 4)** Requisites: courses 120A, 120B. May be repeated for credit.

## Graduate Courses

**200A. Phonological Theory I. (4)** Preparation: graduate linguistics student or grade of A in course 120A 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.

**204. Experimental Phonetics. (4)** 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.

**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 variation 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. (4)** Lecture, four hours. 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.

**C209A. Computational Linguistics I. (4)** 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. Concurrently scheduled with course C185A.

**C209B. Computational Linguistics II. (4)** Requisite: course C185A or C209A. 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. Concurrently scheduled with course C185B.

**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.

**C211. Intonation. (4)** Lecture, two hours; laboratory, two hours. Requisites: courses 20, 103, 120A or 120B. Recommended: course 104 or 204. 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. Concurrently scheduled with course C111.

**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 C130 or C233. 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 C132 or C232, 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. (4)** Requisite: course 200B. Current results in word-order universals; genetic classification of the 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.

**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.

**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.

**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)** 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.

**CM228A-CM228B. Romance Syntax: French. (4-4)** (Same as Romance Linguistics M204A-M204B.) Lecture, four hours. Preparation: some knowledge of French (or a Romance language). Requisite: course 120B. Course CM228A is requisite to CM228B. Aspects of structure of French language, with emphasis on properties of construction not found in English. Concurrently scheduled with courses 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.

**C232. Language Processing. (4)** Lecture, four hours; discussion/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 inferencing, speech error models of sentence production, and computation of syntactic structure during production. Concurrently scheduled with course C132. Graduate students expected to read more advanced literature and produce research papers of greater depth. Letter grading.

**C233. Language Development. (4)** 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. Concurrently scheduled with course C130. Graduate students expected to apply more sophisticated knowledge and produce research paper of greater depth.

**C235. Neurolinguistics. (4)** Requisites: courses 1 or 20, and C130. 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.

**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.

**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)** (Formerly numbered 251.) Lecture, four hours. Requisite: course 200A. Course 201, 203, or 204 may be required. Specialized topics in phonetics and phonology. Meets with course 251B. May be repeated for credit.

**251B. Topics in Phonetics and Phonology. (2)** (Formerly numbered 251.) Lecture, four hours. Requisite: course 200A. Course 201, 203, or 204 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)** (Formerly numbered 252.) 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)** (Formerly numbered 252.) 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)** (Formerly numbered 253.) 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)** (Formerly numbered 253.) 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)** (Formerly numbered 254.) Lecture, four hours. Requisites: courses 200A, 200B. Course 201, 202, 203, 204, 205, 206, 207, C208, C209A, C209B, 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.

**254B. Topics in Linguistics. (2)** (Formerly numbered 254.) Lecture, four hours. Requisites: courses 200A, 200B. Course 201, 202, 203, 204, 205, 206, 207, C208, C209A, C209B, 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)** Requisite: course 200A. Course 201, 203, or 204 may be required. Specialized topics in phonetics and phonology. May be repeated for credit. Meets with course 251. In Progress grading (credit to be given only on completion of course 256B).

**256B. Topics in Phonetics and Phonology II: Proseminar. (2)** Requisite: course 256A. Specialized topics in phonetics and phonology. May be repeated for credit.

**257A. Topics in Syntax and Semantics II: Proseminar. (4)** Requisite: course 200B. Course 206, 207, 214, 215, or 216 may be required. Specialized topics in syntax and semantics. May be repeated for credit. Meets with course 252. In Progress grading (credit to be given only on completion of course 257B).

**257B. Topics in Syntax and Semantics II: Proseminar. (2)** Requisite: course 257A. Specialized topics in syntax and semantics. May be repeated for credit.

**258A. Topics in Language Variation II: Proseminar. (4)** Requisite: course 110. Course 202 may be required. Specialized topics in language variation. May be repeated for credit. Meets with course 253. In Progress grading (credit to be given only on completion of course 258B).

**258B. Topics in Language Variation II: Proseminar. (2)** Requisite: course 258A. Specialized topics in language variation. May be repeated for credit.

**259A. Topics in Linguistics II: Proseminar. (4)** Requisites: courses 200A, 200B. Course 201, 202, 203, 204, 205, 206, 207, C208, C209A, C209B, 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 for credit. Meets with course 254. In Progress grading (credit to be given only on completion of course 259B).

**259B. Topics in Linguistics II: Proseminar. (2)** Requisite: course 259A. Individual proseminars on topics such as child language, sociolinguistics, history of linguistic theory, neurolinguistics, languages of the world, psycholinguistics, etc. May be repeated for credit.

**260A-260B-260C. Seminars: Phonetics. (2 or 4 each)** Discussion, 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)** Discussion, 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)** Discussion, 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)** Discussion, 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)** Discussion, three hours. Each course may be taken independently for credit. Special topics may include child language, neurolinguistics, psycholinguistics, sociolinguistics, etc. 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.

**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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

## Related Courses

### Anthropology

143. Field Methods in Linguistic Anthropology

### Applied Linguistics and Teaching English as a Second Language

220. Language Acquisition

223. Topics in Psycholinguistics

241. Analysis and Use of Language Assessment Data

**Armenian (Near Eastern Languages)**

210. History of the Armenian Language

**Classics**

180. Introduction to Classical Linguistics

230A-230B. Language in Ancient Asia Minor

**English**

121. History of the English Language

122. Introduction to Structure of Present-Day English

210. History of the English Language

218. Celtic Linguistics

240. Studies in History of the English Language

241. Studies in Structure of the English Language

**Folklore and Mythology**

217. Folk Speech

**German (Germanic Languages)**

150. Language and Linguistics

217. History of the German Language

230. Survey of Theory in Historical Linguistics

C238. Linguistic Theory and Grammatical Description

251. Seminar: Germanic Linguistics

252. Seminar: Historical and Comparative Germanic Linguistics

**Greek (Classics)**

240A-240B. History of the Greek Language

242. Greek Dialects and Historical Grammar

243. Mycenaean Greek

**Hebrew (Near Eastern Languages)**

190A-190B. Survey of Hebrew Grammar

210. History of Hebrew Language

**Indo-European Studies**

205. Indo-European Linguistics: Advanced Course I

210. Indo-European Linguistics: Advanced Course II

280A-280B. Seminars: Indo-European Linguistics

**Italian**

222A. History of the Italian Language

222B. Structure of Modern Italian

222C. Italian Dialectology

**Japanese (East Asian Languages)**

CM122. Structure of Japanese I

225A-225B. Seminars: Linguistic Analysis of Japanese Narratives

**Latin (Classics)**

232. Vulgar Latin

240. History of the Latin Language

242. Italic Dialects and Latin Historical Grammar

**Philosophy**

127A, 127B. Philosophy of Language

172. Philosophy of Language and Communication

287. Seminar: Philosophy of Language

**Portuguese (Spanish and Portuguese)**

100A. Phonology and Morphology

100B. Syntax

M118A. History of Portuguese and Spanish: Phonology

M118B. History of Portuguese and Spanish: Morphology and Syntax

M205A-M205B. Development of Portuguese and Spanish Languages

M251A-M251B. Studies in Galegan-Portuguese and Old Spanish

**Psychiatry**

257A-257B-257C. Communication Disorders Associated with Developmental Disabilities and Psychiatric Disorders

**Psychology**

123. Psycholinguistics

260A-260B-260C. Proseminars: Cognitive Psychology

**Russian (Slavic Languages)**

123. Historical Commentary on Modern Russian

204. Introduction to History of the Russian Language

241. Topics in Russian Phonology

242. Topics in Russian Morphology

243. Topics in Historical Russian Grammar

263. Russian Dialectology

264. History of the Russian Literary Language

265. Topics in Russian Syntax

**Semitics (Near Eastern Languages)**

280A-280B-280C. Seminars: Comparative Semitics

**Slavic (Slavic Languages)**

202. Introduction to Comparative Slavic Linguistics

242. Comparative Slavic Linguistics

251. Introduction to Baltic Linguistics

281. Seminar: Slavic Linguistics

282. Seminar: Structural Analysis

**Sociology**

CM124A. Conversational Structures I

266. Selected Problems in Analysis of Conversation

267. Selected Problems in Communication

**Spanish (Spanish and Portuguese)**

100A. Introduction to Study of Spanish Grammar: Phonology and Morphology

100B. Introduction to Study of Spanish Grammar: Syntax

115. Applied Linguistics

M118A. History of Portuguese and Spanish: Phonology

M118B. History of Portuguese and Spanish: Morphology and Syntax

202A. Phonology

202B. Morphology

204A-204B. Generative Syntax and Semantics

M205A-M205B. Development of Portuguese and Spanish Languages

209. Dialectology

M251A-M251B. Studies in Galegan-Portuguese and Old Spanish

256A-256B. Studies in Spanish Linguistics

257. Studies in Dialectology

**Turkic Languages (Near Eastern Languages)**

230A-230B-230C. Historical and Comparative Survey of Turkic Languages

## MANAGEMENT

*John E. Anderson Graduate School of Management*

UCLA  
110 Westwood Plaza, Suite F407  
Box 951481  
Los Angeles, CA 90095-1481

(310) 825- 6121  
<http://www.anderson.ucla.edu/>

Bruce G. Willison, M.B.A., *Dean*  
Christopher S. Tang, Ph.D., *Chair*  
Christopher L. Erickson, Ph.D., *Vice Chair*  
William Broesamle, M.B.A., *Senior Associate Dean*  
John J. McDonough, D.B.A., *Senior Associate Dean*

Stacey Dunn, M.B.A. *Associate Dean*  
Jason L. Frand, Ph.D., *Assistant Dean*  
Eric Mokover, M.B.A. *Assistant Dean*

**Professors**

Reza H. Ahmadi, Ph.D.  
Robert B. Andrews, Ph.D.

Sushil Bikhchandani, Ph.D.  
Michael J. Brennan, Ph.D. (*Goldyne and Irwin Hearsch Professor of Money and Banking*)

Randolph E. Bucklin Ph.D.  
Lee G. Cooper, Ph.D.  
Bradford Cornell, Ph.D.  
Samuel A. Culbert, Ph.D.  
Michael R. Darby, Ph.D. (*Warren C. Cordner Professor of Money and Financial Markets*)  
José de la Torre, D.B.A.

Sebastian Edwards, Ph.D. (*Henry Ford II Professor of International Management*)  
Donald Erlenkotter, Ph.D.  
Eric G. Flamholtz, Ph.D.

Arthur M. Geoffron, Ph.D. (*James A. Collins Professor of Management*)

Richard A. Goodman, D.B.A.  
Martin Greenberger, Ph.D. (*IBM Professor of Computers and Information Systems*)

Mark S. Grinblatt, Ph.D.  
Dominique M. Hanssens, Ph.D. (*Bud Knapp Professor of Management*)  
John S. Hughes, Ph.D. (*Ernst and Young Forfessor of Accounting*)

Patricia J. Hughes, Ph.D.  
Sanford M. Jacoby, Ph.D.  
Uday S. Karmarkar, Ph.D. (*Times Mirror Professor of Management Strategy and Policy*)

Archie Kleingartner, Ph.D.  
Edward E. Leamer, Ph.D. (*Chauncey J. Medberry Professor of Management*)

David Lewin, Ph.D. (*Neil Jacoby Professor of Management*)  
Bennet P. Lientz, Ph.D.  
Steven A. Lippman, Ph.D. (*George Robbins Professor of Management*)

Francis A. Longstaff, Ph.D.  
John W. Mamer, Ph.D.  
Kevin F. McCardle, Ph.D.  
John J. McDonough, D.B.A.  
Bill McKelvey, Ph.D.  
Bruce L. Miller, Ph.D.  
Daniel J.B. Mitchell, Ph.D. (*Ho-Su Wu Professor of Management*)

Donald G. Morrison, Ph.D. (*William E. Leonhard Professor of Management*)  
William G. Ouchi, D.Litt., Ph.D. (*Sanford and Betty Sigoloff Professor of Corporate Renewal*)

William P. Pierskalla, Ph.D.  
Anthony P. Raia, Ph.D.  
Richard W. Roll, Ph.D. (*Allstate Professor of Insurance and Finance*)

Richard P. Rumelt, D.B.A. (*Harry and Elsa Kunin Professor of Business and Society*)

Rakesh K. Sarin, Ph.D. (*Paine Professor of Management*)

Hans Schöllhammer, D.B.A.  
Eduardo S. Schwartz, Ph.D. (*California Professor of Real Estate and Land Economics*)

Carol A. Scott, Ph.D.  
Avanidhar Subrahmanyam, Ph.D.  
E. Burton Swanson, Ph.D.

Christopher S. Tang, Ph.D.  
Walter N. Torous, Ph.D.  
J. Fred Weston, Ph.D. (*Warren C. Cordner Professor Emeritus of Money and Financial Markets*)

Harold M. Williams, J.D.  
Bruce G. Willison, M.B.A. (*John E. Anderson Professor of Management*)

**Professors Emeriti**

William F. Brown, Ph.D.  
John W. Buckley, Ph.D.  
Elwood S. Buffa, Ph.D.  
Joseph D. Carrabino, Ph.D., P.E.  
David K. Eiteman, Ph.D.  
Walter A. Fogel, Ph.D.  
Glenn W. Graves, Ph.D.  
Alfred E. Hofflander, Ph.D.  
James R. Jackson, Ph.D.  
Raymond J. Jessen, Ph.D.  
Harold H. Kassarian, Ph.D.  
Larry J. Kimbell, Ph.D.  
J. Clayburn La Force, Jr., Ph.D.  
James B. MacQueen, Ph.D.  
Robert Hal Mason, Ph.D.

Fred Massarik, Ph.D.  
 Frank G. Mittelbach, M.A.  
 Rosser T. Nelson, Ph.D.  
 Alfred Nicols, Ph.D.  
 Frank E. Norton, Ph.D.  
 John P. Shelton, Ph.D.  
 R. Clay Sprowls, Ph.D.  
 George A. Steiner, Ph.D., Litt.D.  
 Robert Tannenbaum, Ph.D.  
 Robert M. Williams, Ph.D.  
 James Q. Wilson, Ph.D. (*James A. Collins Professor Emeritus of Management*)

#### Associate Professors

Theodore A. Andersen, Ph.D.  
 Bhagwan Chowdhry, Ph.D.  
 Christopher L. Erickson, Ph.D.  
 Robert L. Geske, Ph.D.  
 Carla Hayn, Ph.D.  
 Barbara S. Lawrence, Ph.D.  
 Marvin B. Lieberman, Ph.D.  
 Alfred E. Osborne, Jr., Ph.D.

#### Assistant Professors

David Aboody, Ph.D.  
 Andrew S. Ainslie, Ph.D.  
 Shlomo Benartzi, Ph.D.  
 Antonio E. Bernardo, Ph.D.  
 Pradeep Bhardwaj, Ph.D.  
 Anand V. Bodapati, Ph.D.  
 Bart J. Bronnenberg, Ph.D.  
 Scott M. Carr, Ph.D.  
 Charles J. Corbett, Ph.D.  
 Aimee L. Drolet, Ph.D.  
 Stephen C. Hansen, Ph.D.  
 Matthias Kahl, Ph.D.  
 Jing Liu, Ph.D.  
 Jun Liu, Ph.D.  
 Monika Piazzesi, Ph.D.  
 David M. Porter, Jr., Ph.D.  
 Kumar Rajaram, Ph.D.  
 Mariko Sakakibara, Ph.D.  
 Pedro Santa-Clara, Ph.D.  
 Sanjay Sood, Ph.D.  
 Olav J. Sorenson, Ph.D.  
 Rebecca N. Tsui, Ph.D.  
 Rossen I. Valkanov, Ph.D.  
 Michael G. Williams, Ph.D.  
 Sung-Soo Yoon, Ph.D.  
 Li Zhang, Ph.D.  
 Shi Zhang, Ph.D.

#### Senior Lecturers

William Broesamle, M.B.A.  
 Alan L. Carsrud, Ph.D.  
 Ariella D. Herman, Ph.D.  
 Robin D. Johnson, 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.  
 Gigi L. Johnson, M.B.A.  
 Gordon L. Klein, J.D.  
 Danny S. Litt, M.B.A.  
 Eric L. Mokover, M.B.A.  
 Richard B. Stern, Ph.D.  
 Eric H. Sussman, M.B.A.

#### Adjunct Professors

William M. Cockrum, M.B.A.  
 Jeffrey I. Cole, Ph.D.  
 Janis S. Forman, Ph.D.  
 George T. Geis, Ph.D.  
 Sanford C. Sigoloff, B.S.  
 Victor C. Tabbush, Ph.D.  
 S. William Yost, D.B.A.

#### Adjunct Associate Professor

Robert F. Foster, M.B.A.

## 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 both an academic (M.S.) and professional (M.B.A.) master's, as well as a 21-month 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. 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

Admission to the Accounting minor is competitive and based on a 3.0 grade-point average in the lower division preparation courses. Repetition of more than one preparation course or of any preparation course more than once results in automatic denial of admission to the minor. Transfer credit for any of the courses is subject to department approval and is considered only for requisite coursework. Decisions on admission to the minor are made by the Anderson School. The requisite grade-point average and completion of the preparation courses do not guarantee admission to the program. For further information, refer to [http://www.anderson.ucla.edu/acad\\_unit/accounting/undergrad-program.html](http://www.anderson.ucla.edu/acad_unit/accounting/undergrad-program.html).

*Required Lower Division Courses (28 units):* Economics 1, 2, M40 (or Statistics 10 as a substitute for course M40); Management 1A, 1B; Mathematics 3A, 3B (higher-level courses and/or Advanced Placement Test credit may be substituted).

*Required Upper Division Courses (28 units):* Management 120A, 120B, 122, 127A, and three courses from 108, 123, 124, 127B, 128.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website,

<http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The John E. Anderson Graduate School of Management offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Management and the Master of Business Administration (M.B.A.) degree.

In addition, there are a number of degree programs, offered in cooperation with other graduate and professional degree programs on campus, that lead to the M.B.A. and another degree. The school also offers the Executive M.B.A. Program (EMBA) and the M.B.A. for the Fully Employed (FEMBA).

## Admission

### Master of Business Administration

Although no specific undergraduate major is required for entrance, applicants should complete elementary algebra and differential calculus before entering the M.B.A. program. Applicants are required to take the Graduate Management Admission Test (GMAT).

International applicants whose first language is not English and who do not hold a bachelor's or higher degree from a university located in the U.S. or in another country where English is the spoken language and the medium of instruction must certify their proficiency in English by taking the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination.

The M.B.A. program application, which includes the application for admission to graduate status, is required. Admission is for Fall Quarter only. Completed applications, with full documentation, must be filed directly with the John E. Anderson Graduate School of Management Office of Admissions by April 4. Early application is strongly advised.

Consideration is given to the academic record, score on the GMAT and, for applicants whose native language is not English, score on the TOEFL or IELTS; potential for management as evidenced by work experience and community, extracurricular, or other experience; and several written essays and letters of recommendation. Preference is given to those who have had full-time management-related work experience since completing the bachelor's degree. Those few applicants admitted directly from a baccalaureate program may choose to work for up to three years before entering graduate school. No other admission deferrals are granted.

Applications and information about the M.B.A. program are available from the M.B.A. Program Admissions Office, John E. Anderson Graduate School of Management, B201

Anderson Complex, UCLA, Box 951481, Los Angeles, CA 90095-1481.

### **Management M.B.A./Computer Science M.S.**

The John E. Anderson Graduate School of Management and the Department of Computer Science offer a concurrent degree program that enables students to complete requirements for the M.S. in Computer Science and the M.B.A. in three academic years. Application materials should be requested separately from both schools. Contact the Anderson School for details.

### **Management M.B.A./Information Studies M.L.I.S.**

The John E. Anderson Graduate School of Management and the Department of Information Studies offer a three-year concurrent degree program designed to provide an integrated set of courses for students who seek careers that draw on general and specialized skills in the two professional fields. Application materials should be requested separately from both schools.

### **Management M.B.A./Latin American Studies M.A.**

The John E. Anderson Graduate School of Management and the Latin American Studies Program offer a three-year concurrent degree program designed for individuals preparing for careers in international management with a special focus on the Latin American region. The program is predicated on the belief that individuals employed in the area of international business and management are better equipped to meet the challenges of their employment with complementary preparation in language and regional studies. Application materials should be requested separately from both schools.

### **Management M.B.A./Law J.D.**

The John E. Anderson School of Management and the School of Law offer a concurrent degree program that enables students to prepare for a career where law and management overlap and where understanding of both fields is necessary. Examples of such areas include public service, international trade, industrial relations, corporate law, and specialized areas of management consulting. The program makes it possible to earn the J.D. and M.B.A. in four academic years. Application should be made to both schools simultaneously.

### **Management M.B.A./Medicine M.D.**

The John E. Anderson Graduate School of Management and the School of Medicine offer a concurrent degree program that enables students to prepare for a career where medicine and management overlap and where understanding of both fields is necessary. Examples of such areas include medical management at a hospital center and management of health care delivery. The program makes it possible to earn the M.D. and the M.B.A. in five academic

years. Applications should be made to the M.B.A. program in the third year of medical school.

### **Management M.B.A./Nursing M.S.N.**

The John E. Anderson Graduate School of Management and the School of Nursing offer a three-year concurrent degree program designed for students who seek careers in hospital and nursing administration. By providing knowledge of both management and clinical care issues, the program prepares individuals for management positions in an increasingly complex environment. Application materials should be requested separately from both schools.

### **Management M.B.A./ Public Health M.P.H.**

The John E. Anderson Graduate School of Management and the Department of Health Services have a three-year concurrent degree program designed for students who desire a management career in health care and related fields. The program reflects the combined interest of employers, faculty, and students who recognize the increasing challenges facing managers in the health care industry and the need for highly skilled and sensitive individuals who can creatively take on these challenges. GMAT scores are required for admission. Application materials should be requested separately from both schools.

### **Management M.B.A./Urban Planning M.A.**

The John E. Anderson Graduate School of Management and the Department of Urban Planning offer a three-year concurrent degree program designed for students who seek careers that draw on general and specialized skills in urban planning and management. By providing knowledge of the workings of both the private and public sectors, the program enables individuals who have acquired these skills to move easily between careers in private industry and public service. Application materials should be requested separately from both schools.

### **Executive M.B.A. Program**

Designed for mid-career managers with strong records of achievement, the Executive M.B.A. Program enables executives to study advanced management in a high quality educational environment while continuing to work full time in their professional roles. The program is limited to 70 participants with superior academic records and a minimum of eight to 10 years of work experience with five years at the management level. Further information and application materials may be obtained by writing to the Assistant Dean, Executive M.B.A. Program, UCLA, A101F Anderson Complex, Box 951481, Los Angeles, CA 90095-1481.

### **Fully Employed M.B.A. Program**

The M.B.A. for the Fully Employed (FEMBA) is designed for emerging managers with strong

records of academic and professional achievement who wish to pursue an M.B.A. degree without leaving full-time employment. Each entering class is limited to 135 participants with superior academic records and a minimum of four to six years of work and/or managerial experience. For further information and application, write to the Director, Fully Employed M.B.A. Program, UCLA, A101 Anderson Complex Box 951481, Los Angeles, CA 90095-1481.

### **M.S./Ph.D. in Management**

All applicants to the M.S. and Ph.D. programs are required to take the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). International applicants whose first language is not English and who do not hold a bachelor's or higher degree from a university located in the U.S. or in another country where English is the spoken language and the medium of instruction must certify their proficiency in English by taking the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination. Three letters of recommendation must be submitted with the completed application. Program information and application materials may be obtained from the M.S./Ph.D. Programs Office, C524 Anderson Complex, UCLA, Box 951481, Los Angeles, CA 90095-1481.

Applications are accepted for Fall Quarter admission only; the deadline for submission of applications and complete documentation is January 10.

## **Master's Degrees**

### **Master of Business Administration**

Areas of study include accounting; business economics; decision sciences; entertainment management; entrepreneurial studies; finance; human resources and organizational behavior; information systems; international business and comparative management; marketing; operations and technology management; strategy and organization; real estate.

The M.B.A. degree is offered through the comprehensive examination plan. The comprehensive examination requirement is fulfilled by completing the two-quarter core course in field studies. At least 96 units of work toward the degree must be completed in residence in the full-time M.B.A. program at UCLA. The three required elements of the program are the management core, the advanced electives, and the management field study. The management core courses teach the fundamental techniques and disciplines that underlie the practice of management. Advanced electives provide specialized knowledge and skills for one or more fields (typically two) of management work. The management field study allows an opportunity to apply knowledge gained in the program to strategic issues in real organizations.

## Executive M.B.A. Program

The emphasis is on general management training; increased competence in management specialties; management of international businesses; organizational and interpersonal skills; and sophisticated understanding of the integration of businesses and their environments.

The Executive M.B.A. degree is offered through the comprehensive examination plan. A total of 66 units of coursework toward the degree must be completed in residence in the Executive M.B.A. Program at UCLA. Completion of the intensive 24-month course of study leads to a regular M.B.A. degree. Consult the John E. Anderson Graduate School of Management for details on the examination plan and coursework required for the degree.

## Fully Employed M.B.A. Program

The Fully Employed M.B.A. (FEMBA) degree is offered through the comprehensive examination plan. Consult the John E. Anderson Graduate School of Management for details.

Students in the FEMBA Program choose one of two possible formats, with classes meeting either one afternoon per week (from 1:30 to 5 p.m.) and Saturday mornings (from 8:30 a.m. to noon) or all day Saturday (8:30 a.m. to noon and 1:30 to 5 p.m.). A regular M.B.A. degree is awarded on completion of 84 units which are typically completed in three years. The required units are a combination of specified core courses and advanced electives in finance, marketing, or general management.

## M.S. in Management

The area of study for the degree is decision sciences.

The M.S. degree is offered through the comprehensive examination and thesis plans. A minimum of 36 units of coursework, all at the graduate level, is required for the degree.

Students entering the M.S. program are assumed to have taken calculus through differentiation and integration of several variables, two courses in probability and statistics, two quarters of computer programming, and a managerial core of courses in managerial accounting, managerial economics, and managerial finance.

The specialization consists of a five-course methodological core. The specialization also includes three elective courses that typically are supportive of the thesis, along with 4 units of thesis research. The elective courses may be methodological in nature or may relate to management science aspects of a functional field such as operations management, information systems, or finance. Courses from other departments may also be selected.

## Doctoral Degree

Major fields include accounting; business economics; decision sciences; finance; human resources and organization behavior; information systems; international business and com-

parative management studies; marketing; operations and technology management; policy and organization.

Coursework includes research preparation and breadth requirements. The research preparation requirement consists of a course requirement and a research paper. Students are required to take five research courses which are not part of the major field area classes taught in the John E. Anderson Graduate School of Management.

The breadth requirement consists of eight courses that are clearly outside the major field area. Students use the courses to become more knowledgeable about the basic elements of several other management disciplines and functional areas or to define a minor field of research and teaching proficiency. Three of the courses may be waived by prior coursework from a previously earned master's degree.

There is no formal major field course requirement. In consultation with a major field adviser, a course of study is designed that prepares students to pass the major field examination.

Written and oral qualifying examinations are required. Proficiency in the major field area is determined by a written examination, supplemented in some areas by an oral examination. Students are required to present the substance of their dissertation proposal in a formal seminar to which all Ph.D. students and faculty are invited.

Following successful completion of the written and preliminary oral examinations, students take the University Oral Qualifying Examination.

## Management

### Lower Division Courses

**1A-1B. Elementary Accounting. (4-4)** Lecture, three hours. Not open to freshmen. P/NP or letter grading. **1A.** Introduction to accounting theory and practice. Recording, analyzing, and summarizing procedures used in preparing financial statements, asset side of balance sheet, current liabilities, payroll accounting. **1B.** Requisite: course 1A. Partnership and corporation accounting, statement of cash flows, financial statement analysis, cost and managerial accounting.

**88. Lower Division Seminar: Special Topics in Management. (4)** Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Subject A requirement. Variable topics seminar which 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 a professional school faculty member.

### 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.

**120A. Intermediate Financial Accounting I. (4)** 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.

**120B. Intermediate Financial Accounting II. (4)** 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.

**122. Management Accounting. (4)** Requisites: course 1B, Economics M40. 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.

**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.

**127A. Tax Principles and Policy. (4)** 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 formation, operation, and termination of corporations and partnerships. Special emphasis on closely held enterprises, including S corporations. P/NP or letter grading.

**128. Special Topics in Accounting. (4)** Selected topics in public accounting, including mergers and acquisitions, public-company status and the going-public process, role of the partner, serving an entrepreneurial client, and fund accounting. Discussion of a case study of current interest in the accounting profession. Business plan preparation. P/NP or letter grading.

**130A. Basic Managerial Finance. (4)** Lecture, three hours. Requisites: course 120A or 120B, Economics M40. 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)** Requisites: Mathematics 3A, 3B, 3C, 31E, Economics M40. 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.

**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.

**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.

**190. Management Theory and Policy. (4)** Lecture, three hours. Requisite: course 130A. Study of basic concepts and theory of management. Emphasis on operational analysis of manager's role in all types of organizations. Management issues in areas of planning, organizing, staffing, directing, and controlling. P/NP or letter grading.

**197. Special Topics in Management. (4)** 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.

**199. Special Studies in Management. (2 to 8)** Discussion: three hours. Designed for juniors/seniors. Undergraduate individual investigation of selected research topic to be arranged with a faculty member. 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)** Preparation: rudiments of economic theory, calculus, probability, and statistics. Basics of single-person decision theory from a normative viewpoint. Expected utility theory with objective and subjective probability. Departures from expected utility behavior. Introduction to multiperson decision theory.

**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.

**209. Selected Topics in Business Economics. (4)** Special topics in business economics. Current developments in theory or practice in business economics. May be repeated for credit.

**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.

**210B. Applied Stochastic Processes. (4)** Discussion, three hours. Requisite: Mathematics 170A or Electrical Engineering 131A. Fundamentals of stochastic processes, including Poisson processes, renewal theory, and Markov chains. Sequential stochastic (usually Markovian) decision processes in discrete and continuous time. Emphasis on problem formulation and characterization and computations of optimal policies, often via dynamic programming; applications to inventory, queueing, maintenance, reliability, and replacement problems. S/U or letter grading.

**210C. Network Flows and Integer Programming. (4)** Preparation: linear programming. Theory and techniques of discrete and network-related mathematical programming models in management science. Applications to various allocation, coordination, operating, and planning problems. Emphasis on fundamentals, efficient computational methods, and keys to successful practical applications.

**211A. Nonlinear Mathematical Programming. (4)** Requisites: course 210A, Mathematics 32A. Theory, methods, and application of optimization of nonlinear systems. Review of classical optimization methods; optimality and duality theory for convex programs; main computational approaches to convex programming; survey of current computer codes and computational experience.

**211B. Large-Scale Mathematical Programming. (4)** Requisite: course 210A. Theory and computational methods for optimizing large-scale linear and nonlinear programs. Exploitation of special structures with combinatorial, dynamic, multidimensional, and stochastic aspects to obtain practical solution procedures in spite of large numbers of variables and/or constraints.

**212A. Decision Sciences Models I. (4)** 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, and dynamic 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)** Requisites: course 212A, Mathematics 32A. Broad survey of nonlinear, time-staged, and probabilistic models for managerial decision making. Application areas include finance, marketing, facilities design, production, and energy systems. S/U or letter grading.

**212C. Decision Sciences Models III. (4)** Requisites: courses 212A, 212B. In-depth reviews of actual decision sciences applications. Emphasis on professional skills needed for successful practical applications. S/U or letter grading.

**213A. Intermediate Probability and Statistics. (4)** Requisite: course 402. Introduction to probability theory and hypothesis testing as applied to management. SAS programs used in this course and its sequels.

**213B. Statistical Methods in Management. (4)** Requisite: course 213A. 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.

**213C. Introduction to Multivariate Analysis. (4)** Requisite: course 213B. 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 discriminate analysis, multivariate analysis of variance, canonical correlation, and confirmatory factor models).

**214B. Behavioral Science Models. (4)** Formulation, analysis, and interpretation of mathematical models in behavioral sciences. Emphasis on stochastic process models for aspects of individual and group behavior such as learning, problem solving, classification, communication, bargaining, and social exchange systems.

**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)** 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.

**216A. Simulation of Operational Systems. (4)** Discussion, three hours. Preparation: background in FORTRAN, PL/1, PL/C, or other batch computing language available on campus and in basic statistics (course 402) and modeling (course 407). Computer simulation methodology, including design, validation, operating procedures, and analysis of results of simulation experiments. Applications of simulation to management problems.

**217A. Decision Analysis. (4)** Lecture, three hours. Requisite: course 402. Framework provided for structuring and analyzing decision making under uncertainty. Topics include decision trees, value of information, subjective probability, attitude toward risk, sensitivity analysis, and multicriteria decision making. Applications to a number of business problems, including new product development, litigation, treasure hunting, and bidding. S/U or letter grading.

**217B. Game Theory. (4)** Requisite: course 213A. Nature of models for rational behavior in presence of conflicts of interests, zero-sum and nonzero-sum games, two-person and many-person games, state of the art, philosophical and computational limitations, relations with individual and group decision making.

**218A. Selected Topics in Decision Sciences. (1 to 4)** Newly developing topics and viewpoints. 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.

**218C. Selected Topics in Business Statistics. (1 to 4)** Special topics in statistical methods. Current developments in statistical theory and practice. Analysis of recent literature. Topics and instructors announced in advance. May be repeated for credit.

**218X-218Y-218Z. Current Issues in Decision Sciences. (1 to 4 each)** Lecture, one hour; discussion, three hours. Current issues and research on a variety of topics in general area of decision sciences. May be repeated for credit. In Progress and S/U grading.

**220A. Intermediate Financial Accounting I. (4)** Requisite: course 403. Concepts and principles of financial accounting. Intended to enhance students' understanding of published corporate financial statements. Emphasis on assets and revenue recognition.

**220B. Intermediate Financial Accounting II. (4)** Requisite: course 220A. Concepts and principles of financial accounting. Intended to enhance students' understanding of published corporate financial statements. Emphasis on liabilities and owners' equity.

**220C. Advanced Financial Accounting. (4)** Requisites: courses 220A, 220B. Continuation of courses 220A and 220B, with emphasis on a range of topics, including accounting for partnerships, mergers, combinations, and parent/subsidiary relationships. Review of litigation procedures, including reorganizations, receiverships, and bankruptcy.

**222. Management Accounting. (4)** Lecture, three hours. Requisite: course 403. Nature, objectives, and procedure of cost accounting and control; job costing and process costing; joint product costing, standard costs; theories of cost allocation and absorption. S/U or letter grading.

**223. Auditing. (4)** Requisite: course 403. Theory and practice underlying auditors' examination and reporting on financial statements, including professional ethics, internal control, and selection and application of auditing procedures, with emphasis on generally accepted auditing standards.

**224. Law for Entrepreneurs. (4)** Lecture, three hours. Examination of various legal issues encountered by entrepreneurs in operating business ventures, including contract negotiation, protecting goodwill, legal issues in marketing, employment law, bankruptcy, enterprise formation, and creditor rights. S/U or letter grading.

**226. International Accounting. (4)** Requisite: course 403. Comparative analysis of accounting concepts and practices in other countries; study of contrasts between various systems; problems of accounting for international corporations, including transfers of funds and income measurement; accounting influences on economic development.

**227A. Taxation Principles and Policy. (4)** Discussion, three hours. Requisite: course 403. Study of fundamental income tax problems encountered in business, investment, employment, and personal decisions. Special emphasis on structuring real estate and securities transactions. Current trends in law and policy.

**227B. Taxation and Business Planning. (4)** Discussion, three hours. Requisite: course 403. Study of tax issues arising in formation, operation, and termination of a corporation. Specific emphasis on structuring shareholders' transactions involving dividends, redemptions, liquidations, acquisitions, and capital structure.

**228. Financial Statement Analysis. (4)** Lecture, three hours. Requisite: course 403. Issues of accounting information evaluation, with special emphasis on uses of financial statements by decision makers external to the firm (e.g., investors, creditors). Topics include load decisions, bankruptcy prediction, and interpreting earnings.

**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)** Discussion, three hours. Requisite: course 230. 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)** Discussion, three hours. Requisite: course 408. 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 a criterion, and sources of funds for nonprofit organizations. Use of cases.

**231D. Takeovers, Restructuring, and Corporate Governance. (4)** Lecture, three hours. Requisite: course 230. 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 the firm. S/U or letter grading.

**231E. Managing Finance and Financing the Emerging Enterprise. (4)** Requisites: courses 230, 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 which may be appropriate to securing organizations' money requirements.

**232A. Security Analysis and Investment Management. (4)** Lecture, three hours. Requisite: course 230. 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, 233A. 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)** Requisite: course 230. 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 an option trading game and writing a term paper analyzing their strategies. S/U or letter grading.

**233A. Money and Capital Markets. (4)** Requisite: course 230. 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.

**233B. Financial Institutions. (4)** Lecture, three hours. Requisite: course 230. 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 205A, 230. 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 the markets to be dealt with in detail. S/U or letter grading.

**234B. Financial Management of Multinational Corporations. (4)** Lecture, three hours. Requisite: course 230. Financial management of multinational firms from perspective of a financial vice president or other financial officer within the 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 an international perspective, political risk, working capital management, and performance evaluation and control.

**238. Special Topics in Finance. (4)** Requisite: course 230. 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)** Requisite: course 230. 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.

**239B. Theory of Investment under Uncertainty. (4)** Requisites: courses 230, 239A. 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.

**239C. Empirical Research in Finance. (4)** Discussion, three hours. Preparation: training in econometrics. Requisite: course 230. 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 the 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)** Preparation: courses in 239 series. Requisite: course 230. 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. The Operating Manager. (4)** Definition and analysis of problems of production planning, inventory management, quality control, system design, and implementation from operating manager's perspective, primarily through case studies. Course is integrative in nature, rather than one of developing new methodologies and techniques.

**240B. Operations Planning, Scheduling, and Control. (4)** Requisite: course 407. Forecasting, inventory planning, aggregate planning, job-shop scheduling models, and automated manufacturing systems, with emphasis on managerial relevance and usefulness of models in solving or providing insights into real-world problems.

**240C. Design of Operational Systems. (4)** Requisite: course 407. Issues, concepts, objectives, and criteria in determination of capabilities, characteristics, and configurations of manufacturing and service systems. Examination of analytic and synthesizing methodologies for selection of capacity, location, technology, processes, material movement and storage systems, facilities, work group structures, and jobs.

**240D. Operations Strategy and Policy. (4)** Discussion, three hours. Definition and scope of operations strategy and its relation to corporate strategy, importance of productivity and its amplification in global competition, positioning the system to match market requirements, capacity decisions, product and process technology, work force and job design, strategic implications of operating decisions, suppliers and vertical integration. Case analyses involving strategic issues in manufacturing and nonmanufacturing situations.

**240E. Managing Entrepreneurial Operations. (4)** Lecture, three hours. 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.

**240F. Supply Chain Management. (4)** Lecture, three hours. Requisite: course 410. Business environment today is characterized by globalized operations, intense competition, rapid turnover in technology, and short product life cycles. Consequently, firms can no longer afford to operate in isolation. In many industries competition has moved from the firm level to the supply chain level. Provides understanding of strategic, tactical, and operational issues in supply chain management. S/U or letter grading.

**240G. Global Operations Strategy. (4)** Lecture, three hours. Requisite: course 410. Challenges of operating globally in range of industries, including software, consulting, automotive, textile, etc. Several opportunities for hands-on quantitative methods, with strategic perspective throughout. S/U or letter grading.



**241A. Managing Technology for Competitive Advantage. (4)** Advanced technologies such as robotics, computer-integrated manufacturing, computer-aided design and manufacturing (CAD/CAM), and flexible manufacturing systems. Effects of technological innovation on operations managers at both strategic and operational levels. Course is integrative in nature.

**241B. Project Management. (4)** 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.

**242A. Models for Operations Planning, Scheduling, and Control. (4)** Designed for Ph.D. students. Survey of research studies and recent literature in operations planning, scheduling, and control. Emphasis throughout on formal models and their applications. Aggregate planning, work force scheduling, inventory management, and detailed operations scheduling and control.

**242B. Models for Operations Systems Design. (4)** Designed for Ph.D. students. Survey of research literature on models for design of manufacturing and service systems, including long-range forecasting, operational economics, capacity, location, facilities, processes/technology, work, and work structures.

**243A. Planning for Facilities Systems. (4)** Requisite: course 212A. Planning of location, expansion, and replacement for interdependent systems of facilities. Examination of spatial and dynamic economic considerations. Applications in selected industries and public systems.

**243B. Inventory Theory. (4)** Requisite: course 210B. General discussion of inventory models, with emphasis on characterizing the form of optimal policies and efficient computational methods. Consideration of deterministic, stochastic, discrete-time, and continuous-time models.

**243C. Scheduling Models for Intermittent Systems. (4)** Requisite: course 407. 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.

**243X-243Y-243Z. Operations and Technology Management Seminars. (1-1-2)** Discussion, 90 minutes to three hours. Designed for Ph.D. students. Required of all students in operations and technology management concentration during first two years of their Ph.D. work. Student and faculty presentations of ongoing research. May be repeated for credit.

**244X-244Y-244Z. Research in Operations and Technology Management. (1-1-2)** Designed for Ph.D. students. Normally taken in first and second years of Ph.D. study. Survey of research literature in operations and technology management. Seminar reports dealing with special topics. May be repeated for credit with topic change.

**245. Special Topics in Operations and Technology Management. (4)** Lecture, three hours. Studies of advanced subjects of current interest in operational management. Emphasis on recent developments and application of specialized knowledge to operational problems. Topics vary each term. May be repeated for credit with topic change.

**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 Policy Studies 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. Employee Discipline, Discharge, and Grievance/Appeal Settlement. (4)** Designed for graduate students. Analysis of conflict in the employment relationship; theoretical and empirical findings. Principles and philosophies that underlie resolution of labor/management impasses, with emphasis on grievance procedures, arbitration, mediation, and fact-finding.

**M255. Comparative Industrial Relations. (4)** (Same as Policy Studies 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. Selected Topics in Industrial Relations. (1 to 4)** Designed for Ph.D. students. Examination in depth of problems or issues of current concern in industrial relations. 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.

**259A. Individuals and Groups in Human Systems. (4)** Lecture, three hours. Designed for graduate students. Doctoral-level survey of research literature dealing with interpersonal dynamics, groups, and aspects of culture in work organizations, with emphasis on theory and research. Current research in psychology, anthropology, and small group studies. Variety of methods represented, including clinical and cross-cultural approaches. 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 Policy Studies 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 the 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. Advanced Marketing Management. (4)** Requisite: course 411. Decision-oriented course concerned with solution of product, price, promotion, and distribution channel problems. Extensive use of case studies.

**260B. Marketing Strategy and Planning. (4)** Lecture, three hours. Requisite: course 411. Development of a 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.

**261A. Management in the Distribution Channel. (4)** Lecture, three hours. Requisite: course 411. Examination of decisions in the distribution channel. Issues of power in the distribution channel and trade-offs between alternative channel systems.

**261B. Global Marketing Management. (4)** Lecture, three hours. Requisite: course 411. 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.

**262. Price Policies. (4)** Lecture, three hours. Requisites: courses 405, 411. 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.

**263A. Consumer Behavior. (4)** Requisite: course 411. 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.

**264A. Marketing Research: Design and Evaluation. (4)** Lecture, three hours. Requisite: course 411. Designed for prospective users of research results rather than for specialists in research. Marketing research is an 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.

**264B. Advanced Marketing Research. (4)** Discussion, three hours. Requisite: course 264A. 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.

**265A. Marketing and the Law. (4)** Lecture, three hours. Requisite: course 411. Detailed study of legislative enactments (federal, state, or local) which influence operation of institutions engaged in marketing activities, together with analysis of judicial decisions which have interpreted these laws.

**265B. Social Issues in Marketing. (4)** Lecture, three hours. Requisite: course 411. Environmental impact of marketing in society; study of theories, methods, and relationships for evaluating transaction behavior in a scientific and humanistic context; macroanalytic perspectives in marketing.

**266A. Product Management. (4)** Lecture, three hours. Requisite: course 411. Investigation of process of developing new products and management of mature brands in existing markets. Regarding new product development, focus on concept screening, designing new products, and test marketing. Tactical management of marketing mix with currently available data emphasized in managing mature brands.

**266B. Advertising and Marketing Communications. (4)** Lecture, three hours. Requisite: course 411. 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.

**268. Selected Topics in Marketing. (4)** Lecture, three hours. Requisite: course 411. 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.

**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)** 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.

**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)** Designed for Ph.D. students. Required of all students during first two years of their Ph.D. work. Series consists of a number of leading scholars in marketing and related disciplines who make presentations to marketing faculty and Ph.D. students. Active participation and intellectual interchange, which helps students gain a richer perspective on the field of marketing. In Progress 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 handhelds 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 processing. 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 or letter grading.

**278A. Urban Real Estate Financing and Investing. (4)** Discussion, three hours. 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.

**278B. Sources, Uses, and Flows of Real Estate Capital. (4)** Discussion, three hours. 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.

**279A. Special Studies in Urban Land Economics. (4)** Limited to master's or Ph.D. candidates working on thesis- or dissertation-related research. May be repeated for credit.

**279B. Selected Topics in Urban Land Economics. (4)** Discussion, laboratory, and fieldwork. Designed for second-year graduate students. Intended for students who wish to pursue a particular topic in housing, real estate, or urban land economics in depth on individual or cooperative basis. All work is computer-based; however, students are provided introduction to use of computers (preferably PCs) in various kinds of real estate analysis. May be repeated for credit.

**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.

**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)** (Formerly numbered 292A.) (Same as Policy Studies M280A.) Lecture, three hours. Examination of research and development as a process and as an element of a 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)** (Formerly numbered M202C.) (Same as Policy Studies 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.

**M293B. Morality of Capitalism. (4)** (Same as Political Science M211.) Lecture, three hours. Examination of major philosophical writings that defend or criticize capitalism on basis of principles of right conduct and just social arrangements (i.e., on moral grounds).

**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.

**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 sociological, 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.

**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. Ph.D. Seminar: Research Methodology. (4)** Discussion, three hours. Designed for Ph.D. students. Methodological issues in management research. Emphasis on identification of research opportunities and formulation and evaluation of a research proposal. Alternative goals, settings, and designs. Hypothesis development and testing. Measurement. Implementation considerations.

**299R. Research Methods in Management. (4)** 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.
- 400. Mathematics for Management. (4)** Designed for graduate students. Fundamental mathematics for business, including topics from matrix algebra, probability, and calculus, with applications to model building and decision making in business firms. 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 and letter grading.
- 402. Data Analysis, Statistics, and Decision Making. (4)** Designed for graduate students. In-depth introduction to probability, decision theory, and statistical inference, with emphasis on solution to actual business problems.
- 403. Financial Accounting. (4)** Designed for graduate students. Introduction to fundamental financial accounting methods and procedures, with emphasis on financial statements. Provides basis for firm understanding of "the language of business" — accounting. S/U or 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, four hours; discussion, one hour (when scheduled). 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.
- 406. Global Economy. (4)** Requisites: courses 402, 403, 405. Provides analytical framework required for understanding the way changing macroeconomic conditions in world economy affect economic growth, inflation, interest rates behavior, exchange rate determination, global competitiveness, unemployment, and the trade account. Provides skills to enable students to assess critically how developments in world economy affect particular industry environments.
- 407. Managerial Model Building. (4)** Lecture, three hours. Requisites: courses 402, 403, 405. Survey of uses of formal modeling approaches in managerial decision making. Emphasis on model types and formulations, and use of solutions obtained from computer routines. Application areas include finance, marketing, production, and public systems.
- 408. Managerial Finance. (4)** Requisites: courses 402, 403, 405. Analysis of main decision areas of managerial financial management, aimed at principles generally applicable to all types of organizations. Emphasis on financial planning and control, sources of funds, developing objectives and standards which lead to effective allocation and use of organization's resources.
- 409. Managing Human Resources in Organizations. (4)** 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 the managerial process and development of prospective general managers.
- 410. Operations and Technology Management. (4)** Requisites: courses 402, 403, 405. 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. S/U or letter grading.
- 411. Elements of Marketing. (4)** Requisites: courses 402, 403, 405. 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. S/U or 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, four 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 the policy process. S/U or 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.
- 444A-444B. Managerial Field Study: 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 and S/U or letter grading.
- 445. Managerial Field Study: One-Quarter Plan. (8)** Fieldwork, eight hours. Must be taken in second year (or its equivalent for part-time students) and be based on client need and adviser approval. 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)** 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 classwork. May not be repeated for credit.
- 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.
- 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.
- 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.

## Executive M.B.A. Program

- 461. Managerial Problem Solving. (2)** Limited to Executive M.B.A. Program students. Focus on individual problem-solving and decision-making skills. Alternative conceptual frameworks presented for augmenting individual's diagnostic and decision-making skills. Use of readings, cases, decision simulations, and discussions to explore areas of charting job and career progress, working with others, and shaping the work culture.
- 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)** 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.
- 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.
- 465. Quantitative Methods for Managers. (4)** 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.
- 466A-466B. Financial Policy for Managers. (4-2)** Limited to Executive M.B.A. Program students. Modern financial management deals with decision making under uncertainty for corporate financial management, for portfolio investment decisions, for financial institutions, and for international financial management. Focus on learning sound theoretical tools and applying them in case-work.
- 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. Economic Forecasting. (2)** 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; macro-econometric techniques applicable to business decisions.

**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 Action Research and Policy Analysis. (2)** Lecture, two hours. Limited to Executive M.B.A. Program students. Provides methods of organizational and strategic analysis to determine relationship of the organization with its environment. In Progress grading (credit to be given only on completion of course 470D).

**470B. Strategic Overview. (2)** Lecture, two hours. Limited to Executive M.B.A. Program students. Preparation of a strategic overview of a selected international 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 470D).

**470C. Action Research Project. (2)** Lecture, two hours. Limited to Executive M.B.A. Program students. Further research and analysis of one of the strategic issues facing the selected company and identified in the strategic overview (course 470B). In Progress grading (credit to be given only on completion of course 470D).

**470D. Seminar: Policy Analysis. (2)** Lecture, 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.

**472. Marketing Strategy and Policy. (4)** 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.

**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.

## MATERIALS SCIENCE AND ENGINEERING

Henry Samueli School of Engineering and Applied Science

UCLA  
6532 Boelter Hall  
Box 951595  
Los Angeles, CA 90095-1595  
(310) 825-5534  
<http://www.seas.ucla.edu/ms/>

King-Ning Tu, Ph.D., *Chair*  
Mark S. Goorsky, Ph.D., *Vice Chair*  
Jenn-Ming Yang, Ph.D., *Vice Chair*

### Professors

Alan J. Ardell, Ph.D.  
Bruce S. Dunn, Ph.D.  
Kanji Ono, Ph.D.  
King-Ning Tu, Ph.D.  
Ya-Hong Xie, Ph.D.  
Jenn-Ming Yang, Ph.D.

### Professors Emeriti

David L. Douglass, Ph.D.  
William Klement, Jr., Ph.D.  
John H. Lyman, Ph.D.  
John D. Mackenzie, Ph.D. (*Nippon Sheet Glass Company Professor Emeritus of Materials Science*)  
Aly H. Shabaik, Ph.D.  
George H. Sines, Ph.D.  
Christian N.J. Wagner, Dr.rer.nat.  
Alfred S. Yue, Ph.D.

### Associate Professors

Mark S. Goorsky, Ph.D.  
Yang Yang, Ph.D.

### Assistant Professor

Benjamin Wu, Ph.D.

### Adjunct Professors

John J. Gilman, Ph.D.  
Harry Patton Gillis, Ph.D.  
Marek A. Przystupa, 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 which 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

### Materials Engineering B.S.

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.

### The Major

Course requirements are as follows (181 minimum units required):

- Six core courses: Chemical Engineering M105A (or Mechanical and Aerospace Engineering M105A), Civil and Environmental Engineering 108, Electrical Engineering 100, Materials Science and Engineering 14, Mechanical and Aerospace Engineering 102, 105D
- Materials Science and Engineering 88, 110, 110L, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L; Mechanical and Aerospace Engineering 191A or 192A
- Three elective courses from Chemical Engineering C114, Civil and Environmental Engineering 130, 130F, 135A, Electrical Engineering 2, 123A, 123B, 124, Materials Science and Engineering 111, 121, 122, 123 (2 units), 143A, 151, 161, 162, Mechanical and Aerospace Engineering 156A, 166C

4. One course from Electrical Engineering 131A or Mathematics 170A or Mechanical and Aerospace Engineering 193 or Statistics 100A, plus 12 additional units from Chemistry and Biochemistry 30A, 30AL, Materials Science and Engineering 197, Physics 1C, or by petition, upper division courses from engineering, intermediate or advanced foreign language, mathematics, or physical or life sciences. Intermediate foreign language courses may be lower division
5. Chemistry and Biochemistry 20A, 20B, 20L; Civil and Environmental Engineering 15 or Electrical Engineering 5C or Mechanical and Aerospace Engineering 20; Materials Science and Engineering 90L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B
6. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details

### Electronic Materials Option

Course requirements are as follows (194 minimum units required):

1. Six core courses: Chemical Engineering M105A (or Mechanical and Aerospace Engineering M105A), Electrical Engineering 10, 101, Materials Science and Engineering 14, Mechanical and Aerospace Engineering 102, and Civil and Environmental Engineering 108 or Mechanical and Aerospace Engineering 105D
2. Materials Science and Engineering 88, 110, 110L, 121, 122, 130, 131, 131L, 190; Electrical Engineering 2, 121B, 122AL, 123A, 123B, and two courses from Materials Science and Engineering 132, 150, 160; Mechanical and Aerospace Engineering 191A or 192A
3. Four elective courses from Materials Science and Engineering 111, 143A, 162, Electrical Engineering 110, 124, 131A, 172; two laboratory courses from Materials Science and Engineering 161L, 191L, 199, Electrical Engineering 172L
4. Chemistry and Biochemistry 20A, 20B, 20L; Electrical Engineering 5C; Materials Science and Engineering 90L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C
5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details

### Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined

in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Materials Science and Engineering offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Materials Science and Engineering.

### Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. and Ph.D. programs are required to take the General Test of the Graduate Record Examination (GRE). A bachelor's degree in materials science, metallurgy, or ceramics is required. Students having a bachelor's degree in chemistry, physics, or other engineering disciplines are admitted if an introductory materials course has been taken or remedial work comparable to an introductory course is performed.

Students not having adequate preparation may be admitted provisionally and may be required to undertake certain remedial coursework which cannot be applied toward the degree. On arrival at UCLA, an adviser helps the student plan a program which can remedy any such deficiencies.

Applicants to the Ph.D. program normally should have completed the requirements for the master's degree with at least a 3.25 grade-point average and 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 the M.S. degree.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs in *Program Requirements for UCLA Graduate Degrees*.

Applicants are encouraged to apply online. Application forms, including a departmental supplement to the application, may be found at <http://www.seas.ucla.edu/ms/> or by writing to the Materials Science and Engineering Department, 6532 Boelter Hall, UCLA, Box 951595, Los Angeles, CA 90095-1595 or to the Office of the Associate Dean for Academic and Student Affairs, Henry Samueli School of Engineering and Applied Science, 6426 Boelter Hall, UCLA, Box 951601, Los Angeles, CA 90095-1601.

### Master's Degree

There are three main areas in the M.S. program: ceramics and ceramic processing, electronic and optical materials, and structural materials. Students may specialize in any one of the three areas, although most students are more interested in a broader education and select a variety of courses. Basically, students select courses which serve their interests best in regard to thesis research and job prospects.

The M.S. degree is offered through the comprehensive examination and thesis plans. Nine

courses are required, six of which must be graduate courses. The courses are to be selected from the specific course lists outlined in *Program Requirements for UCLA Graduate Degrees*, the school's *Announcement*, and departmental material. Suitable substitutions can be made from other engineering disciplines or from chemistry and physics with the approval of the departmental graduate adviser.

### Doctoral Degree

Major fields include ceramics and ceramic processing, electronic and optical materials, and structural materials.

There is no formal course requirement for the Ph.D. degree, and students may substitute coursework by examinations. Normally, however, students take courses to acquire the knowledge needed for the written and oral preliminary examinations. The basic program of study for the Ph.D. degree is built around one major field and one minor field. The major field has a scope corresponding to a body of knowledge contained in nine courses, at least six of which are graduate courses, plus the current literature in the area of specialization. The major fields named above are described in a Ph.D. major field syllabus.

The minor field normally embraces a body of knowledge equivalent to three courses, at least two of which are graduate courses. If students fail to satisfy the minor field requirements through coursework, a minor field examination may be taken (once only). The minor field is selected to support the major field and is usually a subset of the major field.

For information on completing the Engineer degree, see Engineering Schoolwide Programs in *Program Requirements for UCLA Graduate Degrees*.

Written and oral qualifying examinations are required. During the first year, students take the oral preliminary examination which encompasses the body of knowledge in materials science. After all coursework is completed in the major and minor fields, students take a written preliminary examination in the major field.

Following successful completion of both preliminary examinations, students take the University Oral Qualifying Examination. The nature and content of the examination are at the discretion of the doctoral committee but ordinarily include a broad inquiry into the student's preparation for research as well as a review of the dissertation prospectus.

# Materials Science and Engineering

## Lower Division Courses

**14. 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.

**88. Freshman Seminar: New Materials. (2)** Seminar, two hours; outside study, four hours. Preparation: high school chemistry and physics. Not open to students with credit for course 14. 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 micro-electronics. 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

**110. Introduction to Materials Characterization A (Crystal Structure and X-Ray Diffraction of Material). (4)** Lecture, three hours; laboratory, two hours. Requisite: course 14. Modern methods of materials characterization; fundamentals of crystallography, properties of X rays, X-ray diffraction; powder method, Laue method; determination of crystal structures; phase diagram determination; X-ray stress measurements; X-ray spectroscopy; design of materials characterization procedures. Letter grading.

**110L. Introduction to Materials Characterization A Laboratory. (2)** Laboratory, two hours; outside study, four hours. Requisite: course 14. Experimental techniques and analysis of materials through X-ray scattering techniques; powder method, lane method, crystal structure determination, and special projects. Letter grading.

**111. Introduction to Materials Characterization B (Electron Microscopy). (4)** Lecture, three hours; laboratory, two hours. Requisites: courses 14, 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.

**120. Physics of Materials. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 14, 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, dielectric properties, and p-n junctions. Letter grading.

**121. Materials Science of Semiconductors. (4)** Lecture, four hours; outside study, eight 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.

**122. Principles of Electronic Materials Processing. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 14. 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.

**123. Electronic Packaging and Interconnection. (2)** Lecture, two hours; outside study, six hours. Various electronic packaging methods and interconnection technologies. Design, fabrication, and testing of complex microelectronic components, interconnections, and assemblies. Letter grading.

**130. Phase Relations in Solids. (4)** Lecture, four hours; outside study, eight hours. Requisites: course 14, and Chemical Engineering M105A or Mechanical and Aerospace Engineering M105A. 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.

**143A. Mechanical Behavior of Materials. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 14. Recommended: Civil Engineering 108. 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.

**150. Introduction to Polymers. (4)** Lecture, three hours; laboratory, two 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 14. Relationship between structure and mechanical properties of composite materials with fiber and particulate reinforcement. Properties of fiber, matrix, and interfaces. Selection of macrostructures and material systems. Letter grading.

**160. Introduction to Ceramics and Glasses. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 14, 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 14, Electrical Engineering 100. 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.

**CM180. Introduction to Biomaterials. (4)** (Formerly numbered M180.) (Same as Biomedical Engineering CM180.) Lecture, three hours; outside study, nine hours. Requisites: course 14, 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.

**190. Materials Selection and Engineering Design. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 132, 150, 160. Explicit guidance among the 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.

**191L. Computer Methods and Instrumentation in Materials Science. (2)** Lecture, two hours; outside study, 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.

**197. Seminar: Technical Writing for Materials Engineers. (2)** Seminar, two hours; outside study, four hours. Corequisite: course 132 or 190 or 598 or 599. Types of technical documents and basic document patterns. Document planning, paragraph and sentence structures. Illustration and references. Reports, theses, and proposals. Oral presentation. Letter grading.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Limited to seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Occasional field trips may be arranged. May be repeated for credit. 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.

**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, three hours; outside study, nine hours. Designed for graduate engineering students. Deposition methods used in high-technology applications. Theory and experimental details of physical vapor deposition (PVD), chemical vapor deposition (CVD), plasma-assisted vapor deposition processes, plasma spray, electrodeposition. Applications in semiconductor, chemical, optical, mechanical, and metallurgical industries. 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.

**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 or Mechanical and Aerospace Engineering 156B. Elastic and plastic behavior of crystals, geometry, mechanics, and interaction of dislocations, mechanisms of yielding, work hardening, and other strengthening. Letter grading.

**244. Electron Microscopy. (4)** 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.

**245C. Diffraction Methods in Science of Materials. (4)** 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.

**246A. Mechanical Properties of Nonmetallic Crystalline Solids. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 160. Material and environmental factors affecting mechanical properties of nonmetallic crystalline solids, including atomic bonding and structure, atomic-scale defects, microstructural features, residual stresses, temperature, stress state, strain rate, size, and surface conditions. Methods for evaluating mechanical properties. 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.

**250A. Analysis and Design of Composite Materials. (4)** Lecture, four hours; outside study, eight hours. Preparation: one course from 143A, Electrical Engineering 175, Mechanical and Aerospace Engineering 156A, or 156B. Requisite: course 151. Mechanics of laminated composites, textile structural composites, strength and failure theory, fracture, fatigue and damage tolerance, environmental effects, microcomputer software for composite analysis and design. 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.

**CM280. Introduction to Biomaterials. (4)** (Same as Biomedical Engineering CM280.) Lecture, three hours; outside study, nine hours. Requisites: course 14, 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.

**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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**474A. Advanced Transportation Systems. (4)** Lecture, four hours; outside study, eight hours. Survey of aerospace and advanced ground transportation systems, materials, structures, propulsion systems, control systems, communication systems, and infrastructure support. Letter grading.

**475A. Manufacturing Processes. (4)** Lecture, four hours; outside study, eight hours. Manufacturing properties of materials, thermomechanical processes, chemical and physical processes, material removal processes, packaging, fastening, joining and assembly, tooling and fixtures. Letter 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

College of Letters and Science

UCLA  
6363 Math Sciences  
Box 951555  
Los Angeles, CA 90095-1555

(310) 825-4701  
<http://www.math.ucla.edu>

David A. Gieseke, Ph.D., *Chair*  
Peter Petersen, Ph.D., *Undergraduate Vice Chair*

Robert E. Greene, Ph.D., *Graduate Vice Chair*  
Kirby A. Baker, Ph.D., *Director, Program in Computing*

### Professors

Christopher R. Anderson, Ph.D.  
Kirby A. Baker, Ph.D.  
A.V. Balakrishnan, Ph.D.  
Don M. Blasius, Ph.D.  
Robert F. Brown, Ph.D.  
Russel Cafilisch, Ph.D.  
Tony F.C. Chan, Ph.D.  
Lincoln Chayes, Ph.D.  
William D. Duke, Ph.D.  
Robert D. Edwards, Ph.D.  
Edward G. Effros, Ph.D.  
Richard S. Eiman, Ph.D.  
Bjorn E. Engquist, Ph.D.  
Gregory I. Eskin, Ph.D.  
Hector O. Fattorini, Ph.D.  
Theodore W. Gamelin, Ph.D.  
John B. Garnett, Ph.D.  
David A. Gieseke, Ph.D.  
Mark L. Green, Ph.D.  
Robert E. Greene, Ph.D.  
Nathaniel Grossman, Ph.D.  
Ming Gu, Ph.D.  
Haruzo Hida, Ph.D.  
Ker-Chau Li, Ph.D.  
Thomas M. Liggett, Ph.D.  
D. Anthony Martin, Ph.D.  
Alexander Sergeev Merkurjev, Ph.D., *Acting*  
Ronald J. Miech, Ph.D.  
Yiannis N. Moschovakis, Ph.D.  
Thomas Mountford, Ph.D.  
William I. Newman, Ph.D.  
Stanley J. Osher, Ph.D.  
Ricardo Perez-Marco, Ph.D.  
Peter Petersen, Ph.D.  
Sorin T. Popa, Ph.D.  
James V. Ralston, Jr., Ph.D.  
Paul H. Roberts, Ph.D., D.Sc.  
Jonathan D. Rogawski, Ph.D.  
Bruce L. Rothschild, Ph.D.  
Murray M. Schacher, Ph.D.  
Roberto Schonmann, Ph.D.  
Zhen-Su She, Ph.D.  
Eitan A. Tadmor, Ph.D.  
Masamichi Takesaki, Ph.D.  
Terence C. Tao, Ph.D.  
V.S. Varadarajan, Ph.D.  
James H. White, Ph.D.  
Wing Hung Wong, Ph.D.  
Lai-Sang Young, Ph.D.  
William Zame, Ph.D.

### Professors Emeriti

Donald G. Babbitt, Ph.D.  
Robert J. Blattner, Ph.D.  
David G. Cantor, Ph.D.  
Lennart Carleson, Ph.D.  
C.C. Chang, Ph.D.  
S.Y. Cheng, Ph.D.  
Philip C. Curtis, Jr., Ph.D.  
Thomas S. Ferguson, Ph.D.  
David Gillman, Ph.D.  
Basil Gordon, Ph.D.  
Alfred W. Hales, Ph.D.  
Robert I. Jennrich, Ph.D.



Paul B. Johnson, Ph.D.  
 Heinz-Otto Kreiss, Ph.D.  
 Barrett O'Neill, Ph.D.  
 Lowell J. Paige, Ph.D.  
 Sidney C. Port, Ph.D.  
 Raymond M. Redheffer, Ph.D.  
 Leo R. Sario, Ph.D.  
 Robert Steinberg, Ph.D.  
 Frederick A. Valentine, Ph.D.  
 N. Donald Ylvisaker, Ph.D.

#### Associate Professors

Rodolfo De Sapio, Ph.D.  
 Gregory Hjorth, Ph.D.  
 Gang Liu, Ph.D.  
 Geoffrey Mess, Ph.D.  
 Christoph M. Thiele, Ph.D.

#### Assistant Professors

Dimitri Y. Shlyakhtenko, Ph.D.  
 Itay Neeman, Ph.D.

#### Senior Lecturer

David Cohen, M.A.

#### Lecturers

Shelley Kriegler, Ed.D.  
 Elvira Munoz-Garcia, Ph.D.

#### Adjunct Professors

Herbert B. Enderton, Ph.D.  
 Mark F. Gyure, Ph.D.

#### Adjunct Assistant Professors

Fedor Andrianov, Ph.D.  
 Natalia Berloff, Ph.D.  
 Marek Biskup, Ph.D.  
 Patrick Brosnan, Ph.D.  
 Shawn Cokus, Ph.D.  
 Cameron R. Connell, Ph.D.  
 Norman Danner, Ph.D.  
 Burkhard Englert, Ph.D.  
 Tobias Finis, Ph.D.  
 Ryan L. Garibaldi, Ph.D.  
 Oleg Gleizer, Ph.D.  
 Peter Haissinsky, Ph.D.  
 Alexander E. Holroyd, Ph.D.  
 John Hong, Ph.D.  
 Richard Ketchersid, Ph.D.  
 Daniel Krashen, Ph.D.  
 Amalendu Krishna, Ph.D.  
 Yuan-Pin Lee, Ph.D.  
 Michael Leonard, Ph.D.  
 Charles Li, Ph.D.  
 Xiaochun Li, Ph.D.  
 Hailiang Liu, Ph.D.  
 Francois Malgouyres, Ph.D.  
 Michael Mossinghoff, Ph.D.  
 Camil F. Muscalu, Ph.D.  
 Dario Nardi, Ph.D.  
 Duane Nykamp, Ph.D.  
 Victoria Rayskin, Ph.D.  
 Marius Stefan, Ph.D.  
 Luminita Vese, Ph.D.  
 Thomas Watson, Ph.D.  
 John Westman, 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/undergrad/diagnostic.html>, 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 4 or 5 receive 4 units of credit and Mathematics 31A equivalency; those with a score of 3 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 4 or 5 receive 8 units of credit and Mathematics 31A, 31B equivalency; those with a score of 3 receive 8 units of calculus and analytic geometry credit. 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 3 on the AB or 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) 3C, 33A; (4) 110A, 117.

Courses from only one of the following statistics sequences may be applied toward any mathematics major: (1) Mathematics 170A or Statistics 100A, Statistics 100B, 100C or (2) Statistics 100B, 110A.

Mathematics 170A and Statistics 100A are not open for credit to students with credit for Electrical Engineering 131A.

Mathematics 2, 38A, 38B, 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 and 151B are not open for credit to students with credit for Electrical Engineering 103.

Students may not take or repeat a mathematics 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 Mathematics 31B, they must do so before completing course 32A).

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).

### Upper Division Courses

Mathematics 113, 115A, 117, 131A, 132, 142, 151A, 164, and 197 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.

### Undergraduate Majors

The department offers five majors: Mathematics, Applied Mathematics, Mathematics of Computation, Mathematics/Applied Science, and General Mathematics. The department also participates with the Economics Department in the Mathematics/Economics Interdepartmental Program, which offers a Mathematics/Economics 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 General Mathematics major for students planning to teach mathematics at the high school level. As part of the Mathematics/Applied Science major, the de-

partment offers programs for students interested in the fields of actuarial science, management/accounting, medical and life sciences, and operations research.

Courses taken to fulfill any of the requirements for any of the mathematics majors must be taken for a letter grade.

Students planning to pursue graduate study in mathematics are strongly encouraged to take a three-term sequence of graduate-level courses during their senior year.

## Mathematics B.S.

### Preparation for the Major

*Required:* Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, Physics 1A, 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

To be admitted as Mathematics majors, transfer students with 90 or more units must complete the following introductory courses 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.

### 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 M120B. 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, Program in Computing 10A, Physics 1A, 1B, 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

To be admitted as Applied Mathematics majors, transfer students with 90 or more units must complete the following introductory courses 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.

### 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 135A and 135B; four courses from 110A through 199 and Statistics 100A through M120B (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, Program in Computing 10A, 10B, 10C, Physics 1A, 1B, 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

To be admitted as Mathematics of Computation majors, transfer students with 90 or more units must complete the following introductory courses 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.

### The Major

*Required:* Eleven Mathematics Department courses, including Mathematics 115A, 131A, 131B or 132, 151A, 151B, and six courses from 110A through 199 and Statistics 100A through M120B; 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, management/accounting plan, medical and life sciences plan, or operations research plan. In the past, Mathematics/Applied Science majors have combined the study of mathematics with fields such as atmospheric 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

To be admitted as Mathematics/Applied Science majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of calculus for majors and one C++ programming course. Additional courses are required for each concentration plan.

### The Major

*Required:* Fourteen courses, seven in the Mathematics Department selected from Mathematics 110A through 199 and Statistics 100A through M120B 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, Program in Computing 10A, Economics 11, 100. Economics 100 may not be applied as one of the upper division courses for the major.

#### The Major

*Required:* Seven Mathematics Department courses, including Mathematics 115A, 151A, 164, 170A and 170B or Statistics 100A and 100B or 110A and 110B, and two courses from Mathematics 113, 151B, 171, Statistics 100C, M120A; six outside courses, including Economics 101, 102, 147A, 160, and two courses from Economics 145 through 199, English Composition 131A through 131D, Management 130A, 130B, 190.

### Management/Accounting Plan

#### Preparation for the Major

*Required:* Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, Management 1A, 1B.

#### The Major

*Required:* Seven Mathematics Department courses, including Mathematics 115A, 131A, 164, 170A or Statistics 100A or 110A, Mathematics 170B or Statistics 100B or 110B, and

two courses from Mathematics 110A through 199 and Statistics 100C; seven management courses, including Management 120A, 120B, 122, 140, 212A, 212B, and one additional course from 108 through 190.

### Medical and Life Sciences Plan

#### Preparation for the Major

*Required:* Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, Chemistry and Biochemistry 20A, 20B, 20L, 30, 30L, Life Sciences 1, 2, 3, 4, Physics 1A, 1B.

#### The Major

*Required:* Seven Mathematics Department courses, including Mathematics 115A, 135A, 151A, 170A, 170B, and two courses from 110A through 199 and Statistics 100B through M120B; six outside courses, including Physiological Science 111A, 111B, and 111C or M180A, M180B, and M180C, and three courses from Biomathematics 110, Computer Science M196B, Physiological Science C100, and C135 or Neurosciences 103 (appropriate courses from other departments may be substituted for some of the courses provided departmental consent is given before such courses are taken).

### Operations Research Plan

#### Preparation for the Major

*Required:* Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Economics 11, 100, Management 1A, Program in Computing 10A.

#### The Major

*Required:* Seven Mathematics Department courses, including Mathematics 115A, 131A, 151A, 151B, 170A or Statistics 100A or 110A, Statistics 100B or 110B, and one course from Mathematics 110A, 113, 117, 164, 167, 170B, 171, Statistics 100C; six outside courses, including Economics 101, Management 140, 212A, 212B, and two courses from Management 201A, 203A, 210A, 210B, 210C, 211A, 213A, 213C, 217A, 217B, 240B, 240C.

### General Mathematics B.S.

The General Mathematics 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, Program in Computing 10A, and three courses from the Physics 1 or 6 sequence, Chemistry and Biochemistry 20A, 20B, or Program in Computing 10B, 10C, 30, 60. 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

To be admitted as General Mathematics majors, transfer students with 90 or more units must complete the following introductory courses 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.

#### The Major

*Required:* Mathematics 110A or 117, 115A, 120A or 123, 170A or Statistics 100A or 110A, one course from 131A through 136, one course from 142 through 167, and six elective courses from 106 through 199, 370A, 370B, and Statistics 100B through M120B.

### 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 General Mathematics 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 113, Program in Computing 10A, 10B, two courses from 10C, 15, 20, 30, 40, 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 Single Subject Assessment Test (SSAT) and the Praxis Examination, both of which are 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.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

### Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

#### Graduate Degrees

The Department of Mathematics offers the Masters of Arts in Teaching (M.A.T.) degree and Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Mathematics.

## Admission

### M.A./Ph.D. in Mathematics

Prospective graduate students in mathematics need not have an undergraduate mathematics major but must have completed at least 12 quarter courses (or eight semester courses) in substantial upper division mathematics, particularly advanced calculus, algebra, differential equations, and differential or projective geometry. For admission to a master's degree program, applicants must have earned in the upper division mathematics courses a cumulative grade-point average of at least 3.2.

For direct admission to the Ph.D. program, a grade-point average of at least 3.5 must be presented. Applicants who have already obtained a master's degree must have maintained an average of better than 3.5 in graduate study.

Applicants must take the Graduate Record Examination (GRE) General Test and the Subject Test in Mathematics and must submit at least three letters of recommendation from mathematicians who know their recent work.

### M.A.T. in Mathematics

The M.A.T. program serves the needs of present and prospective mathematics teachers in high school and junior college. Consult the department for specific admission requirements.

## Master's Degrees

### M.A. in Mathematics

The M.A. degree may be earned in a basic (pure mathematics) program and an interdisciplinary program in applied mathematics.

The M.A. degree is offered through the comprehensive examination plan. Students in the pure option take one examination in algebra and one examination in either real analysis or complex analysis. Students in the applied option take one examination in real analysis or complex analysis and one examination in numerical analysis or applied differential equations.

Eleven courses are required for the M.A. degree, eight of which must be graduate courses, while the remaining three may be approved upper division courses. With consent of the graduate vice chair, students in the applied mathematics program may take up to five of the required 11 courses in other departments, provided that the courses are in professional or scientific fields closely related to research in applied mathematics.

### M.A.T. in Mathematics

The M.A.T. degree is offered through the comprehensive examination plan. Students take one examination in mathematical subject matter and one in content and philosophy of secondary school mathematics.

Eleven courses are required. Students planning to teach in secondary schools who do not already have valid credentials for such teach-

ing enroll in the single subject instructional credential program in the Department of Education (Graduate School of Education and Information Studies). Interested students should check with the Department of Education for a full and up-to-date description of credential requirements and should submit a Department of Education application for admission to the credential program.

A master's essay on some subject in mathematics related to the student's prospective teaching is required and is written under the direction of a faculty member while enrolled in an individual studies course.

Teaching experience is not a formal requirement for the M.A.T. degree; however, students who are working for a secondary credential must take the supervised teaching course.

## Doctoral Degree

The Ph.D. degree may be earned under the pure or applied option. Many possible choices of fields exist within these programs, and students are urged to read the booklet, *Graduate Studies in Mathematics at UCLA*, that describes the specialties of the faculty and the active research areas in the department in some detail.

Under the pure mathematics option, students must take at least 12 approved graduate courses. Each student must actively participate and lecture in at least two advanced seminars. Under the applied mathematics option, students must take at least 18 approved graduate courses.

Written and oral qualifying examinations are required. Students must pass four written qualifying examinations. Students in the applied option have the opportunity to substitute an outside examination for one of the regular departmental examinations.

Students in the pure option are required to take one examination in algebra and one examination in real analysis. Students in the applied option are required to take one examination in real analysis and one examination in either numerical analysis or applied differential equations.

Following successful completion of the four written qualifying examinations, students take the University Oral Qualifying Examination.

There is a language requirement for this degree.

## 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, applications 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 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. Introduction to the integral. 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 vector calculus. P/NP or letter grading.

**3C. Calculus and Probability for Life Sciences Students. (4)** Lecture, three hours; discussion, one hour. Requisite: course 3B with a grade of C– or better. Elementary probability, calculus-based probability, matrix algebra, and systems of differential equations. P/NP or letter grading.

**31A. Calculus and Analytic Geometry. (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.

**31B. Calculus and Analytic Geometry. (4)** Lecture, three hours; discussion, one hour. Requisite: course 31A with a grade of C– or better. Transcendental functions; methods and applications of integration.

**31BH. Calculus and Analytic Geometry (Honors). (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 31B.

**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. Requisite: course 31B with a 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. Requisite: course 31B with a grade of B or better. Honors sequence parallel to courses 32A, 32B.

**32AL. Calculus Computer Laboratory. (1)** Corequisite: course 32A. Prior knowledge of computers not required. Application of mathematical software to calculus of curves and surfaces. P/NP or letter grading.

**32B. Calculus of Several Variables. (4)** Lecture, three hours; discussion, one hour. Requisite: course 32A with a grade of C– or better. Introduction to integral calculus of several variables, line and surface integrals. P/NP or letter grading.

**32BL. Calculus Computer Laboratory. (1)** Corequisite: course 32B. Application of mathematical software to calculus of curves and surfaces. P/NP or letter grading.

**33A. Linear Algebra and Applications. (4)** Lecture, three hours; discussion, one hour. Requisite: course 32A with a grade of C– or better. Introduction to linear algebra: linear maps, inner product spaces, determinants, eigenvalues, eigenvectors, systems and higher order differential equations with constant coefficients. P/NP or letter grading.

**33AH. Matrices and Differential Equations (Honors). (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 33A. P/NP or letter grading.

**33AL. Linear Algebra and Differential Equations Computer Laboratory. (1)** Corequisite: course 33A. Application of mathematical software to solve problems in linear algebra and differential equations.

**33B. Infinite Series. (4)** (Formerly numbered 31C.) Lecture, three hours; discussion, one hour. Requisite: course 33A with a grade of C– or better. Infinite sequences and series; applications.

**33BH. Infinite Series (Honors). (4)** (Formerly numbered 31CH.) Lecture, three hours; discussion, one hour. Honors course parallel to course 33B. P/NP or letter grading.

**35AH-35BH-35CH. Intermediate Calculus (Honors). (4-4-4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 31B. Introduction to matrix theory, differential equations, and systems of differential equations. Differential calculus of several variables. Integral calculus of several variables, vector field theory, line and surface integrals. P/NP or letter grading.

**38A-38B. Fundamentals of Mathematics for Elementary Teachers. (4-4)** Not open to freshmen or for credit to students with credit for any course from Mathematics 110A through 199. May not be applied toward Letters and Science general education requirements. Courses 38A, 38B, and 104 form one-year sequence for prospective elementary teachers in Diversified Liberal Arts Program. P/NP or letter grading. **38A.** Lecture, three hours; discussion, one hour. Counting numbers and other subsystems of real numbers; sets; operations, relations, algorithms; applications and problem solving. Emphasis on understanding arithmetic procedures. **38B.** Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 38A. Continuation of course 38A. Elementary number theory; probability and statistics; the microcomputer and simple instructional programs; measurement and approximation; coordinate geometry. Other topics appropriate for elementary classroom.

**61. Introduction to Discrete Structures. (4)** Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B, Program in Computing 10A or 3. 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.

## Upper Division Courses

### General and Teacher Training

**104. Fundamental Concepts of Geometry. (4)** Lecture, three hours; discussion, one hour. Requisites: courses 38A, 38B. Designed for prospective elementary teachers. Informal geometry and topology, motion geometry, measurement of geometric figures, LOGO computer language, models and constructions appropriate for elementary classrooms.

**106. History of Mathematics. (4)** Requisite: course 3A or 31A. Roots of modern mathematics in ancient Babylonia and Greece, development of algebra through Middle Ages to Fermat and Abel, invention of analytic geometry and calculus, selected topics in modern mathematics. P/NP or letter grading.

### Algebra, Number Theory, and Logic

**110A-110B. Algebra. (4-4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. **110A.** Not open for credit to students with credit for course 117. Ring of integers, integral domains, fields, polynomial domains, unique factorization. **110B.** 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.

**M112. Introduction to Set Theory. (4)** (Same as Philosophy M134.) Lecture, three hours; discussion, one hour. Requisite: course 31B or Philosophy 32. Axiomatic set theory as framework for mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

**113. Combinatorics. (4)** Lecture, three hours; discussion, one hour. 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.

**114A-114B. Logic and Computability. (4-4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. Propositional and predicate logic; syntax and semantics; formal deductions; completeness and compactness; Herbrand expansions. Effectively computable, Turing computable, and recursive functions; thesis of Church. Universal functions; unsolvability results. Recursive and recursively enumerable sets; recursive enumerability of valid sentences. Formal number theory; definability of recursive functions; incompleteness and undecidability; theorems of Gödel, Tarski, Church. P/NP or letter grading.

**115A-115B. Linear Algebra. (4-4)** Lecture, three hours; discussion, one hour. P/NP or letter grading. **115A.** Requisite: course 33A. Abstract vector spaces, linear transformations, and matrices; determinants; inner product spaces; eigenvector theory. **115B.** 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). (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 115A.

**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. **131A.** Requisites: courses 32B, 33B. 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. Honors sequence parallel to courses 131A, 131B.

**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 or letter 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.

**135A-135B. Ordinary Differential Equations. (4-4)** Lecture, three hours; discussion, one hour. Requisites: courses 33A, 33B. **135A.** Basic procedures and techniques for solving differential equations; linearity, basis of solutions, variation of parameters, Green's function; systems of equations; constant coefficient equations, matrix differential equations, method of eigenvalues and eigenvectors. **135B.** Laplace transform method; existence and uniqueness results; series solutions at regular singular points; Sturm/Liouville problems, orthogonal series, eigenfunction expansions; two-dimensional autonomous systems, phase-plane analysis; stability and asymptotic behavior of solutions; selected applications.

**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. Requisites: courses 32B, 33B, 115A, Program in Computing 3 or 10A. Introduction to numerical methods with emphasis on algorithms, analysis of algorithms, and computer implementation issues. Letter grading. **151A.** Solution of nonlinear equations. Numerical differentiation, integration, and interpolation. Direct methods for solving linear systems. **151B.** 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.

**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.

**164. Linear Programming. (4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. Not open for credit to students with credit for Electrical Engineering 136. Principles of linear programming, duality theorem, simplex methods; applications to industrial and business problems. Additional topics such as sensitivity analysis, integer programming, distribution and transportation algorithms, and applications to game theory.

**167. Game Theory. (4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. Games in extensive form, strategic equilibrium, matrix games and minimax theorem, cooperative and noncooperative solutions of bimatrix games and Lemke/Howson algorithm. Possible additional topics include combinatorial games, stochastic games, coalitional games and the core, marriage problem, and cost allocation. P/NP or letter grading.

## Probability

**170A. Probability Theory. (4)** (Formerly numbered M170A.) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. 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. Requisite: course 170A or Statistics 100A. Discrete Markov chains, continuous-time Markov chains, renewal theory. P/NP or letter grading.

**172A-172B. Actuarial Mathematics. (4-4)** Lecture, four hours. Letter grading. **172A.** Requisite: course 170A or Statistics 100A or 110A. Annuities, amortization, life annuities, pension applications. **172B.** Requisite: course 172A. Multiple life functions, applications to life insurance, pensions, and health insurance.

**181. Mathematics of Finance. (4)** Lecture, three hours; discussion, one hour. Requisites: course 33A, Economics 11, and Statistics 110A or equivalent background in calculus-based probability. 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.

## Special Studies

**190. Honors Mathematics Seminar. (4)** Seminar, three hours. Participating seminar on advanced topics in mathematics. Content varies from year to year. May be repeated for credit by petition.

**192. Problem Solving. (4)** Lecture, three hours; discussion, one hour. Requisite: course 33B with a 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. Letter grading.

**197. Advanced Topics in Mathematics. (4)** Lecture, three hours. Variable topics course in mathematics that covers material not covered in regular mathematics upper division curriculum. P/NP or letter grading.

**199. Special Studies in Mathematics. (1 to 4)** At discretion of chair and subject to availability of staff, individuals or groups may study topics suitable for undergraduate course credit but not specifically offered as separate courses. May be repeated for credit, but no more than one 199 course may be applied toward upper division courses required for a major offered by Mathematics Department.

## 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.

## 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. Requisites: courses 205A, 205B, 205C. 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.

**208A-208B. Topics in Applied Number Theory. (4-4)** 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.

## 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.

## Logic and Foundations

**220A-220B-220C. Mathematical Logic and Set Theory. (4-4-4)** Lecture, three hours. Requisite: course M112. Model theory: compactness theorem; Lowenheim/Skolem theorems; definability; ultraproducts; preservation theorems; interpolation theorems. Recursion function theory: thesis of Church; recursively enumerable sets; hierarchies; degrees. Formal proofs: completeness and incompleteness theorems; decidable and undecidable theories; quantifier elimination. Set theory: Zermelo/Fraenkel and von Neumann/Gödel axioms; cardinal and ordinal numbers; continuum hypothesis; constructible sets; independence results and forcing. 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.

**223A. Model Theory. (4)** Requisites: courses 220A, 220B, 220C. Topics include ultraproducts, preservation theorems, interpolation theorems, saturated models, omitting types, categoricity, two cardinal theorems, enriched languages, soft model theory, and applied model theory.

**223B. Set Theory. (4)** Requisites: courses 220A, 220B, 220C. Topics include constructibility theory, Cohen extensions, large cardinals, and combinatorial set theory.

**223C. Recursion Theory. (4)** Requisites: courses 220A, 220B, 220C. Topics include degrees of unsolvability, recursively enumerable sets, undecidable theories, inductive definitions, admissible sets and ordinals, and recursion in higher types.

**223D. Descriptive Set Theory. (4)** Requisites: courses 220A, 220B, 220C. Classical descriptive set theory: Borel and projective sets. Effective descriptive set theory. Consequences of strong set-theoretic hypotheses.

## Geometry and Topology

**225A. Differentiable Manifolds. (4)** Lecture, three hours. Requisites: courses 121, 131A, 131B. Smooth manifolds and maps, basic examples and properties, orientability, tangent and cotangent spaces, embeddings and immersions, Sard theorem and transversality, vector fields and integral curves, Lie brackets and Frobenius theorem, Lie derivative, tensors, differential forms and exterior derivative, Stokes theorem on manifolds.

**225B. Introduction to Algebraic Topology. (4)** Lecture, three hours. Requisite: course 225A. Elementary concepts of homotopy theory; covering spaces and fundamental group. Singular homology theory, axioms of homology, Mayer/Vietoris sequence, calculation of homology of standard spaces, applications, Betti numbers and Euler characteristic, cell complexes and cellular homology.

**225C. Further Topics in Geometry and Topology. (4)** Lecture, three hours. Requisites: courses 225A, 225B. Topics may include cohomology (singular, cellular, de Rham), duality theorems, de Rham theorem, degree theory, cup products, higher homotopy groups, transversality theory, Morse theory, Riemannian metric.

**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 support 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 nth 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; Riemann 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.

**M261. Game Theory. (4)** (Same as Economics M214B and Political Science M208A.) Lecture, three hours. Designed for graduate economics, mathematics, and political science students. Bargaining theory, the core, the 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. Requisites: courses 131A, 131B, 132, and 135A and 135B, 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.

**268A. Applied Functional Analysis. (4)** Lecture, three hours. Requisites: courses 115A, 115B, 131A, 131B, 132. Topics may include Hilbert spaces, distributions, Fourier transforms,  $L^2$ -space, the Laplacian, linear operators, spectrum and resolvent, self-adjoint and unitary operators, problems of evolution in Banach spaces, well-posed initial value problems, semigroups, applications to applied problems.

**268B-268C. Topics in Applied Functional Analysis. (4-4)** Requisite: course 255A. Topics include spectral theory with applications to ordinary differential operators, eigenvalue problems for differential equations, generalized functions, and partial differential equations.

**269A-269B-269C. Advanced Numerical Analysis. (4-4-4)** Lecture, three hours. Requisites: courses 115A, 135A, 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. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. S/U or letter grading:

**270A.** Techniques of Scientific Computing. Mathematical modeling for computer applications, scientific programming languages, software development, graphics, implementation of numerical algorithms on different architectures, case studies.

**270B-270C.** Computational Linear Algebra. Direct, fast, and iterative algorithms, overdetermined systems; singular value decomposition, regularization, sparse systems, algebraic eigenvalue problem.

**270D-270E.** Computational Fluid Dynamics. Basic equations, finite difference, finite element, pseudo-spectral, and vortex methods; stability, accuracy, shock capturing, and boundary approximations.

**270F.** Parallel Numerical Algorithms. Requisites: courses 270B, 270C. 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.

**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 nonholonomic 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. Magneto-hydrodynamics. (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, Benard 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 theory. 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.

**278F. Structural Equation and Graphical Models. (4)** Lecture, three hours. Preparation: two quarters of graduate-level statistics, such as courses 276A and 276B or equivalent sequence in another department. Statistical and causal dependencies. Linear structural equations, latent variables, categorical variable models, multilevel structures, hierarchical sampling plans. Conditional, unconditional statistical theory. Causal diagrams, directed acyclic graphs, conditional-independence models for continuous, categorical, mixed data. Parameter estimation, identification, model testing, policy analysis.

**M282A-M282B. Applied Probability. (4-4)** (Formerly numbered 282A-282B.) (Same as Statistics M220A-M220B.) Lecture, three hours. Requisite: course 170A or Statistics 100A. S/U or letter grading. **M282A.** Conditioning, Markov chains, Poisson process, Brownian motion, stationary processes, applications. **M282B.** Simulation, renewal theory, martingale, and selected topics from queuing, reliability, speech recognition, computational biology, mathematical finance, epidemiology.

## 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.

**285N.** Dynamical Systems.

**290. Seminar: Current Literature. (4)** Designed for Ph.D. students. Readings and presentations of papers in mathematical literature under supervision of a staff member.

**296A-296N. Participating Seminars. (1 to 4 each)** 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.

**296M.** Mathematics.

**296N.** Dynamical Systems.

**330. Observation and Participation: Mathematics and Science Instruction. (1 to 2)** Seminar, one hour; classroom observation and participation, two hours. Observation, participation, or tutoring in mathematics and science classes at middle school and secondary levels. May be repeated for credit. P/NP (undergraduates) or S/U (graduates) grading.

**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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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

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, 30, 40, 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.

## 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 a laboratory setting. P/NP grading.

**10A. Introduction to Programming. (5)** Lecture, three hours; discussion, two hours; laboratory, eight hours. Recommended requisite for students with no prior computing experience: course 1. Students with credit for former course 3 receive only 2 units of credit for this course. No prior programming 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 requisite: course 10A. Abstract data types and their implementation using the 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.

**10C. Advanced Programming. (5)** Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: 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.

**13. FORTRAN Programming with Numerical Methods. (5)** Lecture, three hours; discussion, two hours; laboratory, 10 hours. Enforced requisite: course 10A. Introduction to numerical methods in science and engineering with structured programming in FORTRAN 77 and later versions. Solution of linear and nonlinear equations, numerical integration, interpolation, and similar topics. Introduction to parallel and high-performance computing. P/NP or letter grading.

**15. Introduction to LISP and Symbolic Computation. (5)** Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: 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)** (Formerly numbered 20.) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10B. 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 requisite: 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.

**30. Machine Organization and Assembly Language Programming. (5)** Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: 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.

**40. Programming for Internet and Multimedia. (5)** Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10B. HTML, Perl language, programming for Common Gateway Interface (CGI), other scripting languages, XML and its derivatives, programming for multimedia. P/NP or letter grading.

**60. Data Structures and Algorithms. (4)** Lecture, three hours; discussion, one hour; laboratory, five hours. Enforced requisites: 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.

**97. Special Topics in Programming. (1 to 4)** Lecture, one to three hours; discussion, zero to one hour. Enforced requisite: 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.

**197. Advanced Topics in Programming. (4)** Lecture, three hours; discussion, one hour. Variable topics in programming and the 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)** Considered equivalent to Mathematics 285A through 285N 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 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

# MATHEMATICS/ ECONOMICS

*Interdepartmental Program  
College of Letters and Science*

UCLA  
6363 Math Sciences  
Box 951555  
Los Angeles, CA 90095-1555  
(310) 825-4701  
<http://www.math.ucla.edu/undergrad/mathecon.html>

Robert F. Brown, Ph.D., *Chair*  
**Faculty Advisory Committee  
Professors**

Kirby A. Baker, Ph.D. (*Mathematics*)  
Robert F. Brown, Ph.D. (*Mathematics*)  
Bryan C. Ellickson, Ph.D. (*Economics*)  
Jonathan D. Rogawski, Ph.D. (*Mathematics*)  
William R. Zame, Ph.D. (*Economics*)

## 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.

## Undergraduate Study

### Mathematics/Economics B.S.

#### Preparation for the Major

*Required:* Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Economics 1, 2, 11, 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.

#### Transfer Students

To be admitted as Mathematics/Economics majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of calculus for majors, two principles of economics courses, one microeconomic theory course, and one C++ programming course.

#### The Major

*Required:* Seven Mathematics Department courses, including Mathematics 110A or 117, 115A, 131A, 164, 170A or Statistics 100A or 110A, Statistics 100B or 110B, and one course from Mathematics 110A through 199 and Statistics M120A, M120B; six economics courses, including Economics 101, 102, and four additional upper division courses, with at least three from 105AH, 105BH, and 142 through 148. The seven Mathematics Department courses must be passed with an overall grade-point average of 2.0, as must the six courses from the Economics Department.

## 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 110B or 131B, (2) prepare a senior thesis acceptable to the departmental honors committee, (3) present the thesis in Economics 195H, 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) completing Mathematics 61 or 113, Program in Computing 10A, 10B, two courses from 10C, 15, 20, 30, 40, 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*

UCLA  
48-121 Engineering IV  
Box 951597  
Los Angeles, CA 90095-1597  
(310) 825-2281  
<http://www.mae.ucla.edu/>

D. Lewis Mingori, Ph.D., *Chair*  
Adrienne G. Lavine, Ph.D., *Vice Chair*  
Jeff S. Shamma, Ph.D., *Vice Chair*

### Professors

Mohamed A. Abdou, Ph.D.  
Satya M. Atluri, Sc.D.  
Oddvar O. Bendiksen, Ph.D.  
Ivan Catton, Ph.D.  
Vijay K. Dhir, Ph.D.  
Rajit Gadh, Ph.D.  
Nasr M. Ghoniem, Ph.D.  
James S. Gibson, Ph.D.  
Vijay Gupta, Ph.D.  
H. Thomas Hahn, Ph.D. (*Hughes Aircraft Company Professor of Manufacturing Engineering*)  
Chih-Ming Ho, Ph.D. (*Ben Rich Lockheed Martin Professor of Aeronautics*)  
Ann R. Karagozian, Ph.D.  
Robert E. Kelly, Sc.D.  
Chang-Jin (C-J) Kim, Ph.D.  
J. John Kim, Ph.D. (*Rockwell International Professor of Engineering*)  
Adrienne G. Lavine, Ph.D.  
Ajit K. Mal, Ph.D.  
William C. Meecham, Ph.D.  
Anthony F. Mills, Ph.D.  
D. Lewis Mingori, Ph.D.  
Jeff S. Shamma, Ph.D.  
Owen I. Smith, Ph.D.  
Jason Speyer, Ph.D.  
Tsu-Chin Tsao, Ph.D.  
Daniel C.H. Yang, Ph.D.

### Professors Emeriti

Harry Buchberg, M.S.  
Andrew F. Charwat, Ph.D.  
Peretz P. Friedmann, Sc.D.  
Walter C. Hurty, M.S.  
Cornelius T. Leondes, Ph.D.  
Michel A. Melkanoff, Ph.D.  
Peter A. Monkewitz, Ph.D.  
Philip F. O'Brien, M.S.  
David Okrent, Ph.D.  
Russell R. O'Neill, Ph.D., *Dean Emeritus*  
Lucien A. Schmit, Jr., M.S.  
Chauncey Starr, Ph.D., *Dean Emeritus*  
Richard Stern, Ph.D.  
William T. Thomson, Ph.D.  
Russell A. Westmann, Ph.D.

### Associate Professors

Gregory Carman, Ph.D.  
Gang Chen, Ph.D.  
Xiang Zhang, Ph.D.  
Xiaolin Zhong, Ph.D.

### Assistant Professors

Jonathan Freund, Ph.D.  
Robert T. M'Closkey, Ph.D.

### Senior Lecturers

C.H. Chang, M.S., *Emeritus*  
Alexander Samson, Ph.D., *Emeritus*

### Adjunct Professors

Leslie M. Lackman, Ph.D.  
Frank E. Marble, Ph.D.  
Rudolph X. Meyer, Ph.D., *Emeritus*

## Scope and Objectives

The Mechanical and Aerospace Engineering Department encompasses professional disciplines that are often divided into separate departments at other engineering schools. Curricula in aerospace engineering and mechanical engineering are offered on both the undergraduate and graduate levels. The Gorman Report ranked UCLA's mechanical engineering program tenth in the nation for undergraduate programs. The aerospace program is the only accredited aerospace program in the University of California system.

Because of the scope of the department, faculty research and teaching cover a wide range of technical disciplines. Research in thermal engineering emphasizes basic heat and mass transfer processes as well as thermal hydraulics. Topics in the area of design, dynamics, and control include robotics, mechanism design, control and guidance of aircraft and spacecraft, helicopter dynamics and aeromechanics, and dynamics and control of large space structures. Studies in structural mechanics range from fracture mechanics and wave propagation, structural dynamics and aeroelasticity of helicopters and jet engine blades, computational transonic aeroelasticity to structural optimization and synthesis, and mechanics of composite structures. In the area of fluid mechanics and acoustics, investigations are under way on combustion, flow instabilities, turbulence and thermal convection, aeroacoustics, and unsteady aerodynamics of turbomachines, helicopter rotors, and fixed-wing aircraft. Other areas of research include applied plasma physics, surface modification by plasma, fusion reactor design, experimental tokamak confinement physics; light water reactor safety; reliability and risk assessment methodology; societal risk management; and nuclear materials. The department also has research activity in computer-aided design and manufacturing.

At the undergraduate level, the department offers accredited programs leading to Bachelor of Science degrees in Aerospace Engineering and in Mechanical Engineering. The former includes opportunity to emphasize propulsion, aerodynamics, preliminary design, dynamics and control, or structures and space technology, while the latter includes opportunity to em-

phasize design and manufacturing, dynamics and control, or fluids and thermal 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

### Aerospace Engineering B.S.

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.

### The Major

Course requirements are as follows (190 minimum units required):

1. Ten department core courses: Civil and Environmental Engineering 108, Electrical Engineering 100, Materials Science and Engineering 14, Mechanical and Aerospace Engineering 20, 102, 103, M105A, 105D, 157, 192A
2. Twelve aerospace engineering core courses: Electrical Engineering 102, Mechanical and Aerospace Engineering 150A, 150B, 150P, 154A, 154B, 154S, 157A, 161A or 169A, 166A, 171A, and one mathematics elective from Mechanical and Aerospace Engineering 191A, 192B, 192C, Electrical Engineering 103, 131A
3. Sixteen technical elective units (which should contain enough design units to satisfy the overall program requirement of at least 24 design units) selected from Mechanical and Aerospace Engineering 131A, 131AL, 132A, 133A, 133AL, 150C (heat and mass transfer, thermodynamics, combustion/propulsion); 153A (acoustics); 155, 163A, 164, 169A (unless taken as part of the core), Civil and Environmental Engineering 137L, Electrical Engineering 142 (dynamics and control); Mechanical and Aerospace Engineering 156B, 166C, 168, 193, Civil and Environmental Engineering 130F (structural and solid mechanics); Mechanical and Aerospace Engineering 150R, 161A (unless taken as part of the core), 161B, 161C, 161D

(space technology); 162A, 162C (design and mechanisms); Materials Science and Engineering 143A.

4. Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL
5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details

## Mechanical Engineering B.S.

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, with options in design and manufacturing, dynamics and control, and fluids and thermal engineering.

### The Major

Course requirements are as follows (192 minimum units required):

1. Ten department core courses: Civil and Environmental Engineering 108, Electrical Engineering 100 (also 110L — see item 2 below), Materials Science and Engineering 14, Mechanical and Aerospace Engineering 20, 102, 103, M105A, 105D, 157, 192A
2. Ten mechanical engineering core courses: Electrical Engineering 110L (may be taken concurrently with 100), Mechanical and Aerospace Engineering 131A, 133A, 156A, 162A, 162B, 162M, 169A, 171A, 193
3. Twenty technical elective units, to be selected from the three subject areas listed below, of which at least 12 units (including at least 4 laboratory units) should be from a single subject area:
  - a. *Design and Manufacturing*: Materials Science and Engineering 143A, Mathematics 120A, Mechanical and Aerospace Engineering CM140, 155, 163A, 164, 168, 174; laboratory courses: Mechanical and Aerospace Engineering 162C, 163C, 172, M180L, 194, 195
  - b. *Dynamics and Control*: Electrical Engineering 102, 103, 131A, 131B, Materials Science and Engineering 143A, Mathematics 115A, 115B, 131A, 131B, Mechanical and Aerospace Engineering CM140, 155, 156B, 163A, 164, 168, 174, 191A; laboratory courses: Civil and Environmental Engineering 130F, 137L, Mechanical and Aerospace Engineering 163C, 172
  - c. *Fluids and Thermal Engineering*: Electrical Engineering 103, Mechanical and Aerospace Engineering 132A, 134, 136, 150A, 150B, 150C, 150P, 150R, 153A, 161A, 161B, 174, 192B, 192C; laboratory

courses: Mechanical and Aerospace Engineering 131AL, 133AL, 157A

4. Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Mechanical and Aerospace Engineering 94; Physics 1A, 1B, 1C, 4AL, 4BL
5. HSSEAS general education (GE) course requirements. See the College and Schools section of this catalog for details
6. Four free technical elective units selected from upper division courses offered by the department; students are strongly encouraged to consult their adviser

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### 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.

## Admission

### Aerospace Engineering and Mechanical Engineering

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. and Ph.D. programs are required to take the General Test of the Graduate Record Examination (GRE). Applicants who expect to hold F1 or J1 visas are also required to take the GRE Subject Test in Engineering, Mathematics, or a related area.

Applicants to the Ph.D. program normally should have completed the requirements for the master's degree with at least a 3.25 grade-point average and have demonstrated creative ability. Normally the M.S. degree is required for admission to the Ph.D. program. However, exceptional students can be admitted to the Ph.D. program without having the M.S. degree. For additional information, see <http://www.mae.ucla.edu/admission/admission.html>.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs in *Program Requirements for UCLA Graduate Degrees*.

## Manufacturing Engineering

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. program are required to take the General Test of the Graduate Record Examination (GRE). Applicants who expect to hold F1 or J1 visas are also required to take the GRE Subject Test in Engineering, Mathematics, or a related area.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs in *Program Requirements for UCLA Graduate Degrees*.

Applicants are encouraged to apply online. Application forms, including a departmental supplement to the application, may be found at <http://www.mae.ucla.edu/> or by writing to the Mechanical and Aerospace Engineering Department, 48-121 Engineering IV, UCLA, Box 951597, Los Angeles, CA 90095-1597 or to the Office of the Associate Dean for Academic and Student Affairs, Henry Samueli School of Engineering and Applied Science, 6426 Boelter Hall, UCLA, Box 951601, Los Angeles, CA 90095-1601.

## Master's Degrees

### Aerospace Engineering and Mechanical Engineering

Major fields include dynamics; fluid mechanics; heat and mass transfer; microelectromechanical systems (MEMS); structural and solid mechanics; systems and control.

The M.S. degree is offered through the comprehensive examination and thesis plans. The comprehensive examination may include an oral component and, in consultation with the adviser and the major field chair, students may elect to take the first part of the Ph.D. written qualifying examination as the comprehensive examination.

At least nine courses are required, five of which must be graduate courses. In the thesis plan, seven of the nine must be formal courses, including at least four from the 200 series. The courses should be selected so that the breadth requirements and the requirements at the graduate level are met. The breadth requirements are only applicable to students who do not have a B.S. degree from an ABET-accredited aerospace or mechanical engineering program. Specific course information, including breadth and other course requirements for each area, are outlined in *Program Requirements for UCLA Graduate Degrees*, the school's *Announcement*, and departmental material.

### Manufacturing Engineering

The M.S. degree is offered through the comprehensive examination and thesis plans. The comprehensive examination may include an oral component.

At least nine courses are required, five of which must be graduate courses. In the thesis plan, seven of the nine must be formal courses, including at least four from the 200

series. Specific course information is outlined in *Program Requirements for UCLA Graduate Degrees*, the school's *Announcement*, and departmental material.

## Doctoral Degrees

### Aerospace Engineering and Mechanical Engineering

Major fields include dynamics; fluid mechanics; heat and mass transfer; manufacturing and design (mechanical engineering only); microelectromechanical systems (MEMS); structural and solid mechanics; systems and control.

Ph.D. students may propose ad hoc major fields, which must differ substantially from established major fields and satisfy one of the following two conditions: (1) the field is interdisciplinary in nature and (2) the field represents an important research area for which there is no established major field in the department. This condition most often applies to recently evolving research areas or to areas for which there are too few faculty to maintain an established major field.

Students in an ad hoc major field must be sponsored by at least three faculty members, at least two of whom must be from the department.

The basic program of study for the Ph.D. degree is built around major and minor fields. The established major fields are listed above, and there is a detailed syllabus describing each Ph.D. major field.

The program of study for the Ph.D. requires students to perform original research leading to a doctoral dissertation and to master a body of knowledge that encompasses material from their major field and breadth material from outside the major field. The body of knowledge should include (1) six courses in the major field, four of which must be graduate courses, (2) one minor field, (3) any three additional courses, two of which must be graduate courses, that enhance the study of the major or minor field.

The major field syllabus advises students as to which courses contain the required knowledge, and students usually prepare for the written qualifying examination by taking these courses. However, students can acquire such knowledge by taking similar courses at other universities or even by self-study.

The minor field embraces a body of knowledge equivalent to three courses, two of which must be graduate courses. Minor fields are often subsets of major fields, and minor field requirements are then described in the syllabus of the appropriate major field. Established minor fields with no corresponding major field can also be used, such as applied mathematics and applied plasma physics and fusion engineering. Also, an ad hoc field can be used in exceptional circumstances, such as when certain knowledge is desirable for a program of study that is not available in established minor fields. If students fail to satisfy the minor field

requirements through coursework, a minor field examination may be taken.

For information on completing the Engineer degree, see Engineering Schoolwide Programs in *Program Requirements for UCLA Graduate Degrees*.

Written and oral qualifying examinations are required. After mastering the body of knowledge defined in the major field and completing a proposal, students take a written qualifying examination covering this knowledge. Students in an ad hoc major field must pass a written qualifying examination that is equivalent to the written qualifying examination for an established major field.

Following successful completion of the written qualifying examination, students take the University Oral Qualifying Examination. The nature and content of the examination are at the discretion of the doctoral committee but include a review of the dissertation prospectus and may include a broad inquiry into the student's preparation for research.

## Mechanical and Aerospace Engineering

### Lower Division Courses

**20. FORTRAN Programming with Numerical Methods Applications. (4)** Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Mathematics 31A, 31B. Introduction to programming with FORTRAN. Applications to numerical methods used in engineering; concepts of probability and statistics. 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 on-line computer systems to design and display various objects. Letter grading.

### Upper Division Courses

**102. Mechanics of Particles and Rigid Bodies. (4)** Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Mathematics 33A, Physics 1A. Newtonian mechanics (statics and dynamics) of particles and rigid bodies. Fundamental concepts of mechanics. Statics, kinematics, and kinetics of particles and rigid bodies. Impulse/momentum and work/energy relationships. Applications. Letter grading.

**103. Elementary Fluid Mechanics. (4)** Lecture, three hours; discussion, two hours; outside study, seven 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.

**M105A. Introduction to Engineering Thermodynamics. (4)** (Same as Chemical Engineering M105A.) Lecture, four hours; discussion, one hour; outside study, seven 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, one hour; outside study, seven hours. Requisites: course 103, Mathematics 32B, 33A, Physics 8B. Transport phenomena; heat conduction, mass species diffusion, convective heat and mass transfer, and radiation. Engineering applications in thermal and environmental control. Letter grading.

**131A. Intermediate Heat Transfer. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 20, 105D, 192A. 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, 157. Experimental study of physical phenomenon and engineering systems using modern data acquisition and processing techniques. Experiments include studies of heat transfer phenomena and testing of a cooling tower, heat exchanger, and internal combustion engine. Students take and analyze data and discuss physical phenomena. Letter grading.

**132A. Mass Transfer. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 131A. Principles of mass transfer by diffusion and convection. Simultaneous heat and mass transfer. Analysis of evaporative and transpiration cooling, combustion, and catalysis. Mass exchangers, including automobile catalytic converters, precipitators, filters, scrubbers, humidifiers, and cooling towers. Letter grading.

**133A. Engineering Thermodynamics. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 103, M105A, 105D. Applications of thermodynamic principles to engineering processes. Energy conversion systems. Rankine cycle and other cycles, refrigeration, psychrometry, reactive and nonreactive fluid flow systems. Letter grading.

**133AL. Power Conversion Thermodynamics Laboratory. (4)** Laboratory, eight hours; outside study, four hours. Requisites: courses 133A, 157. Experimental study of power conversion and heat transfer systems using state-of-the-art plant process instrumentation and equipment. Experiments include studies of thermodynamic operating characteristics of an 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.

**136. Thermal Hydraulic Design of Nuclear and Other Power Systems. (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Designed for seniors. Thermal hydraulic design of nuclear and other power systems, power generation and heat removal, power cycle, thermal hydraulic component design, overall plant design, steady state and transient operation. Letter grading.

**CM140. Introduction to Biomechanics. (4)** (Formerly numbered M140.) (Same as Biomedical Engineering CM140.) Lecture, four hours; outside study, eight hours. Requisites: courses 102 (or Civil Engineering 108), 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, two hours; outside study, six hours. Requisites: courses 20, 103, 192A. 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; outside study, eight hours. Requisites: courses 103, 150A. Advanced aspects of potential flow theory. Incompressible flow around thin airfoils ( $C_l$ ,  $C_m$ ) 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, M105A, 105D. 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.

**150P. Aircraft Propulsion Systems. (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 103, M105A. 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; outside study, eight hours. Requisites: courses 103, M105A, 105D. 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; outside study, eight 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; outside study, eight hours. Requisite: course 154S. Classical preliminary design of an aircraft, including weight estimation, performance and stability, and control consideration. Term assignment consists of preliminary design of a 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 materials. 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; outside study, eight hours. Requisites: courses 150A, 150B. Aircraft performance, flight mechanics, stability, and control; some basic ingredients needed for design of an aircraft. Effects of airplane flexibility on stability derivatives. Letter grading.

**155. Intermediate Dynamics. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 102. Axioms of Newtonian mechanics, generalized coordinates, Lagrange equation, variational principles; central force motion; kinematics and dynamics of a rigid body. Euler equations, motion of rotating bodies, oscillatory motion, normal coordinates, orthogonality relations. Letter grading.

**156A. Strength of Materials. (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 192A, Civil Engineering 108. 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.

**156B. Introduction to Elasticity. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 156A, 192A. Kinematics of deformation, strain displacement relations. Balance laws, stress tensor, principal stresses, equilibrium equations. Conservation of energy, strain energy function. Generalized Hooke's law, thermoelasticity and viscoelasticity. Stress calculation in cylinders and spheres. Plane elasticity, Airy's stress function. Stress concentration problems at holes, corners, and crack tips. Letter grading.

**157. Basic Mechanical Engineering Laboratory. (4)** Laboratory, eight hours; outside study, four hours. Requisites: courses 103, M105A, 105D, Civil Engineering 108, 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. Requisites: courses 150A, 150B, 157. 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 the field. Letter grading.

**161A. Introduction to Astronautics. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 102. Recommended: course 192A. 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; outside study, eight hours. Recommended preparation: courses 102, 105D, 150P, 161A. 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 a small spacecraft carrying a lightweight scientific payload with modest requirements for electric power, lifetime, and attitude stability. Students work in groups of three or four, with each student responsible primarily for a subsystem and for integration with the 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 HSEAS professional machine shop and tested by the students. New project carried out each year. Letter grading.

**162A. Introduction to Mechanisms and Mechanical Systems. (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 20, 102. 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, 193, 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.

**162M. Senior Mechanical Engineering Design. (4)** Lecture, one hour; laboratory, six hours; outside study, five hours. Requisites: courses 131A, 133A, 162B, 169A, 171A. Must be taken in last two academic terms of students' programs. Analytical course of a 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; outside study, eight 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.

**163C. Robotics and Motion Control Laboratory. (4)** Laboratory, eight hours; outside study, four hours. Requisite: course 171A. Hands-on experience with robotic devices and articulated machines, with emphasis on motion planning and control. Design and implementation of servo control of DC motors, gear trains, multi-axis coordination, programming of industrial robots. Final project required. Letter grading.

**164. Digital Control of Physical Systems. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 171A or Electrical Engineering 141. Analysis and design of digital control systems. Discrete-time transfer functions for physical systems. Design using classical methods: performance specifications, frequency response, root locus; compensation. Design using state-space methods: control laws, estimators. Practical considerations: roundoff, sample rate selection, computer implementation. Letter grading.

**166A. Analysis of Flight Structures. (4)** Lecture, four hours; outside study, eight hours. Requisite: Civil Engineering 108. 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; outside study, eight 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.

**168. Introduction to Finite Element Technology. (4)** Lecture, four hours; laboratory, four hours; outside study, four hours. Requisites: course 20, Civil Engineering 108, Mathematics 33A. Recommended: courses 94 or 194, 166A. Introduction to finite element method (FEM) and its matrix formulation of computer implementation of FEM concepts; practical use of FEM codes. Pre-processing and postprocessing techniques; graphics display capabilities; geometric and analysis modeling; interactive engineering systems; links with computer-aided design. Recent trends in FEM technology; design optimization. Term projects using FEM computer codes. Letter grading.

**169A. Introduction to Mechanical Vibrations. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 102, 192A, Civil Engineering 108. Recommended: Electrical Engineering 102. 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; outside study, eight hours. Requisite: course 191A or 192A or Electrical Engineering 102. 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.

**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; outside study, eight hours. 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.

**M180L. Introduction to Micromachining and Microelectromechanical Systems Laboratory. (4)** (Formerly numbered 180.) (Same as Biomedical Engineering M150L and Electrical Engineering M150L.) Lecture, three hours; laboratory, four hours; outside study, five hours. Requisites: Electrical Engineering 1 or Physics 1C, Chemistry 20A. Introduction to micromachining technologies and microelectromechanical systems (MEMS). Methods of micromachining and how these methods can be used to produce a variety of MEMS, including microstructures, microsensors, and microactuators. Students fabricate set of basic MEMS structures in hands-on microfabrication laboratory. Letter grading.

**191A. Complex Analysis and Integral Transforms. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 192A. 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.

**192A. 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. Letter grading.

**192B. Mathematics of Engineering. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 192A. Analytical methods for solving partial differential equations arising in engineering. 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.

**192C. Numerical Methods for Engineering Applications. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 20, 192A. 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.

**193. Introduction to Manufacturing Processes. (4)** Lecture, four hours; outside study, eight hours. Requisite: Materials Science 14. Mechanical behavior of materials. Manufacturing properties of metals. Surfaces of materials. Metal cutting, deformation processes, and casting. Joining and fastening. Nonconventional material-removal processes. Polymers, ceramics, and composites. Letter grading.

**194. Introduction to Geometry Modeling. (4)** Laboratory, eight hours; outside study, four hours. Requisites: courses 20, 94. 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.

**195. Computer Numerical Control and Applications. (4)** Laboratory, eight hours; outside study, four hours. Designed for juniors/seniors. Fundamentals of numerical control (NC) technology. Programming of computer numerical control (CNC) machines in NC codes and APT language and with CAD/CAM systems. NC postprocessors and distributed numerical control. Operation of CNC lathe and milling machines. Programming and machining of complex engineering parts. Letter grading.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Limited to seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Occasional field trips may be arranged. May be repeated for credit. Letter grading.

## Graduate Courses

**231A. Convective Heat Transfer Theory. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 192B. 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. Boiling and Condensation. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 150A. Phenomenological theories of boiling. Hydrodynamic instability of liquid-vapor interfaces and their application to predict maximum and minimum heat fluxes. Forced flow boiling and boiling crisis in pipes. Pool and forced flow boiling of liquid metals. Film and dropwise condensation. Letter grading.

**231D. Application of Numerical Methods to Transport Phenomena. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 132A. Numerical techniques for solving selected problems in heat and mass transfer. Applications include free convection, boundary layer flow, two-phase flow, separated flow, flow in porous media. Effects of concentration and temperature gradients, chemical reactions, radiation, electric and magnetic fields. Letter grading.

**231E. Two-Phase Flow Heat Transfer. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 150A. Generalized constitutive equations for various two-phase flow regimes. Interfacial heat and mass transfer. Equilibrium and nonequilibrium flow models. Two-phase flow instability. One-dimensional wave propagation. Two-phase heat transfer applications: convective boiling, pressure drop, critical and oscillatory flows. Letter grading.

**231F. Advanced Heat Transfer. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 231A. Advanced topics in heat transfer from current literature. Linear and nonlinear theories of thermal and hydrodynamic instability; variational methods in transport phenomena; phenomenological theories of turbulent heat and mass transport. 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.

**232B. Advanced Mass Transfer. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 132A. Formulation of general convective heat and mass transfer problem, including equilibrium and nonequilibrium chemistry. Similar and nonsimilar solutions for laminar flows; solution procedures for turbulent flows. Multicomponent diffusion. Application to hypersonic boundary layer, ablation and transpiration, cooling combustion. Letter grading.

**235A. Nuclear Reactor Theory. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 135, 192A. 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.

**239D. Seminar: Current Topics in Nuclear 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, student presentations, and projects in areas of current interest in nuclear engineering. 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; outside study, eight hours. Requisites: courses 102 (or Civil Engineering 108), 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 192B. 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, 192C. 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 192A, 192B, 192C, 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 nonequilibrium 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.

**251A. Stratified and Rotating Fluids. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 150A. Fundamentals of fluid flows with density variations or rotation, illustrated by examples with environmental, geophysical, or technical importance. Linear and finite amplitude wave motion. Flow past bodies; blocking phenomena. Viscous effects. Instabilities. Turbulent shear flows, wakes, plumes, and gravity currents. 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. Nonlinear aspects: sufficient criteria for stability, subcritical instabilities, supercritical states, transition to turbulence. Letter grading.

**252B. Statistical Theory of Turbulence. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 150A. Development of statistical methods of wide utility in engineering applied to turbulent flows. Topics include stochastic processes, kinematics of turbulence, energy decay. Kolmogorov similarity, analytical theories, and origins of Reynolds stress. 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, 192A, 192B, 192C. 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 Liapunov direct method; the Hamiltonian as a Liapunov function; nonautonomous systems; averaging and perturbation methods of nonlinear analysis; parametric excitation and nonlinear resonance. Application to mechanical systems. Letter grading.

**256A. Mechanics of Deformable Solids. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 156B, 166A. Kinematics of deformation, strain, tensors, invariance, compatibility; conservation laws; stress tensors; equations of motion; boundary conditions; constitutive equations: general theory, linearization, anisotropy; reciprocity linear isotropic elastic problems, plane and generalized plane problems; dynamic problems. Letter grading.

**M256B. Elasticity. (4)** (Same as Civil Engineering M230.) Lecture, four hours; outside study, eight hours. Requisite: course 256A. Equations of linear elasticity; uniqueness of solution; Betti/Rayleigh reciprocity; Saint-Venant's principle; simple problems involving spheres and cylinders; special techniques for plane problems. Airy's stress function, complex variable method, transform method; three-dimensional problems, torsion, entire space and half-space problems; boundary integral equations. Letter grading.

**M256C. Plasticity. (4)** (Same as Civil Engineering M239.) Lecture, four hours; outside study, eight hours. Requisites: courses 256A, 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.

**256F. Analytical Fracture Mechanics. (4)** Lecture, four hours; outside study, eight hours. Requisites: course 156A, 156B, or 166A, and Materials Science 243A. 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 256A, 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.

**258. Experimental Techniques in Fluid Mechanics and Thermal Science. (4)** Lecture, four hours; outside study, eight hours. Survey of wind tunnels and other facilities for research in fluid mechanics, aerodynamics, and heat transfer; analysis of their critical design features. Modern sensors, instruments, and measurement techniques. Signal processing and storage by analog and digital methods. 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 Variational Principles in Structural Mechanics. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 156A or 156B or 166A. Theory of linear elasticity. Calculus of variations. Principles of minimum potential energy and complementary energy. Stationary variational principles. Energy theorems. Matrix methods of structural analysis, with application to truss and frame problems. Variational principles as basis of finite element methods. Letter grading.

**261B. Methods of Computational Mechanics I. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 168, 261A. Weighted residual methods, weak forms, local trial and test functions, primal finite element method, multifield finite elements, high-performance elements and avoidance of locking, integral equation and field boundary element methods, finite volume methods, meshless methods, term projects using digital computers. Applications to aerospace and mechanical engineering structural and solid mechanics, incompressible fluid flow, and heat transfer. Letter grading.

**262. Mechanics of Intelligent Material Systems. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 156B. Recommended: 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 bimorph. Letter grading.

**263A. Electromechanics of Computer-Controlled Machines. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 171A. Recommended: courses 163A, 163B, 163C. Mechanics and control problems of computer-controlled electromechanical systems, with special emphasis on analysis of energy flow between mechanical, electrical, and control components when applied to electromagnetic and piezoelectric actuators and control systems with mechanical flexibilities. 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, 163C, 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.

**M267A. Optimum Structural Design. (4)** (Same as Civil Engineering M240.) Lecture, four hours; outside study, eight hours. Requisite: course 261A or Civil Engineering 235A. Synthesis of structural systems; analysis and design as optimization problems; techniques for synthesis and optimization; application to aerospace and civil structures. Letter grading.

**268B. Failure of Structural Systems. (4)** Lecture, four hours; outside study, eight hours. Requisite: Civil Engineering 135B. Exploration of a current area of research in depth. 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)** (Formerly numbered 270A.) (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 (LT) 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)** (Formerly numbered 270C.) (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.

**271A. Stochastic Processes in Dynamical Systems. (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 171A, 174. Probability space, random variables, stochastic processes, Brownian motion, Markov processes, stochastic integrals and differential equations, power spectral density, and Kolmogorov equations. 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. Liapunov 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.

**M280. Microelectromechanical Systems (MEMS) Fabrication. (4)** (Formerly numbered 280.) (Same as Biomedical Engineering M250A and Electrical Engineering M250A.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course M180L. 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.

**280L. Microelectromechanical Systems (MEMS) Laboratory. (4)** Lecture, one hour; laboratory, six hours; outside study, five hours. Requisite: course 180. Hands-on micromachining. Mask layout, clean room procedure, lithography, oxidation, LPCVD coatings, evaporation, wet etchings (both isotropic and anisotropic), dry etchings, process monitoring. Students fabricate simple micromechanical devices by both surface and bulk micromachining and test and characterize them. 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 M250B and Electrical Engineering M250B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course M280. 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 transducers for distributed and real-time control of engineering problems. Associated signal processing requirements for these applications. Letter grading.

**286. Molecular Dynamics Simulation. (4)** (Formerly numbered 282.) Lecture, four hours; outside study, eight hours. Preparation: computer programming experience. Requisites: courses 192A, 192C. Introduction to basic concepts and methodologies of molecular dynamics simulation. Advantages and disadvantages of this approach for various situations. Emphasis on systems of engineering interest, especially microscale fluid mechanics, heat transfer, and solid mechanics problems. Letter grading.

**287. Advanced Microelectromechanical Systems (MEMS). (4)** Lecture, four hours; outside study, eight hours. Requisite: course M280 or Electrical Engineering M250A. Silicon micromachining, nonsilicon micromachining, nonlithographic processes. Mechanical issues of MEMS structures. Driving mechanisms for microactuators, including electrostatic, electromagnetic, thermal, and fluidic actuation. Applications to mechanical and aerospace areas. Studies of MEMS products and state-of-the-art research. Letter grading.

**M291A. Analytical Methods of Engineering I. (4)** (Same as Electrical Engineering M208A.) Lecture, four hours; outside study, eight hours. Requisites: Mathematics 131A, 132. Application of abstract mathematical methods to engineering problems. Review of elements of measure and integration,  $L_2$  theory — linear spaces and operators. Eigenvalue problems. Introduction to spectral theory — elementary distribution theory. Applications to problems in engineering. Letter grading.

**M291B. Analytical Methods of Engineering II. (4)** (Same as Electrical Engineering M208B.) Lecture, four hours; outside study, eight hours. Requisite: course M291A or Electrical Engineering M208A. Application of modern mathematical methods to engineering problems. Review of spectral theory. Green's functions and eigenvalue problems for second-order ordinary differential equations and their adjoints. Discrete and continuous spectra for ordinary and partial differential equations. Initial and boundary value problems. Letter grading.

**291C. Integral Equations in Engineering. (4)** Lecture, four hours; outside study, eight hours. Requisite: Mathematics 250B. Introduction to generalized function theory and Green's functions. Conversion of partial equations to integral equations and classification of integral equations. Solution to integral equations with degenerate kernels; discussions of successive approximations and Fredholm and Hilbert/Schmidt theory. 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 194. 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.

**295. Computer-Aided Manufacturing. (4)** Lecture, four hours; outside study, eight hours. Preparation: one course from 163A, 163C, 195. 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.

**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 132A, 193. 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.



**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**474B. Concurrent Engineering. (4)** Lecture, four hours; outside study, eight hours. Requisite: Materials Science 474A. Product design, CAD/CAM, engineering analysis integration, project management. Letter grading.

**474C. Total Quality Engineering. (4)** Lecture, four hours; outside study, eight hours. Requisite: course 474B. Total quality management, statistics, probability, off-line quality control, online quality control, quality inspection. Letter grading.

**475B. Automation. (4)** Lecture, four hours; outside study, eight hours. Requisite: Materials Science 475A. Automatic control of single devices and processes for manufacturing automation. Integrated automation design. Introduction to control, digital control, and rule-based systems. Sensors and actuators used in manufacturing processes. Robotics and multi-axis machine tools. Integration of computer-controlled systems and control hardware. Letter grading.

**476. Integrated Manufacturing Engineering (IME) Seminar Series. (1)** Lecture, one hour. Lectures by engineers in executive positions to provide management perspectives in manufacturing enterprises. Current manufacturing techniques and integrated product development efforts by industry experts. S/U grading.

**478. Integrated Manufacturing Engineering (IME) Group Project Studies. (1 to 12)** Lecture, one hour; group projects, one to 12 hours. Teams of students perform detailed analyses to address problems presented and implement manufacturing solutions within industrial settings. S/U grading.

**497A-497B. Field Project in Manufacturing Engineering. (4-4)** Lecture, two hours. Teams of students perform detailed system analysis and plan design of manufacturing engineering systems at various manufacturing plants. In Progress and S/U or letter 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.

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### Chairs

Alan M. Fogelman, M.D. (*Castera Professor*),

*Executive Chair*

Jan H. Tillisch, 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., *Executive Vice Chair, Research*

Robert M. Strieter, M.D., *Vice Chair, Hospitalist Program*

## 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 the second, third, and fourth 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 the *Announcement of the UCLA School of Medicine*.

## Medicine

### Upper Division Courses

**190C. Health Outreach and Education to At-Risk Populations. (4)** Discussion, two hours; fieldwork, six to eight hours. Requisites: courses M190A, M190B. Processes involved with designing, delivering, and assessing community health education programs, under supervision of professional staff. P/NP or letter grading.

**M196B. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5)** (Same as Biomedical Engineering M196B, Computer Science M196B, and Cybernetics M196B.) Lecture, four hours; discussion, one hour; laboratory, two hours. Requisite: Electrical Engineering 102 or Mathematics 115A. Introduction to dynamic system modeling, compartmental modeling, and computer simulation methods for studying biomedical systems. Basics of numerical simulation algorithms, translating biomodeling goals and data into mathematic models and implementing them for simulation and analysis. Modeling software exploited for class assignments in PC laboratory. Letter grading.

**199. Special Studies. (2 to 8)** Individual projects carried out under direction of a faculty member. Special studies in medicine with appropriate objectives, readings, laboratory work, or other assignments designed for proper training of students. P/NP or letter grading.

## Graduate Courses

**M215. Interdepartmental Course: Tropical Medicine. (2)** (Same as Microbiology and Immunology M215, 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.

**M235. Neuroactive Peptides: Molecular Biology to Function. (2)** (Same as Neurobiology M235 and Neuroscience M246.) Presentation of current knowledge of gut and brain peptides by surveying their chemistry, anatomy, and physiology. Experimental approaches used to study biologically active peptides. Review of current information about each of the major gut and brain peptides. S/U or letter grading.

**M260A-M260B. Methodology in Clinical Research I, II. (6-6)** (Same as Biomathematics M260A-M260B.) Lecture, three hours; discussion, two 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.

**M260C. Methodology in Clinical Research III. (2)** (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 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, multi-compartmental, 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. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

## MEDICINE

*School of Medicine*

UCLA  
37-120 Center for the Health Sciences  
Box 951736  
Los Angeles, CA 90095-1736

(310) 825-6275

**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 the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the relevant public agencies. Letter grading.

## MICROBIOLOGY AND IMMUNOLOGY

*School of Medicine*

UCLA  
1602 Molecular Sciences  
Box 951489  
Los Angeles, CA 90095-1489  
(310) 206-5148  
<http://www.mimg.ucla.edu/>

Sherie L. Morrison, Ph.D., *Chair*

### Professors

Arnold J. Berk, M.D.  
Benjamin Bonavida, Ph.D.  
David A. Campbell, Ph.D.  
Irvin S.Y. Chen, Ph.D.  
Asim Dasgupta, Ph.D.  
James S. Economou, M.D., Ph.D.  
Frederick A. Eiserling, Ph.D.  
John L. Fahey, M.D.  
Lawrence T. Feldman, Ph.D.  
C. Fred Fox, Ph.D.  
Robert P. Gunsalus, Ph.D.  
Marcus A. Horwitz, M.D.  
Patricia J. Johnson, Ph.D.  
H. Ronald Kaback, M.D.  
Aldons J. Lusis, Ph.D.  
Otoniel Martínez-Maza, Ph.D.  
Jeffery F. Miller, Ph.D.  
Robert L. Modlin, M.D.  
Sherie L. Morrison, Ph.D. (*M. Philip Davis Professor of Microbiology and Immunology*)  
Debi P. Nayak, B.V.Sc., Ph.D.  
Larry Simpson, Ph.D.  
Stephen T. Smale, Ph.D.  
Karl O. Stetter, Ph.D.  
Ronald H. Stevens, Ph.D.  
Fuyuhiko Tamanoi, Ph.D.  
Jerrold A. Turner, M.D., D.T.M.H.  
Randolph Wall, Ph.D.  
Bernadine J. Wisniewski, Ph.D.  
Owen N. Witte, M.D. (*President's Professor of Developmental Immunology*)  
Jerome Zack, Ph.D.

### Professors Emeriti

Dexter H. Howard, Ph.D.  
James N. Miller, Ph.D.

### Associate Professors

Douglas L. Black, Ph.D.  
David Chang, M.D., Ph.D.  
M. Carrie Miceli, Ph.D.  
Robert W. Simons, Ph.D.

### Assistant Professors

Genhong Cheng, Ph.D.  
Kent L. Hill, Ph.D., *in Residence*  
Beth Lazazzera, Ph.D.  
Benhur Lee, M.D.  
Kohnosuke Mitani, Ph.D.

### Adjunct Associate Professors

David Blanco, Ph.D.  
Imke Schroeder, Ph.D.

## Scope and Objectives

The desire to explain natural phenomena, including disease, is the basis for most students' interest in biological sciences. The Microbiology and Immunology Department in the UCLA School of Medicine is disease oriented. The emphasis is on pathogenesis of infection, malignancy, and immunological response of the host to these changes of immunological dysfunction. All tools available from molecular biology to morphological methods are applied to these problems.

Microbiology and immunology are interwoven disciplines. Microbiology has played a central role in all aspects of biological sciences, including morphogenesis, genetics, developmental biology, physiology, biochemistry, and cell biology. An understanding of microbiology is thus fundamental to biological research. Immunology, once a branch of microbiology, is now a major biological discipline and a basic component of disease-oriented microbiology.

The graduate program in microbiology and immunology is closely associated with advanced (postdoctoral) training in research, clinical and public health diagnostic work, and industrial applications. Careers in microbiology and immunology include industrial appointments and clinical laboratory supervision in both government agencies and private enterprises, and academic positions.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Microbiology and Immunology offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Microbiology and Immunology.

## Admission

The department does not accept students whose sole objective is a master's degree. Admission to the Ph.D. program is through UCLA ACCESS to Programs in Molecular, Cellular,

and Integrative Life Sciences. Information may be obtained from UCLA ACCESS, 172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu).

Under very special circumstances, prospective students may obtain permission to apply directly to the department. Information is available from the graduate adviser.

## Master's Degree

The M.S. degree is offered through the comprehensive examination plan, which consists of successful completion of both the Ph.D. written and oral qualifying examinations. The department does not have specific requirements for the M.S. degree, as it is rarely conferred. A decision on conferral is made by the Graduate Affairs Committee. Nine courses, with at least five at the graduate level, are required.

## Doctoral Degree

Required Ph.D. coursework includes a biological chemistry course in macromolecular structure, one of two required courses in microbiology and immunology (cellular biology of host/pathogen interactions) and biological chemistry (cell structure, signaling, and differentiation), and two seminar courses related to cell and molecular biology. Also required are one of three courses from a list in microbiology and immunology and one additional lecture course in the field of molecular life sciences.

A minimum of two quarters of teaching assistantship is required.

Written and oral qualifying examinations are required. The written examination is in the form of a mini-grant proposal and focuses on one or a few specific questions asked by the student's current research project.

The University Oral Qualifying Examination consists of an oral presentation of the written research proposal, a discussion of the student's own research plans and results, and an examination on general knowledge of microbiology and immunology. Once students have completed the dissertation, they are required to present an overview of their dissertation work in an open seminar at which their committee is present.

# Microbiology and Immunology

## Upper Division Courses

**CM133. Principles, Practices, and Policies in Biotechnology. (2)** (Same as Biological Chemistry CM133, Biomedical Physics CM133, Chemical Engineering CM133, Chemistry CM133, Microbiology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

**199. Directed Individual Research Studies in Microbiology and Immunology. (2 to 8)** Preparation: submission of written research proposal. Limited to seniors. Individual research projects carried out under direction of a professor.

**199H. Honors Thesis. (4 or 8 units)** Tutorial, to be arranged. Limited to microbiology and molecular genetics honors program students. Directed individual research for departmental honors; students must have a faculty sponsor. Three sequential 199H terms required. Progress report must be submitted to faculty sponsor at end of each of the first two terms, with honors thesis submitted at end of final term. Maximum of 4 units may be applied toward the microbiology and molecular genetics major. P/NP or letter grading.

## Graduate Courses

**201. Microbiology and Immunology. (8)** Lecture/laboratory. Limited to medical students. Study of infectious agents of human disease, with emphasis on host/parasite relationships and immunologic phenomena in immunity and disease, including identification of bacteria, fungi, animal parasites, and viruses, and principles of prevention, treatment, and laboratory diagnosis.

**202A. Fundamentals of Immunology. (2)** Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cell-mediated immune functions.

**202B. Medical Bacteriology. (2)** Characteristics of bacteria rickettsiae and chlamydiae associated with diseases of humans; host/parasite interactions and immunity; identification and laboratory diagnosis; principles of prevention and treatment; introduction to microbial genetics as it pertains to pathogenicity.

**202C. Medical Virology. (2)** Biological properties of animal viruses; replication; methods of detection; interactions with host cells and multicellular hosts, introduction to tumor viruses.

**202D. Medical Mycology and Parasitology. (2)** Morphology, physiology, and pathogenicity of fungi which cause human and animal diseases. Study of morphology, biology, host/parasite relationship, public health problems, and control of protozoa, helminths, and arthropods parasitic in and on humans and animals.

**M208. Molecular Biology of Animal Viruses. (4)** (Same as Molecular, Cell, and Developmental Biology CM279.) Lecture, three hours. Preparation: courses in general biochemistry and general microbiology, including virology. Recommended for advanced undergraduate students with a major 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 the molecular mechanism involved in control and regulation of replication, transcription, and translation of viral genome and its complex interaction with host.

**M215. Interdepartmental Course: Tropical Medicine. (2)** (Same as Medicine M215, 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.

**M217. Basic Science and Strategies of Gene Therapy. (2)** (Same as Microbiology M217 and Molecular, Cell, and Developmental Biology M217.) Preparation: basic knowledge of virology. Basic science and viral vector systems utilized for gene therapy. S/U grading.

**M223. Membrane Research Seminar. (2)** (Same as Microbiology M223.) Critical discussions of current literature in membrane research, with emphasis on relationship between structure and function in lipid bilayers. May be repeated for credit.

**M226A-M226B. Principles of Microbial Pathogenesis. (4-4)** (Same as Microbiology M226A-M226B and Molecular, Cell, and Developmental Biology M226A-M226B.) Lecture, one hour; discussion, three hours. Requisites: courses 202A, 202B, 202C, 202D. Lecture/discussion format designed to analyze basic pathogenesis of infections. Emphasis on molecular and cellular approaches to understand host-microbial interaction.

**M226A. Bacterial and Mycotic Infections; M226B. Parasitic and Viral Infections.**

**M227. Molecular Genetics of Bacteria and Phage. (4)** (Same as Chemistry M227, Microbiology M227, and Molecular, Cell, and Developmental Biology CM207.) Lecture, three hours; discussion, one hour. Requisite: Biological Chemistry CM253 or Chemistry CM253. Molecular and cellular biology of bacteria and bacteriophages.

**M229. Cellular Biology of Host/Pathogen Interactions. (6)** (Same as Microbiology M229 and Molecular, Cell, and Developmental Biology M226A-M226B.) Lecture, four hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Molecular and cellular biology of pathogens, eukaryotic host cells, and interaction between pathogens and hosts.

**CM233. Principles, Practices, and Policies in Biotechnology. (2)** (Formerly numbered M233.) (Same as Biological Chemistry CM233, Biomedical Physics CM233, Chemical Engineering CM233, Chemistry CM233, Microbiology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. S/U or letter grading.

**M234. Ethics and Accountability in Biomedical Research. (2)** (Same as Microbiology CM234.) Designed for graduate students and undergraduates who have credit for a 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. S/U grading.

**M240. Cytokines and Reproductive Biology. (2)** (Same as Microbiology M240 and 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.

**M241. Use of the Computer in Biology. (2)** (Same as Human Genetics M201 and Molecular, Cell, and Developmental Biology M201.) Lecture, two hours; laboratory, one hour. Introduction to use of IBM PC microcomputer and VAX minicomputer in biological research. S/U grading.

**M246. Computer Analysis of Genetic Organization. (4)** (Same as Microbiology M246 and Molecular, Cell, and Developmental Biology M246.) Lecture, two hours; laboratory, six hours. Requisite: Life Sciences 4 or Microbiology C159. Lectures and laboratory instruction in contemporary procedures for analysis of nucleic acid and protein sequence data with the computer. No prior computer experience necessary; students gain both general and specialized facility with IBM PC and Digital VAX computers.

**250. Cell and Molecular Biology. (4)** Lectures and student seminar presentations. Review of selected current topics in molecular and cellular biology. Topics include recent experimental results on organization, expression, and regulation of genes in eukaryotic cells. S/U or letter grading.

**M252. Seminar: Microbial Pathogenesis. (2)** (Same as Microbiology M252.) Limited to 10 students. Student presentations and critical discussion of current literature on various aspects of microbial pathogenesis. May be repeated for credit. S/U or letter grading.

**M256. Seminar: Viral Oncology. (2)** (Same as Pathology M256.) Advanced research seminar designed to consider current developments in the field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation.

**M260. Immunology Forum. (2)** (Same as Microbiology M260.) Requisite: course M185A. Broad range of current topics in immunology presented and discussed at advanced frontier level. Continuing UCLA-wide, general graduate-level seminar involving faculty, postdoctoral immunologists, and graduate students from diverse departments. S/U grading.

**M261. Molecular and Cellular Immunology. (6)** (Same as Microbiology M261 and Molecular, Cell, and Developmental Biology CM261.) Lecture, four and one-half hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Comprehensive course for graduate students and selected undergraduates covering fundamentals and recent advances in molecular and cellular immunology. Lectures supplemented with discussion section focusing on reading and analysis of primary research articles. Oral presentation required. S/U or letter grading.

**M262A. Seminar: Current Topics in Immunobiology of Cancer. (2)** (Same as Microbiology M262A.) 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. May be repeated for credit. S/U or letter grading.

**M262D. Selected Topics in Immunology. (2)** (Same as Microbiology M262D.) Student participation in discussions related to various topics in immunology. May be repeated for credit. S/U or letter grading.

**M263. Molecular and Cellular Immunology Seminar. (2)** (Same as Microbiology M263.) Critical discussions of current literature in T and B cell immunology, with emphasis on molecular mechanisms.

**M268. Molecular Parasitology. (4)** (Same as Microbiology CM268.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Survey of parasitic protozoa not only as parasites which interact with a 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.

**271. Immunology Overview. (2)** Lecture, two hours; discussion, one hour. Designed for graduate students. Identification of major components of immune system, their modes of active maturation and regulation, cytokine signaling systems, principal effector mechanisms, and immune contributions to autoimmunity and hypersensitivity.

**274. Interactions of Immune System and Nervous System. (2)** Lecture, one hour; discussion, one hour. Designed for 10 graduate and postdoctoral immunology, behavioral sciences, and neurosciences students. Study of existing knowledge of interrelationships between central and peripheral nervous system and immune system. Review of research on central nervous system effects on immune function and vice versa, as well as human and animal studies linking stress to immune changes.

**M275. Biology of HIV. (4)** (Same as Epidemiology M228.) Lecture, three hours. Preparation: two biology courses. Requisites: Biostatistics 100A, Epidemiology 100. Overview of virologic and immunologic aspects of HIV disease for epidemiology or other health disciplines. Brief discussion of clinical manifestations and biosafety in the laboratory. Letter grading.

**M285. Intermediate Immunology. (4)** (Same as Microbiology CM285 and Molecular, Cell, and Developmental Biology CM285.) Lecture, three hours; discussion, one hour. Requisite: course M185A or Molecular, Cell, and Developmental Biology C180. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A.

**M294. Molecular Basis of Cancer. (4)** (Same as Pathology M294.) Lecture, three hours. Requisites: course M229, Biological Chemistry CM253, CM267, Neurobiology M209A. Fundamental biological, genetic, and molecular process involved in genesis and growth of cancer cells and diagnosis, characterization, and treatment of cancer.

**M294L. Cancer Histopathology Laboratory. (2)** (Same as Microbiology M294L and Pathology M294L.) Lecture, one hour; laboratory, two hours. Requisites: courses M229 or Neurobiology M209A, M294 (preferred) or M293, Biological Chemistry CM253, CM267. Histopathological approaches to cellular or tissue alterations commonly observed in tumor progression. Introduction to characteristics that clearly distinguish between benign and malignant neoplasia, precancerous stages, carcinoma in situ, and frankly invasive and metastatic neoplasia.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**596. Directed Individual Study or Research. (2 to 8)** Laboratory, to be arranged. S/U grading.

**597. Preparation for Ph.D. Qualifying Examinations. (2 to 6)** Tutorial, to be arranged.

**599. Research for and Preparation of Ph.D. Dissertation. (2 to 12)** Research on an original problem in the field of microbiology and immunology to be selected by graduate student with advice of adviser. Fields of study may be in bacteriology, immunology, mycology, parasitology, virology, tumor biology, or cell biology.

## MICROBIOLOGY AND MOLECULAR GENETICS

College of Letters and Science

UCLA  
1602 Molecular Sciences  
Box 951489  
Los Angeles, CA 90095-1489  
(310) 825-8482  
<http://www.mimg.ucla.edu/>

Sherie L. Morrison, Ph.D., *Chair*

### Professors

Arnold J. Berk, M.D.  
Benjamin Bonavida, Ph.D.  
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Irvin S.Y. Chen, Ph.D.  
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H. Ronald Kaback, M.D.  
Aldons J. Lusis, Ph.D.  
Otoniel Martinez-Maza, Ph.D.  
Jeffery F. Miller, Ph.D.

Jeffrey H. Miller, Ph.D.  
Robert L. Modlin, M.D.  
Sherie L. Morrison, Ph.D. (*M. Philip Davis Professor of Microbiology and Immunology*)  
Debi P. Nayak, B.U.Sc., Ph.D.  
Dan Ray, Ph.D.  
Larry Simpson, Ph.D.  
Stephen Smale, Ph.D.  
Karl O. Stetter, Ph.D.  
Ronald H. Stevens, Ph.D.  
Fuyuhiko Tamanoi, Ph.D.  
T. Randolph Wall, Ph.D.  
Bernadine J. Wisnieski, Ph.D.  
Owen N. Witte, M.D. (*President's Professor of Developmental Immunology*)  
Jerome Zack, Ph.D.

### Associate Professors

Douglas L. Black, Ph.D.  
David D. Chang, M.D., Ph.D.  
M. Carrie Miceli, Ph.D.  
Robert W. Simons, Ph.D.

### Assistant Professors

Genhong Cheng, Ph.D.  
Kent L. Hill, Ph.D., *in Residence*  
Beth A. Lazzizzera, Ph.D.  
Benhur Lee, M.D.  
Kohnosuke Mitani, Ph.D.

### Lecturer

Ralph W. Robinson, Ph.D.

### Adjunct Associate Professors

David Blanco, Ph.D.  
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 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, 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.

Note: Several upper division and graduate courses in this department are multiple-listed

with those in the Microbiology and Immunology Department in the UCLA School of Medicine.

## Undergraduate Study

### Microbiology and Molecular Genetics 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.

All core curriculum courses must be passed with a grade of C– or better and 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

To be admitted as Microbiology and Molecular Genetics majors, transfer students 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.

Students intending to major in Microbiology and Molecular Genetics may seek counseling and petition to enter the major in the Student Affairs Office, 1602B Molecular Sciences.

### The Major

*Required:* Microbiology and Molecular Genetics 101, 101L, 102, 102L, C106, C159, 185A; Chemistry and Biochemistry 153A, 153C, 153L; four additional upper division courses from the departmental list (available in the Student Affairs Office and at <http://www.mimg.ucla.edu>) or from related departments selected with approval of the faculty adviser. All major courses must be taken for a letter grade, with a minimum overall 2.0 grade-point average in the major. A maximum of 4 units of Microbiology and Molecular Genetics 199 or Microbiology and Immunology 199, taken for a letter grade, may be applied toward the major. Credit for 199 courses from other departments may not be applied.

## 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 of Microbiology and Molecular Genetics or the Department of Microbiology and Immunology. The core of the program consists of three terms (minimum) of Microbiology and Molecular Genetics 199H research, culminating in a thesis. If the thesis is accepted by the honors committee, students are awarded the bachelor's degree with departmental honors. The department also offers an honors seminar course each Winter Quarter which is required for the honors program. For further information, contact the Student Affairs Office, 1602B Molecular Sciences.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Microbiology and Molecular Genetics offers the Master of Science (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Microbiology and Molecular Genetics.

## Admission

Applicants to the M.A. program must obtain faculty sponsorship before submitting an application and, in addition to the other application materials (see Ph.D. application procedures), must submit a five-page research proposal describing the thesis problem. Information and the proposal format are available from the graduate adviser's office.

The department accepts relatively few students whose objective is an M.A. degree and does not encourage applications at this level.

Admission to the Ph.D. program is through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences. Information may be obtained from UCLA ACCESS, 172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu).

Under special circumstances, new Ph.D. students may be admitted directly. Such applicants must have completed an undergraduate major in microbiology or a related field with superior scholastic achievement and should have preparation in calculus, physics, biology, genetics, physical chemistry, organic chemistry, biochemistry, and microbiology. In certain cases, on recommendation of the graduate adviser and the departmental admissions committee, background deficiencies may be remedied concurrently with graduate studies.

The Graduate Record Examination (GRE) General Test is required for admission, and the Subject Test in Biochemistry, Cell and Molecular Biology, Chemistry, or Biology is recommended. Three letters of recommendation from individuals who can provide direct knowledge of both the applicant's academic record and potential for superior achievement in independent research are required. The GRE scores and letters should be submitted directly to the department. The department generally accepts students in Fall Quarter only. Under exceptional circumstances the Graduate Admissions Committee may agree to admit a student in Winter or Spring Quarter. Completion of a master's degree is not normally required.

## Master's Degree

The M.S. degree is offered through the thesis plan. A total of nine courses is required, five at the graduate level. Required courses are specified on an individual basis by the initial advisory committee which generally becomes the thesis committee.

Teaching is a requirement for the degree but in certain cases may be waived by the graduate adviser or thesis committee.

## Doctoral Degree

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, and recombinant DNA research. Students are prepared for creative research in all of these fields. The objective of the department is to provide depth and training in independent study and research for graduate students.

Required formal lecture/laboratory courses include (1) biochemistry: a required chemistry course in macromolecular structure and (2) cell biology: a required chemistry or microbiology course in cell biology.

A total of 8 additional units of 200-level coursework to be selected from at least two of four subject areas (general microbiology, host/parasite interactions and virology, immunology, and genetics and regulation) is required. The courses may be selected to remedy background deficiencies or to deepen knowledge of a particular subject area. There is a list of acceptable courses.

Students must enroll in five seminar courses, in which they read and report on current scientific research literature, during their first five years of residence. During the first 12 months in residence, students rotate for one quarter each through three laboratories. There is a required first-year research proposal.

All Ph.D. candidates are required to serve as teaching assistants or in some other formal teaching capacity for two quarters.

Written and oral qualifying examinations are required. The written examination consists of a research proposal. Before presentation to the doctoral committee, students are encouraged to present the proposal before a student seminar group.

Following successful completion of the written proposal, students take the University Oral Qualifying Examination, which covers both their proposal and general scientific background.

## Microbiology and Molecular Genetics

### Lower Division Courses

**6. Introduction to Microbiology. (4)** Lecture, three hours. Not open for credit to students with credit for course 101 or Life Sciences 2. Designed for nontechnical 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, one hour. Recommended preparation: course 6 or Biology 2 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. Applied Medical Microbiology. (5)** Lecture, three hours; laboratory, five hours. Enforced requisite: Life Sciences 2. Designed for students interested in medical microbiology and those going into allied health professions. Not open for credit to students with credit for course 101; does not substitute for course 101 in the major. Introduction to biology of bacteria and their role in diseases of humans. 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

**101. Fundamentals of Bacteriology. (5)** Lecture, three hours; discussion, one hour; computer/multimedia laboratory, one hour. Requisites: Chemistry 153A, Life Sciences 3, 4. Recommended corequisite: course 101L. Historical foundations of the science; introduction to bacterial structure, physiology, biochemistry, genetics, and ecology. Letter grading.

**101L. Bacteriology Laboratory. (3)** Discussion, one hour; laboratory, six hours. Requisites: Chemistry 153A, Life Sciences 3, 4. Corequisite: course 101 (or 101 with a grade of C or better if previously taken). General laboratory techniques and theory in microbiology and molecular genetics, including isolation and identification of bacterial species from nature, transformation of *Escherichia coli*, Ames test, analysis of auxotrophic mutants. Letter grading.

**102. Introductory Virology. (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, with grades of C or better. Recommended: Chemistry 153A. Recommended corequisite: course 102L. Biological properties of bacterial and animal viruses, replication, methods of detection, interactions with host cells and multicellular hosts. Letter grading.

**102L. Virology Laboratory. (2)** Discussion, one hour; laboratory, four hours. Prerequisites: Life Sciences 3, 4, with grades of C or better. Corequisite: course 102 (or 102 with a grade of C or better if previously taken). General laboratory techniques and theory in virology, including complementation, recombination, transduction, experiments in animal virology using tissue culture. Letter grading.

**C106. Molecular and Genetic Basis of Bacterial Infections. (4)** Lecture, three hours; discussion, one hour. Prerequisites: course 101, Life Sciences 4. Biochemical and genetic properties of bacteria which afford potential for pathogenicity. Epidemiology and transmission of disease; chemotherapy and drug resistance. Regulation of virulence factors. Concurrently scheduled with course C206.

**C111. Biology of Prokaryotic Cell. (4)** Lecture, three hours; discussion, one hour. Prerequisites: course 101, Chemistry 153C. Review of current knowledge of structural organization of prokaryotic cells. Emphasis on isolation methods, chemical composition, structure and assembly of subcellular components, including membranes, walls, flagella, ribosomes, and viruses. Concurrently scheduled with course C211.

**C112. Molecular Biology of Bacterial Growth. (4)** Lecture, three hours; discussion, one hour. Prerequisites: course 101, Chemistry 153A, 153L, Life Sciences 4. Analysis of growth, development, and physiological adaptations of bacteria, with emphasis on their molecular and genetic basis. Analysis of complex regulatory mechanisms that underlie cell cycle and other multicomponent cellular systems from perspective of contemporary research techniques. Concurrently scheduled with course C212.

**120. Advanced Techniques in Microbiology. (4)** Lecture, one hour; laboratory, six hours. Prerequisites: courses 101 and 101L, with grades of B or better. Techniques used in research laboratories in microbiology/biotechnology field. Introduction to current techniques. Practical and theoretical background of these techniques. Interested qualifying students to be given opportunity to participate in summer internships.

**CM133. Principles, Practices, and Policies in Biotechnology. (2)** (Same as Biological Chemistry CM133, Biomedical Physics CM133, Chemical Engineering CM133, Chemistry CM133, Microbiology and Immunology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

**C134. Ethics and Accountability in Biomedical Research. (2)** Designed for graduate students and undergraduates who have credit for a 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 CM234. 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. Prerequisites: Life Sciences 3, 4. Strongly recommended: Molecular, Cell, and Developmental Biology 100 or C139 or M140. 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.

**C159. Advanced Molecular Genetics. (5)** Lecture, three hours; discussion, two hours. Prerequisites: Chemistry 153A, Life Sciences 4. Integrated conceptual analysis of classical and modern molecular genetics of microbes, with coverage of key papers from elucidation of genetics code to the present. Essential elements of experimental design, analysis of results, and scientific logic. Concurrently scheduled with course C259.

**CM165. Bioprocess Technology. (4)** (Same as Chemical Engineering CM165.) Lecture, two hours; laboratory, eight hours. Prerequisites: course 101, Chemical Engineering C115, Chemistry 156. Current bioprocess technologies involving microorganisms, especially extremophiles and animal cells, as vehicles for macromolecular and biomaterial production. Applications to processes including mineral leaching, remediation, and bioconversion. Emphasis on exploiting properties of diverse microorganisms. Exercises may vary yearly. Concurrently scheduled with course CM265.

**C168. Molecular Parasitology. (4)** (Formerly numbered CM168.) Lecture, three hours; discussion, one hour. Prerequisites: Life Sciences 3, 4. Survey of parasitic protozoa not only as parasites which interact with a 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. Concurrently scheduled with course CM268. Letter grading.

**C174. Advanced Topics in Molecular Parasitology. (2)** (Formerly numbered Molecular, Cell, and Developmental Biology C174F.) Lecture, two hours. 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 C222. Letter grading.

**M176. Advanced Topics in Animal Virus/Host Interaction. (4)** (Same as Molecular, Cell, and Developmental Biology M176.) Lecture, four hours; discussion, one hour. Prerequisites: Life Sciences 3, 4. Recommended: course 102 or Chemistry 153B or Molecular, Cell, and Developmental Biology 144. Recent developments in fields of interaction of hosts with animal viruses. Emphasis on molecular and cellular approaches to understand host/virus interaction at level of entry, replication, assembly, and morphogenesis, as well as host defense and viral pathogenesis. P/NP or letter grading.

**185A. Immunology. (5)** (Formerly numbered M185A.) Lecture, three hours; discussion, 90 minutes. Prerequisites: Life Sciences 3, 4. Recommended prerequisites or corequisites: Chemistry 153A, 153L, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Not open for credit to students with credit for course M261 or Molecular, Cell, and Developmental Biology C180. Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cellular immune reactions. Letter grading.

**CM185B. Intermediate Immunology. (4)** (Same as Molecular, Cell, and Developmental Biology CM185B.) Lecture, three hours; discussion, one hour. Prerequisite: course M185A or Molecular, Cell, and Developmental Biology C180. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM285.

**192. Teaching Practicum in Microbiology and Molecular Genetics. (1 to 4)** Tutorial, to be arranged. Limited to junior/senior Microbiology and Molecular Genetics majors. Training and supervised practicum for advanced undergraduates in teaching courses related to microbiology and molecular genetics. Students assist in preparation of materials and development of innovative programs under guidance of faculty and teaching assistants. Consult Undergraduate Office for further information. P/NP or letter grading.

**195. Proseminar. (2)** Designed for seniors. Discussion by small groups of students and instructor on current research literature. Topics vary each year. May be taken only once for credit in the major but may be repeated for University credit.

**199. Special Studies in Microbiology and Molecular Genetics. (2 to 8)** Preparation: minimum 3.0 grade-point average in premajor and major. Prerequisites: Chemistry 153A, 153L. Limited to junior/senior Microbiology and Molecular Genetics majors. Individual research project under direct supervision of departmental faculty member. Copy of report describing the research must be filed with Student Affairs Office by end of term. First 4 units must be taken P/NP; 12 additional units, 4 of which may be applied toward the major, may be taken for a letter grade.

**199H. Honors Thesis. (4 or 8)** Limited to microbiology and molecular genetics honors program students. Directed individual research for departmental honors; students must have a faculty sponsor. Three sequential 199H terms required. Progress report must be submitted to faculty sponsor at end of each of the first two terms, with honors thesis submitted at end of final term. Maximum of 4 units may be applied toward the major, with balance applied toward B.S. degree requirements.

## Graduate Courses

**C206. Molecular and Genetic Basis of Bacterial Infections. (4)** Lecture, three hours; discussion, one hour. Prerequisites: course 101, Life Sciences 4. Biochemical and genetic properties of bacteria which afford potential for pathogenicity. Epidemiology and transmission of disease; chemotherapy and drug resistance. Regulation of virulence factors. Concurrently scheduled with course C106.

**C211. Biology of Prokaryotic Cell. (4)** Lecture, three hours; discussion, one hour. Prerequisites: course 101, Chemistry 153C. Review of current knowledge of structural organization of prokaryotic cells. Emphasis on isolation methods, chemical composition, structure and assembly of subcellular components, including membranes, walls, flagella, ribosomes, and viruses. Concurrently scheduled with course C111. Term paper on research topic selected by each graduate student required.

**C212. Molecular Biology of Bacterial Growth. (4)** Lecture, three hours; discussion, one hour. Prerequisites: course 101, Chemistry 153A, 153L, Life Sciences 4. Analysis of growth, development, and physiological adaptations of bacteria, with emphasis on their molecular and genetic basis. Analysis of complex regulatory mechanisms that underlie cell cycle and other multicomponent cellular systems from perspective of contemporary research techniques. Concurrently scheduled with course C112.

**M217. Basic Science and Strategies of Gene Therapy. (2)** (Same as Microbiology and Immunology M217 and Molecular, Cell, and Developmental Biology M217.) Preparation: basic knowledge of virology. Basic science and viral vector systems utilized for gene therapy. S/U grading.

**C222. Advanced Topics in Molecular Parasitology. (2)** (Formerly numbered Molecular, Cell, and Developmental Biology C222F.) Lecture, two hours. 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.

**M223. Membrane Research Seminar. (2)** (Same as Microbiology and Immunology M223.) Critical discussions of current literature in membrane research, with emphasis on relationship between structure and function in lipid bilayers. May be repeated for credit.

**M226A-M226B. Principles of Microbial Pathogenesis. (4-4)** (Same as Microbiology and Immunology M226A-M226B and Molecular, Cell, and Developmental Biology M226A-M226B.) Lecture, one hour; discussion, three hours. Prerequisites: Microbiology and Immunology 202A, 202B, 202C, 202D. Lecture/discussion format designed to analyze basic pathogenesis of infections. Emphasis on molecular and cellular approaches to understand host-microbial interaction. **M226A.** Bacterial and Mycotic Infections; **M226B.** Parasitic and Viral Infections.

**M227. Molecular Genetics of Bacteria and Phage. (4)** (Same as Chemistry M227, Microbiology and Immunology M227, and Molecular, Cell, and Developmental Biology CM207.) Lecture, three hours; discussion, one hour. Prerequisite: Biological Chemistry CM253 or Chemistry CM253. Molecular and cellular biology of bacteria and bacteriophages.

**M229. Cellular Biology of Host/Pathogen Interactions. (6)** (Same as Microbiology and Immunology M229 and Molecular, Cell, and Developmental Biology M229.) Lecture, four hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Molecular and cellular biology of pathogens, eukaryotic host cells, and interaction between pathogens and host.

**CM233. Principles, Practices, and Policies in Biotechnology. (2)** (Formerly numbered M233.) (Same as Biological Chemistry CM233, Biomedical Physics CM233, Chemical Engineering CM233, Chemistry CM233, Microbiology and Immunology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. S/U or letter grading.

**CM234. Ethics and Accountability in Biomedical Research. (2)** (Same as Microbiology and Immunology M234.) Designed for graduate students and undergraduates who have credit for a 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 Microbiology and Immunology M240 and 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)** 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.

**M246. Computer Analysis of Genetic Organization. (4)** (Same as Microbiology and Immunology M246 and Molecular, Cell, and Developmental Biology M246.) Lecture, two hours; laboratory, six hours. Requisite: course C159 or Life Sciences 4. Lectures and laboratory instruction in contemporary procedures for analysis of nucleic acid and protein sequence data with the computer. No prior computer experience necessary; students gain both general and specialized facility with IBM PC and Digital VAX computers.

**M248. Molecular Genetics. (6)** (Same as Biological Chemistry CM248, Human Genetics CM248, and Molecular, Cell, and Developmental Biology CM248.) Lecture, five hours. Requisite: Biological Chemistry CM153G or Chemistry CM153G. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Letter grading.

**250. Seminar: Microbial Metabolism. (2)** Discussion and student presentations of recent work in areas of genetic regulation and physiology of bacterial metabolism.

**251. Seminar: Regulation and Differentiation. (2)** S/U grading.

**M252. Seminar: Microbial Pathogenesis. (2)** (Same as Microbiology and Immunology M252.) Limited to 10 students. Student presentations and critical discussion of current literature on various aspects of microbial pathogenesis. May be repeated for credit. S/U or letter grading.

**254. Pre-mRNA Processing in Cellular Metabolism and Differentiation. (2)** Seminar, three hours. Designed for graduate students. Reading and discussion of papers dealing with mRNA metabolism and posttranscriptional control of gene expression. From detailed RNA chemistry and autocatalytic reactions to more recently described and less understood systems, topics include RNA catalysis, general splicing and spliceosome assembly, splicing regulation, polyadenylation and three prime end formation, mRNA stability, mRNA transport, RNA editing and modification, and RNA localization. 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. Strongly recommended: Molecular, Cell, and Developmental Biology 100 or C139 or M140. 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 CM156. Independent research project required of graduate students. Letter grading.

**C259. Advanced Molecular Genetics. (5)** Lecture, three hours; discussion, two hours. Requisites: Chemistry 153A, Life Sciences 4. Integrated conceptual analysis of classical and modern molecular genetics of microbes, with coverage of key papers from elucidation of genetics code to the present. Essential elements of experimental design, analysis of results, and scientific logic. Concurrently scheduled with course C159.

**M260. Immunology Forum. (2)** (Same as Microbiology and Immunology M260.) Requisite: course M185A. Broad range of current topics in immunology presented and discussed at advanced frontier level. Continuing UCLA-wide, general graduate-level seminar involving faculty, postdoctoral immunologists, and graduate students from diverse departments. S/U grading.

**M261. Molecular and Cellular Immunology. (6)** (Same as Microbiology and Immunology M261 and Molecular, Cell, and Developmental Biology CM261.) Lecture, four and one-half hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Comprehensive course for graduate students and selected undergraduates covering fundamentals and recent advances in molecular and cellular immunology. Lectures supplemented with discussion section focusing on reading and analysis of primary research articles. Oral presentation required. S/U or letter grading.

**M262A. Seminar: Current Topics in Immunobiology of Cancer. (2)** (Same as Microbiology and Immunology M262A.) 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. May be repeated for credit. S/U or letter grading.

**M262D. Selected Topics in Immunology. (2)** (Same as Microbiology and Immunology M262D.) Student participation in discussions related to various topics in immunology. May be repeated for credit. S/U or letter grading.

**M263. Molecular and Cellular Immunology Seminar. (2)** (Same as Microbiology and Immunology M263.) Critical discussions of current literature in T and B cell immunology, with emphasis on molecular mechanisms.

**M264A-M264B-M264C. Molecular Basis of Atherosclerosis: Selected Topics. (2-2-2)** (Same as Biological Chemistry M264A-M264B-M264C and Chemistry M264A-M264B-M264C.) Biochemistry, morphology, and physiology of atherosclerosis. Emphasis on chemistry of lipoproteins and role of plasma lipoproteins in regulation of tissue lipid metabolism and development of atherosclerosis. Each course may be taken independently for credit.

**CM265. Bioprocess Technology. (4)** (Same as Chemical Engineering CM265.) Lecture, two hours; laboratory, eight hours. Requisites: course 101, Chemical Engineering C115, Chemistry 156. Current bioprocess technologies involving microorganisms, especially extremophiles and animal cells, as vehicles for macromolecular and biomaterial production. Applications to processes including mineral leaching, remediation, and bioconversion. Emphasis on exploiting properties of diverse microorganisms. Exercises may vary yearly. Concurrently scheduled with course CM165.

**266. Genetic Mechanisms Seminar. (2)** Seminar, three hours. Designed for students in Predoctoral Training Program in Genetic Mechanisms. Current research topics in genetics. May be repeated for credit. S/U grading.

**CM268. Molecular Parasitology. (4)** (Same as Microbiology and Immunology M268.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Survey of parasitic protozoa not only as parasites which interact with a 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. Concurrently scheduled with course C168. Letter grading.

**270. Seminar: Molecular Virology. (2)** Designed for graduate students. Discussion and student presentations of recent work in molecular virology, including viral gene expression and function. S/U grading.

**CM285. Intermediate Immunology. (4)** (Same as Microbiology and Immunology M285 and Molecular, Cell, and Developmental Biology CM285.) Lecture, three hours; discussion, one hour. Requisite: course M185A or Molecular, Cell, and Developmental Biology C180. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM185B.

**290. Seminar: Molecular Genetics. (2)** Seminar, one hour; discussion, one hour. Designed for graduate students. Discussion and student presentations of recent work in molecular and genetic analysis of cellular gene regulation. S/U grading.

**M294L. Cancer Histopathology Laboratory. (2)** (Same as Microbiology and Immunology M294L and Pathology M294L.) Lecture, one hour; laboratory, two hours. Requisites: course M229 or Neurobiology M209A, Biological Chemistry CM253, CM267, and Pathology M294 (preferred) or M293. Histopathological approaches to cellular or tissue alterations commonly observed in tumor progression. Introduction to characteristics that clearly distinguish between benign and malignant neoplasia, precancerous stages, carcinoma in situ, and frankly invasive and metastatic neoplasia.

**296A-296Z. Seminars: Research Topics in Microbiology and Molecular Genetics. (1 to 4 each)** Discussion, three hours. Advanced study and analysis of current topics in microbiology and molecular genetics. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

**296A.** Eukaryotic Transcription Control.

**296B.** Regulation of Pre-mRNA Splicing.

**296D.** *Escherichia coli* Physiological Research.

**296E.** Archaeobacterial Research.

**296F.** Molecular Biology of Microbial Diversity.

**296G.** Structure and Function of Membrane Transport Proteins.

**296H.** Genetics of Common Diseases.

**296J.** Microbial Pathogenesis.

**296K.** Advanced Topics in Immunology.

**296L.** Molecular Biology of Bacterial Growth.

**296M.** Immune Regulation and Autoimmune Disease.

**296N.** RNA and Protein Structure and Function.

**296O.** Cell Growth and Signal Transduction.

**296P.** Bacterial Toxins and Human Cytokines.

**296Q.** Mechanisms of Hematopoietic Development.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**495. Preparation for Teaching Microbiology in Higher Education. (2)** Seminar/discussion/laboratory. 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.

**598. Research for M.A. Thesis. (2 to 12)** Tutorial, to be arranged.

**599. Research for Ph.D. Dissertation. (2 to 12)** Tutorial, to be arranged.

# MOLECULAR AND MEDICAL PHARMACOLOGY

School of Medicine

UCLA  
23-377 Center for the Health Sciences  
Box 951735  
Los Angeles, CA 90095-1735

(310) 825-0390  
e-mail: gradinfo@mednet.ucla.edu  
http://www.nuc.ucla.edu/

Michael E. Phelps, Ph.D., *Chair*  
Samson Chow, Ph.D., *Vice Chair*  
Harvey R. Herschman, Ph.D., *Vice Chair*

## Professors

Jorge R. Barrio, Ph.D.  
Gautam Chaudhuri, M.D., Ph.D.  
Bernard K-K. Fung, Ph.D.  
Harvey R. Herschman, Ph.D. (*Crump Professor*)  
Edward J. Hoffman, Ph.D.  
Sung-Cheng (Henry) Huang, D.Sc.  
Louis J. Ignarro, Ph.D.  
Barbara Levey, M.D.  
Jamshid Maddahi, M.D.  
John C. Mazzio, M.D., Ph.D.  
Richard W. Olsen, Ph.D.  
Michael E. Phelps, Ph.D. (*Norton Simon Professor*)  
Osman Ratib, M.D.  
Nagichettiar Satyamurthy, Ph.D.  
Heinrich R. Schelbert, M.D., Ph.D.  
Ligia Toro, Ph.D.  
Peter Valk, M.D.

## Professors Emeriti

Arthur K. Cho, Ph.D.  
Donald J. Jenden, M.D., Ph.D.

## Associate Professors

Don H. Catlin, M.D.  
Simon R. Cherry, Ph.D.  
Samson Chow, Ph.D.  
Johannes Czernin, M.D.  
Magnus Dahlbom, Ph.D.  
Jon M. Fukuto, Ph.D.  
Sanjiv Gambhir, M.D., Ph.D.  
Cameron B. Gundersen, Ph.D.  
David A. Hovda, Ph.D.  
Sherrel G. Howard, Ph.D.  
Daniel L. Kaufman, Ph.D.  
Paul A. Krogstad, M.D.  
William Melega, Ph.D.  
Christiaan Schiepers, M.D.  
Phoebe L. Stewart, Ph.D.  
Joy A. Umbach, Ph.D.  
Anna Wu, Ph.D.

## Assistant Professors

David B. Agus, M.D.  
Arion Chatziioannou, Ph.D.  
Han Htun, Ph.D.  
Harley I. Kornblum, M.D., Ph.D.  
Xin Liu, M.D., Ph.D.  
Srinivasa Reddy, M.D..  
Marc Seltzer, M.D.  
Daniel H. Silverman, M.D., Ph.D.  
Desmond Smith, M.D., Ph.D.  
Ren Sun, Ph.D.  
Jide Tian, M.D.  
Tatsushi Toyokuni, Ph.D.  
Hong Wu, M.D., 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 fluorescent 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.

Although the department offers only graduate degrees, upper division undergraduate courses are offered with enrollment restrictions as indicated in the course descriptions.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Molecular and Medical Pharmacology offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Molecular and Medical Pharmacology.

Note: There is no degree program in pharmacy at UCLA.

## Admission

### M.S./Ph.D. in Molecular and Medical Pharmacology

In addition to meeting University requirements for graduate admission, applicants must have received a bachelor's degree in a biological or physical science or in the premedical curriculum. Requisite courses include basic biology, basic chemistry, organic chemistry, biochemistry, and laboratory. Quantitative analysis and physical chemistry are recommended.

In suitable cases, students who have course deficiencies may be admitted to graduate status, but any deficiencies have to be removed within a specified time. Graduate Record Examination (GRE) scores and three letters of recommendation are required. Applicants may write to the department for a departmental brochure and/or application form.

Students may also enter the program through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences. Information may be obtained from UCLA ACCESS, 172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu).

### M.D./Ph.D. Programs

The department 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.

## Master's Degree

The M.S. degree is offered through the thesis plan, by special petition and only under special circumstances: for example, to candidates who already have a doctoral degree in another field and wish to obtain additional training in pharmacology or to students who are already in the program and, for some reason, cannot continue for the Ph.D.

The M.S. degree requires satisfactory completion of the required courses for the Ph.D. degree, excluding the three quarters of laboratory research coursework.



## Doctoral Degree

Major fields include cardiovascular pharmacology; chemical pharmacology; medical pharmacology; molecular pharmacology; immunopharmacology; neuroendocrine pharmacology; neuropharmacology; psychopharmacology; nuclear medicine (positron emission tomography); pharmacokinetics; signal transduction; structural biology; and toxicology.

For students entering through UCLA ACCESS, the ACCESS curriculum is required in the first year. Ph.D. students must complete a set of required courses in molecular and medical pharmacology and biological chemistry. The course requirements are waived for students who have passed equivalent courses with grades of B or better within the past 36 months.

The department provides a system of laboratory rotations in order to familiarize students with a variety of pharmacological research areas and techniques. During the first year in the department, students participate in projects of the laboratories of their choosing. Students also become familiar with the literature relevant to the various research projects and thus establish a basis for the selection of their own research areas.

Students entering through ACCESS are required to serve as teaching assistants for two quarters.

Written and oral qualifying examinations are required. The written examination consists of a written research proposal, prepared according to the NIH grant application format, with a maximum length of 10 pages, excluding references.

Following successful completion of the research proposal, students take the University Oral Qualifying Examination, which is a defense of the proposal.

## Molecular and Medical Pharmacology

### Upper Division Courses

**110A-110B. Drugs: Mechanisms, Uses, and Misuse. (4-4)** Lecture, four hours (seven weeks); discussion, four hours (three weeks). Requisites: Life Sciences 2, 3. Course 110A is requisite to 110B. Introduction to pharmacology for undergraduate students, emphasizing principles underlying mechanism of action of drugs, their development, control, rational use, and misuse. Letter grading.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Special studies in pharmacology, including either reading assignments or laboratory work or both, designed for proper training of students. P/NP or letter grading.

### Graduate Courses

**200. Introduction to Laboratory Research. (2 to 4)** Individual projects in laboratory research for beginning graduate students. At end of each term students submit to their supervisor a report 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.

**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.

**M221. Cellular and Molecular Neurochemistry. (4)** (Same as Biological Chemistry M221, Neurobiology M221, Neuroscience M240, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Preparation: biochemistry. Contemporary neurochemistry topics — metabolic specialization and compartments, metabolism and function of ion channels, structure and function of neurotransmitters. Inborn errors and molecular genetics, molecular imaging, aging, and regeneration. Receptor/effector coupling. 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)** (Formerly numbered 234C.) (Same as Environmental Health Sciences 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. (4)** (Formerly numbered 237A-237B-237C.) Lecture, four hours. 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. S/U or letter grading.

**241. Introduction to Chemical Pharmacology. (6)** 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. 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 a range of modalities. Practical experience provided through a 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.

**M255. Biological Catalysis. (4)** (Same as Biological Chemistry M255, Chemistry CM255, and Molecular, Cell, and Developmental Biology CM252.) Requisites: Chemistry 110A, 153A, 153B, Life Sciences 3, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level. Letter grading.

**M257. Introduction to Toxicology. (4)** (Same as Pathology M257.) Requisite: course 241. 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.

**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. (2 to 4)** Examination in depth of topics of current importance in pharmacology. Emphasis on recent contributions of special interest to advanced Ph.D. candidates and faculty. S/U or 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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*

UCLA  
168 Boyer Hall  
Box 951570  
Los Angeles, CA 90095-1570  
(310) 825-1018  
<http://www.mbi.ucla.edu/>

Arnold J. Berk, M.D., *Director*

### Professors

Utpal Banerjee, Ph.D. (*Biological Chemistry, Human Genetics, Molecular, Cell, and Developmental Biology*)

Arnold J. Berk, M.D. (*Microbiology and Molecular Genetics*)

Lutz Birnbaumer, Ph.D. (*Anesthesiology, Biological Chemistry, Molecular, Cell, and Developmental Biology*)

Mariel Birnbaumer, Ph.D. (*Anesthesiology, Physiology*)

Jonathan Braun, M.D., Ph.D. (*Pathology and Laboratory Medicine*)

Clifford F. Brunk, Ph.D. (*Organismic Biology, Ecology, and Evolution*)

Irvin S.Y. Chen, Ph.D. (*Medicine, Microbiology and Immunology*)

- Marie-Françoise Chesselet, M.D., Ph.D. (*Neurology*)  
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 Irving Zabin, Ph.D. (*Biological Chemistry*)
- Associate Professors**  
 Renato J. Aguilera, Ph.D. (*Molecular, Cell, and Developmental Biology*)  
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 Geraldine A. Weinmaster, Ph.D. (*Biological Chemistry*)
- Assistant Professors**  
 Ellen M. Carpenter, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*  
 David D. Chang, M.D., Ph.D. (*Medicine, Microbiology and Immunology*)  
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 York Marahrens, Ph.D. (*Human Genetics*)  
 M. Carrie Miceli, Ph.D. (*Microbiology and Immunology*)  
 Kohnosuke Mitani, Ph.D. (*Microbiology and Immunology*)  
 Wenyuan Shi, Ph.D. (*Oral Biology*)  
 Ren Sun, Ph.D. (*Molecular and Medical Pharmacology*)  
 Michael A. Teitell, M.D., Ph.D. (*Pathology and Laboratory Medicine*)  
 Peter Tontonoz, M.D., Ph.D. (*Pathology and Laboratory Medicine*)  
 Hong Wu, M.D., Ph.D. (*Molecular and Medical Pharmacology*)  
 Xian-Jie Yang, Ph.D. (*Ophthalmology, Neurobiology*)

## 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; DNA replication, repair, and recombination; gene regulation; immunobiology; microbiology/virology; molecular evolution and paleobiology; oncogenes and signal transduction; plant molecular biology; protein structure and function; genomics; and structural biology.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degree

The Molecular Biology Program offers the Doctor of Philosophy (Ph.D.) degree in Molecular Biology.

## Admission

Students are admitted to the Ph.D. program through UCLA ACCESS to Programs in the Molecular, Cellular, and Integrative Life Sciences, 172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu).

At the completion of the first-year ACCESS curriculum, including three laboratory rotations, students choose a permanent research and thesis adviser. Students interested in entering the program for their research work must choose a research adviser who is a member of the Molecular Biology Institute (MBI) faculty. There are currently 120 faculty members, representing 15 different departments in the College of Letters and Science and the Schools of Medicine and Dentistry.

Entrance to the program is determined by an evaluation of the student's undergraduate and first-year graduate performance and the proposed area of thesis research. Undergraduate coursework should include calculus, general chemistry and/or biochemistry, organic chemistry, physics, biology, and genetics. Any course deficiencies should be addressed in the first year in the ACCESS program.

## Doctoral Degree

Required first-year Ph.D. coursework is completion of the ACCESS curriculum, including core courses, student seminar courses, and the ethics course. Second-year coursework includes two to three molecular biology student seminar courses. Students may take these one or two per quarter. Three different topics are offered each quarter taught by various MBI faculty members.

Two quarters of teaching experience are required by the end of the fourth year of graduate study.

Written and oral qualifying examinations are required. The written examination is coupled to the molecular biology student seminar courses. One examination must be submitted for each of the three required student seminar course sections. Examinations take the form of a research proposal based on the topic and required reading for each section.

Following successful completion of the written examinations, students prepare a research proposition and take the University Oral Qualifying Examination, which covers the proposition as well as general scientific background. In year three students are required to present a midstream seminar on the dissertation research.

## Molecular Biology

### Graduate Courses

**297. Seminar: Molecular and Cellular Life Sciences. (2)** In-depth surveys of recent developments in specific fields of life sciences research. By reading and presenting primary research articles, students learn to critically evaluate research papers and organize and present a seminar on a specific research topic. S/U or letter grading.

**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.

### Related Courses

The following courses offered by the departments listed are particularly appropriate to the research areas mentioned above. With the approval of the guidance committee or research supervisor, other related courses may be included in the program.

#### Biological Chemistry

M221. Cellular and Molecular Neurochemistry  
CM248. Molecular Genetics  
CM253. Macromolecular Structure  
M255. Biological Catalysis  
M263. Metabolism and Its Regulation  
M264A-M264B-M264C. Molecular Basis of Atherosclerosis: Selected Topics  
M266A-M266B-M266C. Seminars: Molecular Embryology  
CM267. Cell Structure, Signaling, and Differentiation

#### Chemistry and Biochemistry

M230B. Structural Molecular Biology  
M230D. Structural Molecular Biology Laboratory  
CM253. Macromolecular Structure  
M263. Metabolism and Its Regulation  
M264A-M264B-M264C. Molecular Basis of Atherosclerosis: Selected Topics  
M267. Cell Structure, Signaling, and Differentiation

#### Microbiology and Immunology

250. Cell and Molecular Biology  
M256. Seminar: Viral Oncology  
M260. Immunology Forum  
M262A. Seminar: Current Topics in Immunobiology of Cancer  
M263. Molecular and Cellular Immunology Seminar

#### Microbiology and Molecular Genetics

242. Seminar: Microbial Molecular Genetics  
M248. Molecular Genetics  
250. Seminar: Microbial Metabolism  
251. Seminar: Regulation and Differentiation  
M260. Immunology Forum  
M263. Molecular and Cellular Immunology Seminar  
290. Seminar: Molecular Genetics

#### Molecular, Cell, and Developmental Biology

228. Prokaryotic and Eukaryotic Gene Systems  
M230B. Structural Molecular Biology  
M230D. Structural Molecular Biology Laboratory  
M234. Genetic Control of Development  
CM248. Molecular Genetics

# MOLECULAR, CELL, AND DEVELOPMENTAL BIOLOGY

*College of Letters and Science*

UCLA  
2124 Life Sciences  
Box 951606  
Los Angeles, CA 90095-1606

(310) 825-7109 Undergraduate Office  
e-mail: [chelleym@mcdb.ucla.edu](mailto:chelleym@mcdb.ucla.edu)

(310) 794-4256 Graduate Office  
e-mail: [pamelah@mcdm.ucla.edu](mailto:pamelah@mcdm.ucla.edu)  
<http://www.mcdb.ucla.edu/>

Lutz Birnbaumer, Ph.D., *Chair*

#### Professors

Utpal Banerjee, Ph.D.  
Lutz Birnbaumer, Ph.D.  
Robert B. Goldberg, Ph.D.  
Volker Hartenstein, Ph.D.  
Ann M. Hirsch, Ph.D.  
Harumi Kasamatsu, Ph.D.  
James A. Lake, Ph.D.  
Judith A. Lengyel, Ph.D.  
John R. Merriam, Ph.D.  
Winston A. Salser, Ph.D.  
Elaine M. Tobin, Ph.D.

#### Professors Emeriti

William R. Clark, Ph.D.  
John H. Fessler, Ph.D.  
George G. Laties, Ph.D.  
Fritiof S. Sjostrand, Ph.D.  
Clara M. Szego, Ph.D.

#### Associate Professors

Renato J. Aguilera, Ph.D.  
Luisa M. Iruela-Arispe, Ph.D.  
Frank A. Laski, Ph.D.  
Paul H. O'Lague, Ph.D.

#### Assistant Professor

Jau-Nian Chen, Ph.D.  
Sioux K. Christensen, Ph.D.  
Stephen Erik Jacobsen, Ph.D.  
Chentao Lin, Ph.D.  
Karen Marie Lyons, Ph.D.

#### Lecturer

Roger Bohman, Ph.D.  
Jeanne Perry, 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, bio-

medical 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 M.A. and Ph.D. degrees provide opportunities for advanced concentrated study and require independent and innovative research that ultimately results in publishable thesis and 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 positions 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.

All core curriculum courses must be passed with a grade of C– or better and 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

To be admitted as Molecular, Cell, and Developmental Biology majors, transfer students 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.

#### The Major

*Required Courses:* Chemistry and Biochemistry 153A, 153L, Molecular, Cell, and Developmental Biology 100 or C139 or M140, 104, 138 or C141, 144.

*Electives:* At least 20 upper division elective units, of which at least 10 must be in courses

“**T**his is the most exciting time ever for molecular biology,” says an enthusiastic Robert Goldberg, professor of Molecular, Cell, and Developmental Biology. “Undergraduates have the opportunity to both learn how cutting-edge experiments are affecting their lives, but also to participate themselves in these experiments.”

In his laboratory Goldberg investigates how plant cells become specialized during development and employs a combination of genetic and molecular approaches to answer this question. His observations also lead to methods he applies to teaching. “I love experimenting in the classroom, trying out new approaches, and getting the class to help in one big experiment.” he says. “And I love to convey the excitement of discovery to my students, to bring my own passion for discovery into the classroom so that students can see that science is alive and exciting.”

Goldberg uses an interactive teaching style and makes it a point to know

offered by the department. Any upper division departmental course, except Molecular, Cell, and Developmental Biology 193 or 199, is acceptable. The following courses outside the department may be taken to satisfy a maximum of 10 units in this category: Biological Chemistry CM153G, Chemistry and Biochemistry 153C, 156, CM159A, CM159B, Microbiology and Molecular Genetics 101, 102, C106, C112, C159, C168, C174, 185A, Organismic Biology, Ecology, and Evolution 110, 121, 146, 157, 162, M166, Physiological Science 126.

*Laboratory:* At least 4 units of upper division laboratory experience selected from Chemistry and Biochemistry 154, Microbiology and Molecular Genetics 101 and 101L (both courses must be taken), 102 and 102L (both courses must be taken), Molecular, Cell, and Developmental Biology 155, 190A through 190D, 190HA through 190HD, 199, Organismic Biology, Ecology, and Evolution M158, 162, M166.

A maximum of 12 units of Molecular, Cell, and Developmental Biology 190 and no more than

students by name, even in large classes. His aim is to encourage them to work collectively on projects and activities both inside and outside the classroom. “When you allow the students to participate,” he explains, “the entire class becomes an ‘organism’ that moves collectively in attempting to achieve excellence. One of the differences between my class and others is that students must work together and learn how to have an effective intellectual exchange with their classmates—being critical and instructive at the same time.”

“The most important thing I want my students to learn is how to think and solve problems—to be in a dark room and see light, to learn to be creative and obtain new insights into real situations,” he says. “Because science is moving so rapidly—especially molecular biology—the facts will change with time—but the ability to solve problems and think creatively lasts forever.”



**Robert Goldberg,**  
Molecular, Cell, and  
Developmental Biology  
Department

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*I love to convey the excitement of discovery to my students, to bring my own passion for discovery into the classroom so that students can see that science is alive and exciting*

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one course from 190C, 190HC, or 199 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).

Courses applied toward requirements for preparation for the major and the major must be taken for a letter grade. Departmental 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; those intending to pursue highest honors must have faculty sponsorship from within the department.

For further information and application forms, students should consult the Student Affairs Office, 2124 Life Sciences, early in their educational planning.

## Requirements

The core of the program consists of at least one undergraduate seminar selected from Molecular, Cell, and Developmental Biology C174A through C174G and three research courses (12 units minimum) from 190HA, 190HB, and 190HC, culminating in a thesis.

To be eligible 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, (2) research sponsorship from a faculty adviser within the department, and (3) 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 M196B or Organismic Biology, Ecology, and Evolution 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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*,

available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Molecular, Cell, and Developmental Biology offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Molecular, Cell, and Developmental Biology.

## Admission

The department does not accept students whose sole objective is the M.A. degree. The department rarely awards the M.A. degree except in instances where students are unable to complete the requirements for the Ph.D. The department admits students directly into the first year of its program leading to the Ph.D. degree.

Students admitted through the 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, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu)) may also be admitted to the department's Ph.D. program by the beginning of their second year of study.

Applicants for study leading to the Ph.D. are not required to have a master's degree as a requisite; however, the department expects graduate students to have or to acquire a background comparable to the requirements for the B.S. degree in Molecular, Cell, and Developmental Biology at UCLA. A background in chemistry, physics, and mathematics is essential. Deficiencies in these or other subjects must be made up at the earliest opportunity, preferably during the first year of the Ph.D. program.

Applications and additional information may be obtained from the Student Affairs Office, Molecular, Cell, and Developmental Biology, 2124 Life Sciences, UCLA, Box 951606, Los Angeles, CA 90095-1606.

## Master's Degree

For fields of emphasis, see Doctoral Degree.

The M.A. degree is offered through the comprehensive examination and thesis plans. The program consists of at least nine courses, five of which must be graduate-level (200-series) courses. Specific course requirements are established for each student by the guidance committee.

## Doctoral Degree

Specific fields of emphasis in the department naturally reflect the research foci of the faculty. These include cell biology, molecular biology, genetics and developmental biology, in both plants and animals; and immunology, neurobiology, and molecular evolution.

In addition to any remedial coursework specified by the graduate adviser, all Ph.D. students are required to take a minimum of four graduate-level courses and three graduate seminars approved by the department. Students may elect, in consultation with their dissertation adviser, to take additional graduate courses or seminars in a particular area of specialization.

All students are required to take the teaching assistant training course and are expected to teach a minimum of two quarters.

Written and oral qualifying examinations are required. The written examination requirement is satisfied through three written papers generated in connection with selected courses, including seminar courses. The papers are written in the form of a mini research proposal.

Following successful completion of the written examination, students take the University Oral Qualifying Examination, which is composed of a presentation of a research proposal and testing of general knowledge of advanced biology.

# Molecular, Cell, and Developmental Biology

## Lower Division Courses

**30. Biology of Cancer. (4)** Introduction to molecular, cellular, and clinical aspects of cancer and consideration of sociological and psychological impacts of cancer on the individual and society. P/NP or letter grading.

**40. AIDS and Other Sexually Transmitted Diseases. (4)** Introduction to interdisciplinary debate surrounding the personal and societal response to AIDS and other sexually transmitted diseases. 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.

**80. The Green World: Plant Biology for Now and the Future. (4)** Lecture, three 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.

**88C. Lower Division Seminar: Frontiers of Molecular Biology — Historical Perspective. (4)** Seminar, three hours. Limited to freshmen who have not completed Life Sciences 3. Designed for nonmajors. Study of biology at molecular level has unlocked secrets of the gene, started the biotechnology revolution, and promises a new scientific age that uses gene therapy to cure human disease, produce superplants that grow in the desert, and uncover the mysteries of the mind. Exploration of origins and history of molecular biology by analyzing papers written by Mendel, Watson, Crick, and others who played a major role in changing society with their discoveries of new biological principles. P/NP or letter grading.

**88D. Lower Division Seminar: Genetics and Society. (4)** Discussion, three hours. Some ways genetics affects us now and what changes are possible for our children. Examination of biological basis of inheritance in order to understand scientific methods and science teaching.

**88E. Lower Division Seminar: Genetics and Society — Current Status and Future Applications. (4)** Seminar, three hours. Recent advances in genetics have opened up new possibilities in fields of forensics, medicine, agriculture, and industry, with corresponding legal, social, and economic ramifications. Examination of scientific/genetic basis underlying genetic engineering, genetic screening, gene therapy, eugenics, DNA fingerprinting, cloning, etc., and discussion of current and future applications. P/NP or letter grading.

**88F. Lower Division Seminar: Science and Scientists — Expectations and Realities. (2)** Examination of change from when science was done by individuals as an avocation without societal goals to contemporary science which is done by professionals and is driven by societal needs and pressures. P/NP or letter grading.

**M88H. Lower Division Seminar: Limits of Biological Design through Physical Principles. (4)** (Same as Physics M88.) Seminar, three hours. Enforced prerequisites: Chemistry 20A, 20B, Life Sciences 1, 3, 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. 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.

## Upper Division Courses

**100. Introduction to Cell Biology. (5)** Lecture, three 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 course C139 or M140. 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, 90 minutes; discussion, one hour; laboratory, eight hours. Requisites: Life Sciences 3, 4. 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.

**CM133. Principles, Practices, and Policies in Biotechnology. (2)** (Same as Biological Chemistry CM133, Biomedical Physics CM133, Chemical Engineering CM133, Chemistry CM133, Microbiology CM133, and Microbiology and Immunology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or 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.

**C139. Molecular, Cellular, and Developmental Neurobiology. (6)** Lecture, two hours; discussion, two hours; laboratory, two hours. Fundamental topics concerning molecular, cellular, and developmental neurobiology, including intracellular signaling, cell-cell communication, neurogenesis and migration, synapse formation and elimination, programmed neuronal death, and neurotrophic factors. Concurrently scheduled with course CM220. 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 course 100 or C139. Satisfies premedical requirements. Eukaryotic cellular structures and biogenesis at a 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 a 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)** Requisite: course 138. Undergraduate seminar on topics in developmental biology. Reading and group discussions on current research. P/NP or 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 or Organismic Biology 121. Structure of genes and chromosomes; prokaryotic and eukaryotic replication and transcription; repair and recombination; RNA processing. Letter grading.

**C150. Plant Chemical and Molecular Communication. (4)** Lecture, three hours; discussion, one hour. Preparation: completion of life sciences core curriculum. 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.

**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. Strongly recommended: course 100 or C139 or M140. 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.

**CM160. Biological Catalysis. (4)** (Same as Chemistry CM155.) Requisites: course 100 or C139 or M140, Chemistry 110A, 153A, 153B, Life Sciences 3. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level. Concurrently scheduled with course CM252.

**165. Biology of the Cell. (5)** Lecture, three hours; discussion, one hour. Requisites: Chemistry 14 or 20 series, Life Sciences 3, 4. Methods to study cell. Structural, functional, and molecular aspects of cell membrane, mitochondria, chloroplasts, peroxisomes, lysosomes, Golgi, endoplasmic reticulum, and nucleus. Cell cycle regulation. Cell-cell and cell-matrix interactions. Cell motility. Cellular alterations during differentiation programs, tissue architecture, and organogenesis. Pathological alterations in response to cellular transformation, oncogenes, and anti-oncogenes. Letter grading.

**CM169. Cell Structure, Signaling, and Differentiation. (6)** (Same as Biological Chemistry CM169 and Human Genetics CM169.) Lecture, five hours. Requisites: Chemistry 153A, 153B, 153C. Recommended: Chemistry CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM223. 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.

**171. Principles of Neurobiology. (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, Organismic Biology M166. Strongly recommended: course 100 or C139 or M140. Introduction to basic principles of neurobiology, including description of structure of neurons and nervous systems; ionic mechanisms responsible for generating membrane potentials, action potentials, and synaptic potentials; properties of synaptic transmission, information transduction and coding in sensory pathways, and neural control of movement; development of and trophic interactions between cells of nervous system.

**C172. Molecular Genetics of Bacteria and Phage. (4)** Lecture, three hours; discussion, one hour. Molecular and cellular biology of bacteria and bacteriophages. Concurrently scheduled with course CM207.

**C174A-C174G. Advanced Topics in Cell and Molecular Biology. (2 each)** (Formerly numbered C174A-C174F.) Lecture. Recent developments in fields of molecular, cell, and developmental biology. Concurrently scheduled with courses C222A-C222G. Letter grading:

**C174A. Molecular Evolution. (2)** Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Current developments in the 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.

**C174G. Signal Transduction by G-Protein Coupled Receptors. (2)** Lecture, one hour; discussion, one hour. Requisites: course 100 or C139 or M140, Life Sciences 3, 4. Introduction to G-protein mediated signal transduction as used by sensory, neurotransmitter, and many hormones receptors that alter intracellular second messengers. Structure and functions of molecules that participate in signal transduction via G proteins (receptors, G proteins, effectors), with emphasis on original experiments leading to present concepts. 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 or former course 10D or 30 (14C may be taken concurrently), Life Sciences 2, Physics 1B or 6C. 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.

**M175B. Molecular and Developmental Neuroscience. (5)** Lecture, four hours; discussion, 90 minutes. Prerequisites: 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. Prerequisite: 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.

**M176. Advanced Topics in Animal Virus/Host Interaction. (4)** (Formerly numbered 176.) (Same as Microbiology M176.) Lecture, four hours; discussion, one hour. Prerequisites: Life Sciences 3, 4. Recommended: course 144 or Chemistry 153B or Microbiology 102. Recent developments in fields of interaction of hosts with animal viruses. Emphasis on molecular and cellular approaches to understand host/virus interaction at level of entry, replication, assembly, and morphogenesis, as well as host defense and viral pathogenesis. P/NP or letter grading.

**C177. Molecular Biology of Animal Viruses. (4)** Lecture, three hours. Prerequisites: Chemistry 153B, Life Sciences 3. Recommended for advanced undergraduate students with a major 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 the molecular mechanism involved in control and regulation of replication, transcription, and translation of viral genome and its complex interaction with host. Concurrently scheduled with course CM279.

**CM178. Molecular Genetics. (6)** (Same as Biological Chemistry CM178 and Human Genetics CM178.) Lecture, five hours. Prerequisites: course 100 or C139 or M140, Chemistry 153A, 153B, Life Sciences 3, 4. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM248. Letter grading.

**C180. Molecular and Cellular Immunology. (6)** Lecture, four and one-half hours; discussion, 90 minutes. Prerequisites: course 100 or C139 or M140, Chemistry 153A, Life Sciences 3. Not open for credit to students with credit for former course M185A. Comprehensive course for graduate students and selected undergraduates covering fundamentals and recent advances in molecular and cellular immunology. Lectures supplemented with discussion section focusing on reading and analysis of primary research articles. Concurrently scheduled with course CM261.

**CM185B. Intermediate Immunology. (4)** (Same as Microbiology CM185B.) Lecture, three hours; discussion, one hour. Prerequisite: course C180 or M185A. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM285.

**189. Seminar: Social Implications of Current Biological Research. (2)** Seminar, two hours. Discussions about how current research in biology, particularly in areas of molecular, cell, and developmental biology, affects social issues and policy. May be repeated once for credit; however, only 2 units of this course or Organismic Biology 188 may be applied toward either the Biology or Molecular, Cell, and Developmental Biology major. Letter grading.

**190A-190D. Research in Molecular, Cell, and Developmental Biology. (2 to 4 each)** Seminar, to be arranged. Limited to seniors. Individual research designed to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken with Molecular, Cell, and Developmental Biology Department faculty for at least two terms and for a total of at least 8 units. In Progress and letter grading (credit to be given only on completion of course 190B). Students may elect to enroll in additional research through courses 190C-190D (letter grading). A report on progress must be presented to undergraduate adviser each term a 190 course is taken.

**190HA-190HD. Honors Research in Molecular, Cell, and Developmental Biology. (4 each)** (Formerly numbered 190A-190D.) Laboratory, 16 hours. Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Individual honors research project 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 a total of 12 units. In Progress and letter grading (credit to be given only on completion of course 190HB). A report on progress must be presented to undergraduate adviser each term a 190H course is taken. Letter grading (courses 190HC-190HD).

**M191. Biological Bases of Psychiatric Disorders. (4)** (Same as Neuroscience M130, Physiological Science M181, Psychiatry M191, and Psychology M117J.) Lecture, three hours. Prerequisite: 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.

**193. Teaching Practicum in Molecular, Cell, and Developmental Biology. (1 to 4)** Tutorial, to be arranged. Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Training and supervised practicum for advanced undergraduates in teaching courses related to molecular, cell, and developmental biology. Students assist in preparation of materials and development of innovative programs under guidance of faculty and teaching assistants. 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.

**M194. Undergraduate Seminar: Current Topics in Biomedical Sciences. (2)** (Same as Organismic Biology M194 and Physiological Science M194.) Seminar, two 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 a paper selected from current literature. May be repeated for credit. P/NP or letter grading.

**197. Undergraduate Seminar: Current Topics in Molecular, Cell, and Developmental Biology. (2)** Seminar, two hours. Designed for juniors/seniors. Intended for students with strong commitment to pursue graduate studies in molecular, biochemical, physiological, and biomedical fields. Weekly variable topics course with presentation and discussion of a paper selected from current literature. May be repeated for credit. P/NP or letter grading.

**199. Special Studies. (2 to 16)** Preparation: submission of written proposal outlining the study or research to be undertaken. Studies to involve laboratory or field-related research, not literature surveys or library research. Proposal should be worked out in consultation with instructor and submitted for approval to undergraduate adviser before the day instruction begins in that term. At end of term a report describing progress of the study or research and signed by the student and instructor must be presented to undergraduate adviser. Students who wish to take more than 8 units of course 199 in any one term must obtain authorization from department chair and appropriate dean.

## Graduate Courses

**M201. Use of the Computer in Biology. (2)** (Same as Human Genetics M201 and Microbiology and Immunology M241.) Lecture, two hours; laboratory, one hour. Introduction to use of IBM PC microcomputer and VAX minicomputer in biological research. S/U grading.

**CM207. Molecular Genetics of Bacteria and Phage. (4)** (Same as Chemistry M227, Microbiology M227, and Microbiology and Immunology M227.) Lecture, three hours; discussion, one hour. Prerequisite: Biological Chemistry CM253 or Chemistry CM253. Molecular and cellular biology of bacteria and bacteriophages. Concurrently scheduled with course C172.

**M217. Basic Science and Strategies of Gene Therapy. (2)** (Same as Microbiology and Immunology M217 and Microbiology M217.) Preparation: basic knowledge of virology. Basic science and viral vector systems utilized for gene therapy. S/U grading.

**CM220. Molecular, Cellular, and Developmental Neurobiology. (6)** (Same as Neurobiology M200B and Physiology M209A.) Lecture, two hours; discussion, two hours; laboratory, two hours. Fundamental topics concerning molecular, cellular, and developmental neurobiology, including intracellular signaling, cell-cell communication, neurogenesis and migration, synapse formation and elimination, programmed neuronal death, and neurotrophic factors. Concurrently scheduled with course C139. Letter grading.

**C222A-C222G. Advanced Topics in Cell and Molecular Biology. (2 each)** (Formerly numbered C222A-C222F.) Lecture. Recent developments in fields of molecular, cell, and developmental biology. Concurrently scheduled with courses C174A-C174G. Letter grading:

**C222A. Molecular Evolution. (2)** Lecture, two hours. Prerequisites: courses 100 or C139 or M140, 144, Life Sciences 4. Current developments in the 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. Prerequisites: 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. Prerequisites: 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.

**C222G. Signal Transduction by G-Protein Coupled Receptors. (2)** Lecture, one hour; discussion, one hour. Prerequisites: course 100 or C139 or M140, Life Sciences 3, 4. Introduction to G-protein mediated signal transduction as used by sensory, neurotransmitter, and many hormones receptors that alter intracellular second messengers. Structure and functions of molecules that participate in signal transduction via G proteins (receptors, G proteins, effectors), with emphasis on original experiments leading to present concepts. Letter grading.

**CM223. Cell Structure, Signaling, and Differentiation. (6)** (Same as Biological Chemistry CM267, Chemistry M267, and Human Genetics CM267.) Lecture, five hours. Prerequisites: Chemistry 153A, 153B, 153C. Recommended: Chemistry CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM169. Letter grading.

**M226A-M226B. Principles of Microbial Pathogenesis. (4-4)** (Same as Microbiology M226A-M226B and Microbiology and Immunology M226A-M226B.) Lecture, one hour; discussion, three hours. Prerequisites: Microbiology and Immunology 202A, 202B, 202C, 202D. Lecture/discussion format designed to analyze basic pathogenesis of infections. Emphasis on molecular and cellular approaches to understand host-microbial interaction. **M226A.** Bacterial and Mycotic Infections; **M226B.** Parasitic and Viral Infections.

**228. Prokaryotic and Eukaryotic Gene Systems. (2)** Presentations concerning current experimental approaches in study of DNA replication, organization, transcription, and translation.

**M229. Cellular Biology of Host/Pathogen Interactions. (6)** (Same as Microbiology M229 and Microbiology and Immunology M229.) Lecture, four hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Molecular and cellular biology of pathogens, eukaryotic host cells, and interaction between pathogens and hosts.

**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.

**CM233. Principles, Practices, and Policies in Biotechnology. (2)** (Formerly numbered M233.) (Same as Biological Chemistry CM233, Biomedical Physics CM233, Chemical Engineering CM233, Chemistry CM233, Microbiology CM233, and Immunology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. S/U or letter grading.

**M234. Genetic Control of Development. (4)** (Same as Biological Chemistry M234.) 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. Introduction to Cellular Physiology and Biophysics. (6)** (Same as Physiological Science M212 and Physiology M212.) Lecture, five hours. Requisite: Physiological Science 111A or Physiology M209A. Development of fundamental physiological and biophysical concepts associated with all membranes, membrane channels and transporters, membrane potential, membrane excitability, electrical signal transmission and transduction, and muscle contraction and their application to study of basic cellular processes. Emphasis in laboratory on development of skills using computer programming languages, spreadsheets, and graphics for modeling and analysis of cellular processes.

**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 a 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 and Microbiology and Immunology 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.

**M246. Computer Analysis of Genetic Organization. (4)** (Same as Microbiology M246 and Microbiology and Immunology M246.) Lecture, two hours; laboratory, six hours. Requisite: Life Sciences 4 or Microbiology C159. Lectures and laboratory instruction in contemporary procedures for analysis of nucleic acid and protein sequence data with the computer. No prior computer experience necessary; students gain both general and specialized facility with IBM PC and Digital VAX computers.

**CM248. Molecular Genetics. (6)** (Same as Biological Chemistry CM248, Human Genetics CM248, and Microbiology M248.) Lecture, five hours. Requisite: Biological Chemistry CM153G or Chemistry CM153G. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM178. Letter grading.

**C250. Plant Chemical and Molecular Communication. (4)** Lecture, three hours; discussion, one hour. Designed for graduate students. 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.

**CM252. Biological Catalysis. (4)** (Same as Biological Chemistry M255, Chemistry CM255, and Pharmacology M255.) Requisites: course 100 or C139 or M140, Chemistry 110A, 153A, 153B, Life Sciences 3. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level. Concurrently scheduled with course CM160. Graduate students required to write research paper and present oral report on it. 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.

**CM256. Human Genetics. (4)** (Same as Human Genetics CM256 and Microbiology CM256.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Strongly recommended: course 100 or C139 or M140. 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 CM156. Independent research project required of graduate students. Letter grading.

**CM261. Molecular and Cellular Immunology. (6)** (Same as Microbiology M261 and Microbiology and Immunology M261.) Lecture, four and one-half hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Comprehensive course for graduate students and selected undergraduates covering fundamentals and recent advances in molecular and cellular immunology. Lectures supplemented with discussion section focusing on reading and analysis of primary research articles. Concurrently scheduled with course C180. Oral presentation required of graduate students. S/U or letter grading.

**M266A-M266B-M266C. Seminars: Molecular Embryology. (2-2-2)** (Same as Biological Chemistry M266A-M266B-M266C.) Advanced course in developmental genetics and biochemistry, with emphasis on early development. Intended mostly for students actively working or highly interested in embryology. S/U grading.

**276. Seminar: Molecular Genetics. (2)** Topics vary each term.

**277. Seminar: Genetics. (2)** Seminar, two hours. S/U or letter grading.

**278. Seminar: Molecular Genetics of Development. (2)** 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.

**CM279. Molecular Biology of Animal Viruses. (4)** (Same as Microbiology and Immunology M208.) Lecture, three hours. Preparation: courses in general biochemistry and general microbiology, including virology. Recommended for advanced undergraduate students with a major 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 the molecular mechanism involved in control and regulation of replication, transcription, and translation of viral genome and its complex interaction with host. Concurrently scheduled with course C177.

**281. Seminar: Molecular Biology. (2)** Seminar, two hours. S/U or letter grading.

**283. Seminar: Topics in Cell Biology. (2)** 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.

**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.

**CM285. Intermediate Immunology. (4)** (Same as Microbiology CM285 and Microbiology and Immunology M285.) Lecture, three hours; discussion, one hour. Requisite: course C180 or M185A. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM185B.

**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 the field of plant molecular biology. Opportunities for graduate students to discuss individual research work. S/U grading.

**292. Seminar: Molecular Evolution. (2)** Discussion, three hours. Detailed analysis of current understanding of evolution of molecular sequences and structures.

**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)** 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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  
School of Medicine*

UCLA  
2317 Life Sciences  
Box 951527  
Los Angeles, CA 90095-1527  
(310) 825-3891  
e-mail: mcarr@physci.ucla.edu  
<http://www.physci.ucla.edu/>

James G. Tidball, Ph.D., *Chair*

### Professors

Arthur P. Arnold, Ph.D. (*Neurobiology, Physiological Science*)  
R. James Barnard, Ph.D. (*Physiological Science*)  
Francisco J. Bezanilla, Ph.D. (*Physiology*)  
Mariel Birnbaumer, Ph.D. (*Anesthesiology, Physiology*)  
Scott H. Chandler, Ph.D. (*Physiological Science*)  
Michael H. Chase, Ph.D., *in Residence (Physiology)*  
Linda Demer, M.D., Ph.D. (*Physiology*)  
Jared M. Diamond, Ph.D. (*Physiology*)  
V. Reggie Edgerton, Ph.D. (*Neurobiology, Physiological Science*)  
Gordon L. Fain, Ph.D. (*Ophthalmology, Physiological Science*)  
Jack L. Feldman, Ph.D. (*Neurobiology, Physiological Science*)  
David L. Glanzman, Ph.D. (*Neurobiology, Physiological Science*)  
Alan D. Grinnell, Ph.D. (*Physiological Science, Physiology*)  
Margaret E. Haberland, Ph.D., *in Residence (Physiological Science)*  
Earl Homsher, Ph.D. (*Physiology*)  
H. Ronald Kaback, M.D. (*Physiology*)  
Emeran A. Mayer, M.D. (*Physiology*)  
Istvan Mody, Ph.D. (*Neurology, Physiology; Tony Coelho Professor of Neurology*)  
Peter M. Narins, Ph.D. (*Physiological Science*)  
Diane M. Papazian, Ph.D. (*Physiology*)  
Kenneth D. Philipson, Ph.D. (*Physiology*)  
Eduardo H. Rubinstein, M.D., Ph.D. (*Physiology*)  
George Sachs, M.D., D.Sc. (*Physiology; Leon J. Tiber, M.D., and David S. Alpert, M.D., Professor of Medicine*)  
Oscar U. Scremin, M.D., *in Residence (Physiology)*  
Judith L. Smith, Ph.D. (*Physiological Science*)  
Enrico Stefani, M.D., Ph.D. (*Anesthesiology, Physiology*)  
James G. Tidball, Ph.D. (*Pathology and Laboratory Medicine, Physiological Science*)  
Allan J. Tobin, Ph.D. (*Neurology, Physiological Science*)  
John McD. Tormey, M.D. (*Physiology*)  
Julio L. Vergara, Ph.D. (*Physiology*)  
James N. Weiss, M.D. (*Physiology; Chizuko Kawata Professor of Cardiology*)

Ernest M. Wright, D.Sc. (*Physiology*)  
Guido Zampighi, D.D.S., Ph.D. (*Neurobiology, Physiology*)

### Associate Professors

Gregory Brent, M.D. (*Physiology*)  
Alan Garfinkel, Ph.D. (*Medicine, Physiological Science*)  
Sally J. Krasne, Ph.D. (*Physiology*)  
Walter Metzner, Ph.D. (*Physiological Science*)  
Holly Middlekauff, M.D. (*Physiology*)  
Thomas J. O'Dell, Ph.D. (*Physiology*)  
Robert Ross, M.D. (*Physiology*)  
Barney A. Schlinger, Ph.D. (*Physiological Science*)  
Nancy L. Wayne, Ph.D. (*Physiology*)

### Assistant Professors

Rachelle H. Crosbie, Ph.D. (*Physiology*)  
Robb MacLellan, M.D., *in Residence (Physiology)*  
Jonathan R. Monck, Ph.D. (*Physiology*)  
Patricia E. Phelps, Ph.D. (*Physiological Science*)  
Brett Premack, Ph.D. (*Physiology*)  
Stephanie A. White, Ph.D. (*Physiological Science*)  
Hal Yee, M.D., Ph.D., *in Residence (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 40 professors in the 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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degree

The Molecular, Cellular, and Integrative Physiology Program offers the Doctor of Philosophy (Ph.D.) degree in Molecular, Cellular, and Integrative Physiology.

## Admission

Applicants interested in the Ph.D. program may apply directly to the interdepartmental program or may apply through UCLA ACCESS to Programs in the Molecular, Cellular, and Integrative Life Sciences, 172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu). Students admitted through UCLA ACCESS complete one year of graduate study that includes coursework in cellular and molecular biology and research ethics prior to admission to the interdepartmental program. Coursework completed through ACCESS is credited toward the Ph.D. program. In addition, STAR program participants are admitted if their research mentor is on the interdepartmental program training faculty.

Successful applicants must meet the University's general graduate admission requirements and usually hold a bachelor's degree in a biological or physical science. Prior to matriculation, applicants generally are expected to have completed college coursework in mathematics though calculus, college physics, general chemistry, organic chemistry, biochemistry, and biology. Courses in cell and molecular biology are recommended. Applicants who lack preparation in a recommended course, but who otherwise have outstanding academic records, may be admitted to graduate status provided that they make up the deficiencies.

Applicants must submit (1) transcripts of grades for all college coursework, (2) results of the Graduate Record Examination (GRE) General Test and Subject Test in Biology or in the undergraduate major (applicants who hold the M.D. may submit Medical College Admission Test scores in lieu of GRE scores), (3) at least three letters of recommendation, and (4) an essay describing academic background, work experience, and motivation for research and career goals. Students whose native language is not English must take the Test of English as a Foreign Language (TOEFL) or the Interna-

tional English Language Testing System (IELTS) examination.

Selected applicants are invited to interview with members of the faculty and graduate student representatives. The graduate program committee decides on admission based on the application information, recommendation of the interviewers, and availability of appropriate training faculty and financial support for applicants.

## Doctoral Degree

Major fields/subdisciplines include biophysics, cellular and molecular physiology, and integrative/comparative physiology.

Students complete two years of coursework. The first year consists of approved graduate coursework in molecular biology, cellular biology, research ethics, and physiology (the ACCESS curriculum meets this requirement). Students who hold graduate or professional degrees (e.g., M.S., M.D., D.D.S) may be exempt from first-year coursework if previously completed coursework is substantially similar. The second year consists of three additional courses related to the students' research interests.

Students are required to complete two quarters as a teaching assistant. Advanced students, such as STAR or MSTP program participants or those who hold the M.S. degree, may be exempt from this requirement.

Written and oral qualifying examinations are required. The written examination is based on the students' ability to read and critically evaluate research reports in their selected subdiscipline. Following successful completion of the written examination, students take the University Oral Qualifying Examination, the purpose of which is to determine their ability to formulate research questions in physiology and test ability to design testable hypotheses and experimental protocols relevant to the research questions, as well as to review the dissertation project. Following completion of the examinations, there is a midstream oral presentation in which progress on the research project is reviewed by the dissertation committee.

## MOLECULAR TOXICOLOGY

*Interdepartmental Program  
School of Public Health*

UCLA  
56-070 Center for the Health Sciences  
Box 951772  
Los Angeles, CA 90095-1772  
(310) 206-1619  
<http://www.ph.ucla.edu/moltox/>

Oliver Hankinson, Ph.D., *Director*

### Professors

Judith A. Berliner, Ph.D. (*Pathology and Laboratory Medicine*)  
Curtis D. Eckhart, Ph.D. (*Environmental Health Sciences*)  
Christopher S. Foote, Ph.D. (*Chemistry and Biochemistry*)  
John R. Froines, Ph.D. (*Environmental Health Sciences*)  
Armand J. Fulco, Ph.D. (*Biological Chemistry*)  
Oliver Hankinson, Ph.D. (*Pathology and Laboratory Medicine*)  
Louis J. Ignarro, Ph.D. (*Molecular and Medical Pharmacology*)  
Andre Nei, M.D., Ph.D. (*Medicine*)  
Robert H. Schiestl, Ph.D. (*Pathology and Laboratory Medicine*)  
Joan S. Valentine, Ph.D. (*Chemistry and Biochemistry*)  
Zuo-Feng Zhang, M.D., Ph.D. (*Epidemiology*)

### Professor Emeriti

Arthur K. Cho, Ph.D. (*Molecular and Medical Pharmacology*)

### Associate Professors

Michael D. Collins, Ph.D. (*Environmental Health Sciences*)  
Jon M. Fukuto, Ph.D. (*Molecular and Medical Pharmacology*)  
William P. Melega, Ph.D. (*Molecular and Medical Pharmacology*)  
Michael D. Roth, M.D. (*Medicine*)

### Assistant Professors

Catherine F. Clarke, Ph.D. (*Chemistry and Biochemistry*)  
Wendie A. Robbins, Ph.D., M.S.N. (*Environmental Health Sciences, Nursing*)

## 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. The program is designed to train multidisciplinary professionals in molecular toxicology, as well as to develop linkages between researchers and educators in the basic biological and chemical sciences with faculty whose interests are in toxicology. There is a particular emphasis on mechanisms of toxicity.

The program is administered through the School of Public Health, where the existing toxicology concentration in the Department of Environmental Health Sciences has been expanded. Program faculty and students seek to address problems of societal significance in California related to public exposure to toxic chemical agents in the environment, from foods and therapeutic drugs to other lifestyle exposures, and to investigate gene-environment interactions that have toxicologic significance. Specialties within the program include, but are not limited to, neurotoxicology, immunotoxicology, reproductive and developmental toxicology, genetic toxicology, toxicokinetics and metabolism, genetics and molecular biology, carcinogenesis, and environmental toxicology.

Toxicology is a discipline that is central to the long-term development of environmental pro-

grams in the next century. The traditional training programs in the University are changing to better address societal need and to provide the highest level of intellectual leadership. Whether and how to address chemical toxicity is now recognized as a chief limitation in the ability to stimulate growth and new technological change. The training of new scientists equipped with skills to address toxicologic issues and who also understand the multidisciplinary nature of the problems is key to our long-term progress as a society.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degree

The Molecular Toxicology Program offers the Doctor of Philosophy (Ph.D.) degree in Molecular Toxicology.

## Admission

A master's degree is not a requisite for admission. In addition to meeting University minimum standards, applicants must have an excellent record, perform satisfactorily on the Graduate Record Examination (GRE), have completed a minimum of a 4-unit undergraduate course in statistics, and be acceptable to the admissions committee.

The ideal training for an undergraduate is either a major in Chemistry or Biology and a solid background in both of these disciplines. Courses of value for toxicologists include the following: calculus, statistics, cell biology, genetics, physiology, microbiology, molecular biology, inorganic chemistry, organic chemistry, biochemistry, and physical chemistry. However, excellent students from all disciplines are considered for admission and, if admitted, can make up deficiencies during their graduate study.

Students who apply directly to the program do so through an application process in the School of Public Health. Applications are accepted for Fall Quarter only. The deadline is January 30 for admission for the following Fall. Completed applications consist of the *UCLA Application for Graduate Admission*, the School of Public Health supplemental application, two official copies of transcripts, three letters of recommendation, GRE General Test scores, and a statement of purpose. International applicants whose native language is not English must also submit results from the Test of English as a Foreign Language (TOEFL) or

International English Language Testing System (IELTS) examination.

Students who apply through UCLA ACCESS to Programs in the Molecular, Cellular, and Integrative Life Sciences (172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-1570, 310-206-6051, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu)), a standard first-year biomedical curriculum that allows entry into a department in the second year, declare Molecular Toxicology as their preferred major at the end of the first year, submit a supplemental Public Health application and, once accepted, a change of major form.

## Doctoral Degree

During the first year all Ph.D. students follow the UCLA ACCESS curriculum. In all quarters of the first year students take a 2-unit seminar and a 6-unit laboratory rotation within the department of a faculty sponsor. In Fall Quarter of the second year students take two required courses in molecular toxicology. Beginning with the second year students spend most of their time on dissertation research.

All students serve as teaching assistants or readers for two quarters.

Written and oral qualifying examinations are required. The written examination consists of a research proposal, the topic of which cannot be closely related to the dissertation topic.

Following successful completion of the proposal, students take the University Oral Qualifying Examination, which is organized to question them regarding the proposal and in general regarding scientific topics that should be common knowledge to a doctoral-level toxicologist.

# MUSIC

*School of the Arts and Architecture*

UCLA  
2539 Schoenberg Music Building Annex  
Box 951616  
Los Angeles, CA 90095-1616  
(310) 825-4761  
<http://www.music.ucla.edu/>

Jon Robertson, D.M.A., *Chair*

## Professors

Roger Bourland, Ph.D.  
Kenneth Burrell, B.A.  
Gary G. Gray, M.M.  
Thomas F. Harmon, Ph.D.  
Gordon Henderson, M.M.E.  
Mark Kaplan, B.A.  
Ian Krouse, D.M.A.  
D. Thomas Lee, D.M.A.  
Vitaly Margulis, M.M.  
Timothy Mussard, D.M.A.  
Donald Neuen, M.A.  
Walter Poncé, D.M.A.  
Paul V. Reale, Ph.D.  
Jon Robertson, D.M.A.  
Robert S. Winter, Ph.D.

## Professors Emeriti

Elaine R. Barkin, Ph.D.  
Paul E. Des Marais, M.A.  
Maurice Gerow, Ph.D.  
Frederick F. Hammond, Ph.D.  
Henri Lazarof, M.F.A.  
Roy E. Travis, M.A.

## Associate Professors

Frank Heuser, Ph.D.  
David Lefkowitz, Ph.D.

## Assistant Professors

Tom Beghin, Ph.D.  
Juliana Gondek, M.M.

## Senior Lecturers S.O.E.

John L. Hall, M.M.  
Sheridon W. Stokes

## Senior Lecturers Emeriti

Maureen D. Hooper, Ed.D.  
Bess Karp, M.A.  
Samel Krachmalnick

## Lecturers

Paul Chihara, Ph.D.  
Robert Karon, M.A.  
Lou Anne Neill, M.A.  
Mitchell T. Peters, M.M.  
Calvin Price, M.M.

## Adjunct Professors

Tommy Johnson, B.M.  
Evan Wilson

## Adjunct Associate Professor

William Booth, M.M.

## Adjunct Assistant Professors

Mark Carlson, Ph.D.  
Charles Coker, M.M.  
Judith Hansen, B.A.  
Jennifer Judkins, Ph.D.  
Marion Kuszyk, M.M.  
Brian O'Connor, B.M.  
Peter Yates, D.M.A.

## Visiting Professor

Hienz Blankenburg  
Collin Carr  
Jerry Goldsmith  
Christopher Hanulik, B.M.

## Visiting Associate Professors

Alan Chapman  
William Vendice, B.A.

## Visiting Assistant Professor

Rosemarie Krovoza M.M.  
Douglas Masek, D.M.A.  
Paulette Miller M.M.

## Scope and Objectives

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.

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 perfor-

mance. 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, and conducting.

## Undergraduate Study

### Music B.A.

#### 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:* Music 20A, 20B, 20C, 12 units from courses 60A through 65, two years (12 units) of performance organizations (courses C90A through 90N) for a letter grade, Music History 26A, 26B, 26C. 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, 90J, 90K, 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.

#### The Major

*Required (for all concentrations except composition and jazz studies):* A minimum of 48 upper division units, including Music 120A, 120B, 120C, Music History 126A, 126B, 126C, and six courses selected from one of the concentrations listed below.

*Composition:* A minimum of 65 upper division units, including Music 104A or 104B, 106A, 106B, 116, 120A, 120B, 120C (accelerated sections), 123A, 123B, 123C, 124A or 124B or 124C, C176, and at least 8 elective units selected from courses 101, 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), 156, 199, Ethnomusicology 117, 128, C136A, C136B, 146, C156A, 156B, 157, 158A, 158B, 158C, 160A, 160B, 170, 181. A senior recital, to include at least 30 minutes of original music, is also required (exceptions by petition only).

*Music Education:* Music 100A, 100B, 100C, 116, 117, 8 units from courses 115A through 115E. Students are encouraged to take additional coursework from 112A, 112B, 118A, 118B, 199, Ethnomusicology 170, 172B, 174 as their schedules allow. They are required to en-

roll in the type of performance organizations (courses C90A through 90N; 90M may be used in Fall Quarter only) that they plan to teach. In addition, if they intend to teach instrumental music, they are encouraged to select three terms of choral organizations (courses C90A, 90B, 90C, 90J, or 90K); if they intend to teach general music, they are encouraged to elect three terms of ethnomusicology performance organizations (Ethnomusicology 91A through 91Z).

*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 101, 106B, 112A, 112B, 116, 117, 118A, 118B, 151A, 151B, 199, Music History 127A through 127G, 130, 133, 134, 135A, 135B, 135C, 139, 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, 90J, 90K, or 90L; students taking keyboard or guitar lessons may choose from C90A through 90N.

*Theory:* Music 120C and six courses selected in consultation with a faculty adviser.

## Jazz Studies Concentration

### Preparation for the Major

*Required:* Music 20A, 20B, 20C, 12 units from courses 60A through 65 or 12 units of course 71, two years (12 units) of performance organizations (courses C90A through 90N) for a letter grade, Music History 26A, 26B, 26C.

### The Major

*Required:* Music 120A, 120B, 120C, M127, M129A, M129B, M129C, M186, 12 units of course M177, Ethnomusicology M110A, Music History 126A, 126B, 126C, 150.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### 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.) and Doctor of Philosophy (Ph.D.) degrees in Music.

## Admission

### M.A. in Music

Applicants to the M.A. program must have completed a B.A. degree, or its equivalent, in Music. Other fields of study are accepted if applicants have the musical training and musicianship necessary to pursue graduate work. Transcripts must show at least 52 quarter units of work outside music, including one college year (or its high school equivalent) of French, German, Italian, or Spanish and an average grade of at least B in the basic areas that normally constitute the undergraduate core curriculum in music (harmony, counterpoint, music history, analysis, and musicianship).

Applicants are required to (1) take a departmental assessment examination, (2) submit a letter describing background of study and stating reasons for wishing to pursue graduate studies in music, (3) submit three letters of recommendation from former instructors and/or professionals with whom applicants have worked, and (4) submit written examples of work. For composition, musical scores of at least three compositions must be submitted.

No application can be considered until the departmental assessment examination has been taken and all of the above materials have been received.

The assessment examination for the M.A. is administered at Schoenberg Music Building on the UCLA campus twice a year. Students who are applying from outside the Southern California area and find it impossible to take the examination on campus can make arrangements with the Student Services Office to take the examination in absentia before the dates listed below. Information is included in the applicant's packet.

The assessment examination is approximately five hours long and covers music theory, history and analysis, and musicianship skills.

The dossier and assessment examination are reviewed, along with those of other applicants, by each area to assess the applicant's potential as a graduate student in that field at UCLA.

### Master of Music

Applicants to the M.M. program must have completed a B.A. degree, or its equivalent, in Music. Other fields of study are accepted if applicants have the musical training and musicianship necessary to pursue graduate work. Transcripts must show at least 52 quarter units of work outside music, including one college year (or its high school equivalent) of French, German, Italian, or Spanish and an average grade of at least B in the basic areas that normally constitute the undergraduate core curriculum in music (harmony, counterpoint, music history, analysis, and musicianship).

Applicants are required to (1) submit a statement of purpose which also includes a description of their background of study, (2) submit three letters of recommendation from former instructors and/or professionals with whom the

applicants have worked, and (3) perform an audition. A repertoire list, summary of recent performances, and sample recital programs are also required.

The placement examination, which is administered during the week before classes start in Fall Quarter, is required of all new M.M. students and covers theory, musicianship skills, and music history. Those who do not pass any portion are required to do remedial work which must be completed by the end of the first year.

### Ph.D. in Music

Applicants to the Ph.D. program must have completed an M.A. degree in Music (or the equivalent degree). The degree normally should have been taken in the same field of concentration as the proposed Ph.D. If applicants wish to obtain a Ph.D. in a field other than that of the M.A., additional coursework, as prescribed by the area, must be completed.

Applicants are required to (1) take a departmental assessment examination, (2) submit a letter describing background of study and stating reasons for wishing to pursue graduate studies in music, (3) submit three letters of recommendation from former instructors and/or professionals with whom the applicant has worked, and (4) submit written examples of work. For composition, musical scores of at least three compositions are required. Applicants should submit their M.A. thesis or composition, if possible.

No application can be considered until the assessment examination has been taken and all of the required materials have been received.

The assessment examination for the Ph.D. is administered at Schoenberg Music Building on the UCLA campus twice a year. Students who are applying from outside the Southern California area and find it impossible to take the examination on campus can make arrangements with the Student Services Office to take the examination in absentia before the dates listed below. Information is included in the applicant's packet.

The assessment examination is approximately five hours long and covers music theory, history and analysis, and musicianship skills.

The dossier and assessment examination are reviewed, along with those of other applicants, by each area to assess the applicant's potential as a graduate student in that field at UCLA.

### Doctor of Musical Arts

Applicants to the D.M.A. program are required to (1) submit a statement of purpose which also includes a description of their background of study, (2) submit three letters of recommendation from former instructors and/or professionals with whom the applicants have worked (for the D.M.A. the Music Department is especially interested to hear from persons who can speak to the applicant's academic potential), (3) submit a sample seminar or research paper, and (4) perform an audition. A repertoire list, summary of recent perfor-

mances, and sample recital programs are also required.

No application can be considered until the audition has been taken and all of the required materials have been received.

The placement examination, which is administered during the week before classes start in Fall Quarter, is required of all new D.M.A. students and covers theory, musicianship skills, and music history. Those who do not pass any portion are required to do remedial work which must be completed by the end of the first year.

### Admission Timetable

Note: Applicants for fellowships must take the early examination; all monies are awarded at that time.

December 30 — Application for admission/fellowship is due.

January 30 — Supplementary application materials are due.

End of January — Examination/audition is administered.

By March 15 — Notice of acceptance or denial is sent.

April 1 — Supplementary application materials are due.

Early April — Examination is administered.

By May 15 — Notice of acceptance or denial is sent.

Failure to meet any deadline may result in a delay in action or no action on an application for admission, as well as that for a fellowship or assistantship.

## Master's Degrees

### M.A. in Music

The department offers the M.A. degree in the field of composition.

The M.A. degree is offered through the thesis plan. Students are required to complete a minimum of nine courses, five of which must be at the 200 level. In addition to the thesis, students are expected to produce other works involving both instrumental and vocal music for both solo and ensemble forces. Students are responsible for the campus presentation of one original work during each year of residency.

There is a language requirement for this degree.

### Master of Music

The department offers the M.M. degree in all classical solo instruments, voice, and conducting.

The M.M. degree is offered through the comprehensive examination plan. The examination takes the form of a master's recital. Students are required to complete a minimum of 68 required and elective units of coursework, all at the graduate and professional level. There are specific course requirements for instrumental/vocal performance and conducting. The department provides a maximum of six

quarters of enrolled private instruction in performance.

There is a language requirement for this degree.

## Doctoral Degrees

### Ph.D. in Music

The department offers the Ph.D. degree in the field of composition and in the field of composition with a cognate in ethnomusicology.

Students may petition to their area on the advice of their graduate adviser for exemption from specific requirements on the basis of equivalent work done at the M.A. level. If students are in the program in composition with the cognate in ethnomusicology and have had no prior coursework in ethnomusicology, they are required to take a graduate course sequence in ethnomusicology. They are also encouraged to participate in the ethnomusicology performance organizations.

Students may complete the residence requirement by electing courses recommended by the graduate adviser from the 200- or 100-level course requirements for the M.A. degree. In addition to the dissertation, students are expected to produce other works involving both instrumental and vocal music for both solo and ensemble forces. Students are responsible for the campus presentation of one original work during each year of residency.

Written and oral qualifying examinations are required. The six written examinations are in style composition, the general history of music, analysis of form and style, twentieth-century music, and two or more from: acoustics, aesthetics, psychology of music, ethnomusicology, or music theory from the medieval period to the present with an optional emphasis on theoretical writings before or after 1700. Students with a cognate in ethnomusicology have some variations on the areas.

Following successful completion of the written examinations, a departmental oral qualifying examination is scheduled. After successful completion of the written and departmental oral qualifying examinations and the language requirement, students submit the dissertation topic and take the University Oral Qualifying Examination.

There is a language requirement for this degree.

### Doctor of Musical Arts

The department offers the D.M.A. degree in all classical solo instruments, voice, and conducting.

Students are required to complete a minimum of 102 units, all at the graduate and professional level. There are specific requirements in instrumental/vocal performance and conducting and one elective. Students who received the M.M. at UCLA are expected to complete at least 32 additional units and two recitals beyond the M.M. requirements, subject to the specific requirements of their area of specialization.

The department provides a maximum of nine quarters of enrolled private instruction in performance. Students who were admitted to the program with a master's degree from another institution may petition for up to a year of private lessons (18 units) and 12 units of academic courses to be applied to D.M.A. requirements.

Written and oral qualifying examinations and two preliminary recitals are required. The written examinations cover material in a required three-quarter core sequence, one of the performance practice seminars, and the appropriate pedagogy course.

Following successful completion of the written examinations, students take the University Oral Qualifying Examination, which consists of a defense of the final recital repertoire dissertation topic.

There is a language requirement for this degree.

## 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)** (Formerly numbered 3A-3B.) 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)** Laboratory, three hours. Class instruction in elementary ear training and keyboard skills.

**8G. Graduate Piano Sight-Reading. (2)** Limited to graduate students. Designed to help entering graduate students remedy entrance deficiencies, to be cleared by examination. May be repeated. S/U grading.

**10. Computer-Assisted Sight-Singing Laboratory. (2)** Lecture, two hours; laboratory, one hour. Requisite: course 1A. Individualized, self-instructional approach for development of sight-singing skills through use of a music computer, keyboard instrument, and linear program learning.

**12A-12B. Counterpoint. (2-2)** Lecture, four hours. **12A.** Preparation: music theory placement examinations. 16th-century modal counterpoint in two parts, including writing of motets. **12B.** Requisites: courses 20A, 20B, 20C. 18th-century tonal counterpoint in two parts, including writing of inventions.

**15. Art of Listening. (4)** Lecture, three hours; laboratory, one hour. 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.

**19. Hollywood Musical and the American Dream. (4)** Lecture, three hours; discussion, one hour. Examination of composers, writers, and filmmakers whose creative efforts changed how the world came to view the American dream. Full features and music clips illustrate American life as seen through the Hollywood musical. 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.

**20B. Music Theory II. (4)** Lecture, four hours; discussion, four hours. Requisite: course 20A with a 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).

**20C. Music Theory III. (4)** Lecture, four hours; discussion, four hours. Requisite: course 20B with a 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.

**23. Composition Workshop. (2)** Requisites: courses 20A, 20B, 20C. Introductory composition course which provides compositional experiences at a basic level. May be repeated once for credit.

**60A-65. Undergraduate Instruction in Performance. (2 each)** Limited to Music majors (all freshman/sophomore majors, and junior/senior majors not in performance specialization). Individual instruction of one hour per week. Students must perform in a practicum once 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. **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.

**71. Instruction in Jazz Performance. (2)** Laboratory, one hour. Study of jazz repertoire and techniques for specific instruments and voice. May be repeated for a maximum of 12 units.

**80F. Beginning Guitar Class. (4)** Laboratory, five hours; preparation/practice, seven hours. Introduction to guitar techniques, accompanying, and arranging for the instrument; coverage of note reading and tablature. Offered in summer only. P/NP or letter grading.

**C90A. UCLA Chorale. (2)** Activity, four hours. Preparation: audition. Select mixed ensemble of 50 to 60 voices performing choral music appropriate for a 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. Collegiate Chorus. (2)** Nonaudition mixed chorus of 50 to 150 voices performing medium- and concert-length choral works from baroque to the present. Collegiate Chorus performs only as part of "Choral Union," a large chorus made up of all of the 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)** 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.

**90H. Collegium Musicum. (2)** Activity, three hours. Preparation: audition. Group performance of vocal and instrumental music of medieval, Renaissance, and baroque eras on period instruments. May be repeated for credit without limitation. P/NP or letter grading.

**90J. Men's Glee Club. (2)** Activity, three hours. Preparation: audition. Select male chorus of 40 to 45 voices performing male choral music of all periods, with emphasis on popular and folk arrangements. May be repeated for credit without limitation. P/NP or letter grading.

**90K. Women's Chorus. (2)** Activity, three hours. Preparation: audition. Select female chorus of 45 to 55 voices performing treble choral music of all periods, with emphasis on music after 1750. May be repeated for credit without limitation. 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)** Activity, two hours; outside preparation and practice, four hours. Limited to Music majors. Introduction to principles of Alexander technique. Study of musician's postural attitude at the instrument. Designed to help instrumentalists and vocalists prevent injuries and performance anxiety. May be repeated with consent of instructor. P/NP 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.

**101. Advanced Keyboard Harmony and Score Reading. (4)** Requisite: course 120B. Intensive individual work in keyboard harmony and reading of chamber and orchestral scores. May be repeated once for credit.

**102. Instrumentation. (4)** Lecture, three hours. Requisite: course 120B with a grade of C (2.0) or better. Not open for credit to students with credit for course 106A. Designed for Music majors in specializations other than composition. Ranges and characteristics of instruments, exercises in scoring.

**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 the 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.

**105. Introduction to Composition. (4)** Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Designed for Music majors in specializations other than composition. Nature of compositional process, with selected exercises in specific techniques and styles.

**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.

**109A-109B-109C. Composition for Motion Pictures and Television. (2-2-2)** Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Course 109A is requisite to 109B, which is requisite to 109C. Composition of music for dramatic and documentary film in cinema and television. Techniques used in recording and editing.

**112A-112B. Practical Scoring. (4-4)** Lecture, two hours; laboratory, two hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C, Music History 26A, 26B, 26C. Emphasis on practical problems in scoring for small and large ensembles at various educational levels. **112A.** Band Scoring; **112B.** Choral Scoring.

**113A-113B. Music Literature for Children. (4-4)** Lecture, three hours; laboratory, one hour. Requisites: course 1A, Music History 2A. Course 113A is not requisite to 113B. Designed for nonmusic majors, particularly elementary education students. Study of music literature applicable to elementary school programs. **113A.** Emphasis on listening analysis, movement, and improvisation. **113B.** Emphasis on class performance — music reading, singing, and folk instruments.

**115A-115E. Study of Instrumental and Vocal Techniques. (1 each)** Laboratory, three hours. Requisite or corequisite: course 20A. Applied studies in basic performance techniques and tutorial materials. Each of courses 115A through 115D may be repeated once for credit. Letter grading. **115A.** Strings; **115B.** Woodwinds; **115C.** Brass; **115D.** Percussion; **115E.** 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.

**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.

**118A-118B. Advanced Study and Conducting of Choral and Instrumental Literature. (2-2)** Lecture, one hour; laboratory, two hours. Requisites: courses 116, 117. Detailed investigation of musical styles, performance practices, and rehearsal techniques. Each course may be repeated once for credit. **118A.** Choral; **118B.** Instrumental.

**120A. Music Theory IV. (4)** Lecture, four hours; discussion, four hours. Preparation: passing score on departmental first-year examination. Requisite: course 20C with a grade of C (2.0) or better. Theory: baroque counterpoint including chorale prelude; two-part invention; exposition and first modulation of a three-part invention; canon 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.

**120B. Music Theory V. (4)** Lecture, four hours; discussion, four hours. Requisite: course 120A with a 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.

**120C. Music Theory VI. (4)** Lecture, four hours; discussion, two hours; listening, two hours. Requisite: course 120B with a grade of C (2.0) or better. 20th-century harmonic language, including nonfunctional harmony, polytonality, free atonality, serialism, and minimalism.

**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.

**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.

**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 the 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.

**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.

**M127. Jazz Keyboard Harmony. (1)** (Same as Ethnomusicology M127.) Laboratory, two hours. Study of jazz harmony through use of piano keyboard. Development of basic keyboard skills in order to manipulate essential chord voicings and harmonic passages in jazz music. Instruction in basic jazz theory.

**M129A-M129B-M129C. Jazz Theory and Improvisation. (2-2-2)** (Same as Ethnomusicology M129A-M129B-M129C.) Lecture, four hours. Elements of jazz theory and improvisation. **M129A.** Basic jazz harmonic constructions, as well as melodic, rhythmic, and harmonic concepts, and how to apply those elements to personal efforts in improvisations. **M129B.** Requisite: course M129A with a grade of C or better. Medium-level jazz harmonic constructions. **M129C.** Requisite: course M129B with a grade of C or better. Advanced-level jazz harmonic constructions.

**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 the art form from its European beginning to the American music theater of today. P/NP or letter grading. **136A.** Early Forms to 1900; **136B.** 1900 to 1945; **136C.** 1945 to 1975.

**150. Introduction to Music Criticism. (4)** Lecture, three hours. Designed for Music majors. Readings and discussion of music criticism past and current, and exercise in the writing of criticism of live concert events and recordings. Designed to aid students (performers, critics, or listeners) in verbalizing the experience of listening to music.

**151A-151B. History of Musical Performance Practices. (4-4)** Requisites: courses 20A, 20B, 20C, 120A, 120B, Music History 26A, 26B, 26C. General survey of musical interpretation and re-creation from viewpoint of stylistic authenticity. **151A.** Medieval through Baroque; **151B.** Classic through 20th Century.

**155. Audio Technology for Musicians. (4)** Lecture, two hours; laboratory, three hours. Requisites: courses 20A, 20B, 20C. Theory and practice of sound engineering in relation to concert and studio recording techniques.

**156. Electronic Music: Theory and Techniques. (4)** Lecture, three hours; laboratory, three hours. Requisites: courses 123A, 123B, 123C. Designed for composition students. Applicable acoustical and electronic theory, history of technological and compositional development of classical electronic music. Analysis, manipulation of analog and digital synthesizers and ancillary equipment, invention and realization of materials.

**158. New Orleans Jazz. (4)** Lecture, three hours; discussion, two hours. Major black and Creole figures in origin and development of jazz in New Orleans from turn of the 20th century through the 1960s, with emphasis on polycultural roots, local municipal traditions, and stylistic analysis.

**160A-165. Undergraduate Instruction in Performance for the Performance Specialist. (2 each)** Limited to junior/senior Music majors who have been accepted by audition into performance specialization. Individual instruction of one hour per week. Students must perform in a noon concert once during their junior year and must present a 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. **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. (4)** Lecture, three hours. Corequisite: course 164A or 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.

**174A-174B-174C. Language of Song. (2-2-2)** Designed for Music majors. Sounds of the language as applied to singing, including use of International Phonetic Alphabet, translation of art song texts, and application to student's current vocal repertoire. Background in the language is encouraged. **174A.** German; **174B.** French; **174C.** Italian.

**C175. Chamber Ensembles. (2)** Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to the ensemble. 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; studio, three hours. Preparation: advanced experience and accomplishment in serious composition (art music). Requisite: course 156. Limited enrollment. Analog and digital realizations of original compositional materials culminating in a composition at least five minutes in duration. May be concurrently scheduled with course C226.

**M177. Jazz Combo. (2)** (Same as Ethnomusicology M177.) Small group performance of various styles in ensembles of three to 10 musicians. May be repeated for a maximum of 12 units.

**C185. Historical and Philosophical Foundations of Music Education. (4)** Lecture, three hours. Preparation: completion of undergraduate music education specialization. Development of music education in the U.S. according to established schools of thought. May be concurrently scheduled with course C225.

**M186. Senior Recital or Research Paper. (No credit)** (Same as Ethnomusicology M186.) Preparation and performance of one-hour senior recital of jazz repertoire or preparation of a senior paper (topic and length to be approved by assigned adviser). P/NP grading.

**199. Special Studies in Music. (2 or 4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average. Limited to seniors. Individual studies in music resulting in research project. May be repeated for a maximum of 8 units.

## Graduate Courses

**202. Analysis for Performers. (4)** Lecture, three 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.

**203. Musical Terminology. (4)** Lecture, three hours. Designed for graduate music students. Survey of musical terminology intended to clarify the performance and interpretation of vocal and instrumental music in the European tradition. Coverage of terms in Italian, French, and German.

**204. Music Bibliography for Performers. (4)** Lecture, three hours. Designed for graduate music performance students. Survey of general bibliographic techniques in music, with emphasis on materials for the performing musician.

**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.

**C225. Historical and Philosophical Foundations of Music Education. (4)** Lecture, three hours. Designed for graduate students. Development of music education in the 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.

**C226. Electronic Music Composition. (4)** Lecture, three hours; studio, three hours. Preparation: advanced experience and accomplishment in serious composition (art music). Requisite: course 156. Designed for graduate students. Limited enrollment. Analog and digital realizations of original compositional materials culminating in a composition of major proportions at least seven minutes in duration. May be concurrently scheduled with course C176.

**251A-251D. Seminars: Special Topics in Composition and Theory. (4 each)** Seminar, three hours. Intensive exploration of specialized aspects of composition. May be repeated for credit. **251A.** Orchestration; **251B.** Specific Media; **251C.** Specific Styles; **251D.** Compositional Analysis.

**252A-252B-252C. Seminars: Composition. (6-6-6)** Seminar, three hours. Requisites: courses 106B, 123C. Course 252A is requisite to 252B, which is requisite to 252C. Courses may be taken out of sequence only with consent of instructor. May be repeated for credit.

**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 the period; analytical reports and practical applications in class demonstrations. May be repeated for credit. S/U or letter grading. **261A.** Medieval; **261B.** Renaissance; **261C.** Baroque; **261D.** Classical; **261E.** Romantic; **261F.** Contemporary.

**266A-266B. Seminars: Music of the 20th Century. (4-4)** Seminar, three hours. Designed for graduate music students. Discussion and analysis of major works of the 20th century, with emphasis on study of groups of works written at the same time in history. **266A.** 1900 to 1949; **266B.** 1950 to the Present.

**C267. Selected Topics in Keyboard Literature. (4)** Lecture, three hours. 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.

**270A-270G. Seminars: Music Education. (6 each)** Seminar, three hours. May be repeated for credit. **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 the arts, including training in arranging and multimedia production.

**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. Requisite: 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 eligible for certification at that level through the 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 a band/wind ensemble program. 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 marching 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.

**351. World Music in the Classroom: Implementation through Orff Schulwerk. (3)** Lecture, 36 hours. From Orff Schulwerk perspective, presentation of current visual and aural materials from various world cultures and methods for teaching world musics in the classroom. Discussions of problems — practical and philosophical — of incorporating world musics into curriculum. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

**370. Music in General Education. (2)** Designed for Graduate School of Education and Information Studies teacher training program students (all music students must take course 370 concurrently with Education 100A, 100B, 112, 312, 315A, 315B, and supervised teaching). Critical discussions related to supervised teaching in progress. May be repeated twice for credit.

**371. The Marching Band in Secondary Education. (2)** Study of contemporary marching band as a component of the music curriculum in secondary education, including current approaches, practices, and problems associated with the marching band, 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**401. New Music Forum. (2)** Tutorial/laboratory. Preparation: one year of graduate study in music at UCLA. Interactive course in preparation and performance of a premiere work especially composed for a graduate performer or performers by a graduate composer at UCLA.

**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 a musical instrument. Designed for graduate music students. Study of art of teaching a musical instrument, 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.

**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 the vocal mechanism and its use, plus study of noted teachers of the past and present. Further emphasis on practical teaching experience in class.

**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 a concert choral ensemble, with emphasis on music after 1700. May be repeated for credit without limitation. May be concurrently scheduled with course C90A.

**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. S/U or 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.

**C485. Chamber Ensembles. (2)** Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to the ensemble. 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. S/U or 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.

## Related Courses

### Folklore and Mythology

M243A. The Ballad

M243B. Problems in Ballad Scholarship.

### World Arts and Cultures

C173. Sound Resources for Performance

222. Music for Dance

## MUSICOLOGY

*College of Letters and Science*

UCLA  
2443 Schoenberg Music Building  
Box 951623  
Los Angeles, CA 90095-1623

(310) 206-5187

<http://www.humnet.ucla.edu/humnet/musicology/index.html>



Robert A. Walser, Ph.D., *Chair*

#### Professors

Philip Brett, Ph.D.  
Murray C. Bradshaw, Ph.D.  
Susan K. McClary, Ph.D.  
Robert A. Walser, Ph.D.

#### Professors Emeriti

Malcolm S. Cole, Ph.D.  
Frank A. D'Accone, Ph.D.  
Marie Louise Göllner, Ph.D.  
Edwin H. Hanley, Ph.D.  
Richard A. Hudson, Ph.D.  
Gilbert Reaney, M.A.  
Robert M. Stevenson, Ph.D.  
Robert L. Tusler, Ph.D.

#### Associate Professor

Raymond L. Knapp, Ph.D.

#### Assistant Professors

Robert W. Fink, Ph.D.  
Elisabeth C. LeGuin, Ph.D.  
Mitchell B. Morris, Ph.D.

## Scope and Objectives

The Department of Musicology provides students with a broad understanding of the history of the music of Europe and North America. Courses cover virtually every period, style, and genre, including jazz and other popular musics. Music history appeals to undergraduate students with musical backgrounds whose interests and principal career goals lie in areas other than professional performance. The graduate program provides students with a strong foundation that enables them to pursue careers in teaching and research.

The undergraduate program prepares students for graduate programs in music and related fields and offers training within the broader context of the humanities. If students wish to participate in performance at UCLA, they are encouraged to do so.

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

### Music History B.A.

#### 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 20A, 20B, 20C, Music History 26A, 26B, 26C, and 6 units (three terms) of performance organizations selected from Ethnomusicology 91A through 91Z or Music C90A through 90M. Enrollment in Music 20A re-

quires either a minimum score on the Music Theory Placement Examination administered by the Music Department or successful completion of Music 3A and 3B (or a comparable year-long college-level music theory sequence). Students with limited musicianship skills may find it useful to enroll in Music 4A, 4B, 4C concurrently with Music 20A, 20B, 20C. Transfer applicants may petition to waive courses 20A, 20B, 20C if they have completed equivalent work prior to enrolling at UCLA.

#### Transfer Students

To be admitted as Music History majors, transfer students with 90 or more units must complete the following courses prior to admission to UCLA: one year of music theory and one year of music history and analysis. Experience in music performance is strongly recommended.

#### The Major

*Required:* Music 120A, 120B, 120C, Music History 101, 126A, 126B, 126C; three courses from Music History 127A through 127G; two additional upper division music history courses (8 units) or, via petition, lower division courses with additional work as specified by the instructor; and three upper division ethnomusicology courses (12 units), each from a different geographical or cultural area. Students may petition to substitute theory courses in ethnomusicology or music history for one or more of Music 120A, 120B, 120C, as appropriate. Students may enroll in lessons from the Music Department, if instructors are available.

## Honors Program

The honors program is designed for Music History majors who wish to carry 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 Music History majors who have completed a minimum of four upper division music 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. Normally, the thesis must be completed during Fall Quarter of the senior year.

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 at least one quarter of Music History 195 with a grade of A- or better on the resulting thesis.

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 at least one quarter of

Music History 195 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. Beyond the required introductory course, 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. Any departmental undergraduate course is available for the minor, although some require substantial background in music. For further information, contact the department at (310) 206-5187.

*Required Lower Division Courses (12 units):* Music History 1 and two other courses, with grades of C or better.

*Required Upper Division Courses (20 units):* Five courses, of which one should be either from the Music History 127 series or a course in which students participate in an honors discussion group.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Musicology offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Musicology.

### Admission

The department admits only students whose degree objective is the Ph.D. An M.A. degree may be earned while completing requirements for the Ph.D. Applicants to the Ph.D. program must have completed an M.A. degree (or the equivalent) in Music. The degree normally is in musicology or music history. Otherwise additional coursework, as prescribed by the department, must be completed.

Applicants for the Ph.D. are required to (1) take the Graduate Record Examination (GRE) General Test, (2) submit a letter describing their background of study and stating reasons for wishing to pursue graduate studies in musicol-

ogy, (3) submit three letters of recommendation from former instructors and/or professionals with whom they have worked, (4) submit two official transcripts from each college attended, and (5) submit writing samples that demonstrate sound scholarship, intellectual vigor, and the ability to analyze musical and cultural complexities. Applicants should submit their M.A. thesis, if possible. No application can be considered until the GRE General Test has been taken and all of the above materials have been received.

### Admission Timetable

December 30 — Application for admission/fellowship is due.

January 30 — Supplementary application materials are due.

By March 15 — Notice of acceptance or denial is sent.

Failure to meet any deadline may result in a delay in action on an application for admission, as well as that for a fellowship or assistantship.

### Master's Degree

For fields, see Doctoral Degree.

The M.A. degree is offered through the comprehensive examination plan. Students are required to complete a minimum of nine courses at the 200 level, including specific requirements in musicology.

There is a language requirement for this degree.

### Doctoral Degree

The department offers the Ph.D. degree in the field of historical musicology. Degrees in composition, performance, and ethnomusicology and systematic musicology are offered through other departments.

In addition to the M.A. course requirements, students are required to take a minimum of six courses at the 200 level, up to two of which may be from outside of the department. Students whose M.A. is not from UCLA must take the required introductory seminars in musicology and complete a minimum of eight additional courses at the 200 level.

Written and oral qualifying examinations are required. After completion of the Ph.D. coursework students take the special field examination, which includes both written and oral components. Following successful completion of the examination, students take the University Oral Qualifying Examination, which is a defense of the dissertation prospectus.

There is a language requirement for this degree.

## Music History

### Lower Division Courses

**1. Introduction to Music History. (4)** (Formerly numbered 1A.) Lecture, four hours. Designed for Music History minors. Survey of issues and methods of music history and criticism for nonmajors. Letter grading.

**2A-2B. Introduction to Literature of Music. (4-4)** Lecture, four hours; laboratory, one hour. Course 2A is not requisite to 2B. Limited to undergraduate students. Designed for nonmusic majors. P/NP or letter grading.

**2A.** Technical and formal principles of music literature through the mid-18th century. **2B.** Music literature from the mid-18th century to the present.

**5. History of Rock and Roll. (4)** Lecture, four hours. Analysis of forms, practices, and meanings of rock and roll music, broadly conceived, from its origin to the 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. (4)** Lecture, four hours. History of music and cinema, particularly ways music is used to produce meanings in conjunction with the visual image. P/NP or letter grading.

**10. Music Now. (4)** Lecture, four hours. Guided interactive tour of contemporary musical landscape. Current events in historical perspective, with special attention to questions of culture, taste, and value hierarchies. Discussion and evaluation of representative works and practices from avant-garde, mainstream, world, and popular spheres. Letter grading.

**12W. Writing about Music. (5)** (Formerly numbered 110.) Lecture, two hours; laboratory, two hours. Preparation: ability to read music. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for former course 110. Emphasis on learning specific skills, incorporating technical description, historical contextualization, subjective reaction, and certain stylistic conventions necessary in writing about music. Satisfies Letters and Science Writing II requirement. Letter grading.

**13. 20th-Century Music of the Western World. (4)** Lecture, four hours. Survey of main trends in 20th-century music, with emphasis on representative works from avant-garde, mainstream, and popular traditions. P/NP or letter grading.

**26A-26B-26C. History and Analysis of Music I. (4-4-4)** Lecture, four hours; laboratory, one hour. Enforced requisite for course 26A: Music 20C. Course 26A is enforced requisite to 26B, which is enforced requisite to 26C. Students must receive a grade of C- or better to proceed to next course in sequence. History and literature of music from ancient world to 1815, with emphasis on analysis of representative works of each style period. Materials selected illustrate history of style and changing techniques of composition. Letter grading.

**28A-28B-28C. Early Music Laboratory. (2-2-2)** Laboratory, three hours. Enforced corequisite: course 26A or 26B or 26C. Practical laboratory in which students perform music of various periods, as correlated with courses 26A, 26B, 26C. P/NP or letter grading.

### Upper Division Courses

**101. Issues and Methods in Music History. (4)** Lecture, four hours. Requisite: course 26C. Introduction to principles, problems, and methods of music history and criticism through examination of selected issues. Letter grading.

**126A-126B-126C. History and Analysis of Music II. (4-4-4)** Lecture, four hours; laboratory, one hour. Requisites: course 26C, Music 20A, 20B, 20C. Course 126A is requisite to 126B, which is requisite to 126C. Students must receive a grade of C- or better to proceed to next course in sequence. History and literature of music from 1815 to the present, with emphasis on analysis of representative works of each style period. Materials selected illustrate history of style and changing techniques of composition. Letter grading.

**127A-127G. Selected Topics in History of Music. (4 each)** (Formerly numbered C127A-C127G.) Discussion, three hours. Requisites: courses 26A, 26B, 26C. Designed as proseminars for undergraduates in preparation for graduate work. Special aspects of music of each period studied in depth. P/NP or letter grading. **127A.** Middle Ages; **127B.** Renaissance; **127C.** Baroque; **127D.** Classic; **127E.** Romantic; **127F.** 20th Century; **127G.** Other Topics.

**130. Music of the U.S. (4)** Lecture, four hours. Survey of music in the U.S. from Colonial times to the present. P/NP or letter grading.

**131. American Popular Song. (4)** Lecture, four hours. Survey of American popular song from the 18th century to the present, with emphasis on relationship of popular song to important currents in American life and culture. P/NP or letter grading.

**132. Mozart. (4)** Lecture, four hours. 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.

**133. Bach. (4)** Lecture, four hours. Designed for undergraduate students. Life and works of Johann Sebastian Bach. P/NP or letter grading.

**134. Beethoven. (4)** Lecture, four hours. Designed for undergraduate students. Life and works of Ludwig van Beethoven. P/NP or letter grading.

**135A-135B-135C. History of Opera. (4-4-4)** Lecture, four hours; laboratory, one hour. Designed for undergraduate students. P/NP or letter grading. **135A.** Opera of Baroque and Classical Periods; **135B.** Opera of Romantic Period; **135C.** Opera of the 20th Century.

**M136. Music and Gender. (4)** (Formerly numbered 136.) (Same as Women's Studies M136.) Lecture, four hours. Analysis of gender ideologies in several musical cultures; representations of gender, the body, and sexuality by both male and female musicians; contributions of women to Western art and popular music; methods in feminist and gay/lesbian theory and criticism. Letter grading.

**M137. Gay and Lesbian Perspectives in Pop Music. (4)** (Same as Lesbian, Gay, Bisexual, and Transgender Studies M137.) Lecture, four hours. Survey of English-language popular music in the 20th century, with focus on lesbians, gay men, and members of other sexual minorities as creators, performers, and audience members. Letter grading.

**138. History of Electronic Dance Music. (4)** Lecture, four hours. Survey of groove-based electrified dance music from its origins in 1960s' pop and soul to the 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 a new "art" music. Letter grading.

**139. History and Literature of Church Music. (4)** Lecture, four hours. Study of forms and liturgies of Western church music. P/NP or 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.

**145. American Musical. (4)** Lecture, four hours. Survey of American musical in the 20th century, beginning with its roots in operetta, vaudeville, and Gilbert and Sullivan, and focusing on its connections to politics, technology, film, opera, and a variety of popular musical styles, including Tin Pan Alley, jazz, and rock. P/NP or letter grading.

**150. History of Jazz. (4)** Lecture, four hours. Designed for Music History, Music, and Ethnomusicology majors, and other students with some background in musical performance and theory. History and analysis of variety of jazz styles, from late 19th-century forerunners to the present, with emphasis on social meanings of musical practices. Letter grading.

**156. Studies in Musical Genres. (4)** Lecture, four hours. Survey of musical genres, with emphasis on analysis of structural organization. P/NP or letter grading.

**188. Topics in Music History. (4)** (Formerly numbered 188A-188F.) 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. Letter grading.

**189A-189B. The Symphony. (4-4)** (Formerly numbered 189.) Lecture, four hours. Designed for undergraduate students. Survey of symphonic literature from Haydn through the 20th century. Letter grading.

**195. Honors Course. (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 an overall GPA of 3.0. Limited to junior/senior Music History majors. One- to two-term independent research study project under supervision of an appropriate faculty member, culminating in department honors thesis of approximately 25 pages. P/NP or letter grading.

**199. Special Studies in Musicology. (2 or 4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average. Limited to seniors. Individual studies in musicology resulting in a research project. May be repeated for a maximum of 8 units. P/NP or letter grading.

## Musicology

### Graduate Courses

**200A. Research Methods and Bibliography. (6)** Lecture, three hours. Designed for graduate musicology students. Survey of general bibliographic material in music and introduction to discipline. Letter grading.

**200B. Historiography. (6)** Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Critical examination of principles and procedures which inform historical study of music, with emphasis on impact of recent cultural theory.

**200C. Contemporary Music Criticism. (6)** Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Introduction to recent developments in the field of musicology, focusing on problems of how music operates as a cultural practice and how musical meanings can most effectively be analyzed and written about.

**210. Medieval Notation. (6)** Lecture, three hours. Vocal and instrumental notation; paleography of the period.

**211. Renaissance Notation. (6)** Lecture, three hours. Vocal and instrumental notation; paleography of the period.

**250A-250B. Seminars: History of Music Theory. (6-6)** Seminar, three hours. Requisite: course 200A. Course 250A is not requisite to 250B. **250A.** Investigation of principal theoretical writings concerning music from antiquity through Zarlino. **250B.** Investigation of principal theoretical writings concerning music from Rameau to the present.

**254. Structure and Interpretation of Music. (4)** Seminar, three hours. Requisite: course 200C. Critical survey of recent music theory and its analytical methods for musicologists. Questions of analysis and value judgment, formalism and autonomy, popular and vernacular musics, cultural versus musical theory, hermeneutic risks and (im)proprieties. Individual students work practically and in depth on specific analytic problems most relevant to their interests. Letter grading.

**256. Seminar: Musical Form. (6)** Seminar, three hours. Requisites: courses 126A, 126B, 126C. Analysis of structural organizations in music. Specific topics vary from year to year.

**257. Music of the U.S. (6)** Discussion, three hours. Designed for graduate students. Examination of principal figures and trends in music of the U.S. since the 18th century.

**260A-260F. Seminars: Historical Musicology. (6 each)** Seminar, three hours. Requisite or corequisite: course 200A. Specific topics vary from year to year. May be repeated for credit. Letter grading. **260A.** Medieval; **260B.** Renaissance; **260C.** Baroque; **260D.** Classical; **260E.** Romantic; **260F.** 20th Century.

**261A-261F. Performance Practices. (4 each)** Lecture, three hours. Designed for graduate students. Investigation of primary source readings in performance practices as related to the 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.

**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.

**263. History of 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.

**265. Ideal of Authenticity in Performance: 1827 to the Present. (4)** Seminar, three hours. Preparation: ability to read musical notation and knowledge of musical history equivalent to successful completion of courses 126A, 126B, 126C. Not a course in performance, but intellectual history of performance and interpretation from solidification of classical canon to disintegration. How have performers mediated between claims of imaginative sympathy, performing tradition, and textual evidence? Use of historical texts and recordings to reconstruct interpretive strategies and justifications of the past and consideration of such major 20th-century trends as idea of *Werktreue*, Toscani versus Furtwängler debates, impact of recording and mass media, and rise of historical performance movement. Letter grading.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U 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)** 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)** Preparation: advancement to Ph.D. candidacy. Limited to graduate students. May be repeated for credit. S/U grading.

## NEAR EASTERN LANGUAGES AND CULTURES

*College of Letters and Science*

UCLA  
376 Kinsey Hall  
Box 951511  
Los Angeles, CA 90095-1511

(310) 825-4165  
<http://www.humnet.ucla.edu/humnet/nelc/nelc.html>

William M. Schniedewind, Ph.D., *Acting Chair*

### Professors

Andras E. Bodrogligeti, Ph.D.  
Elizabeth F. Carter, Ph.D.  
S. Peter Cowe, Ph.D.  
Robert K. Englund, Ph.D.  
Lev Hakak, Ph.D.  
Antonio Loprieno, Dr.phil.habil.  
Ismail K. Poonawala, Ph.D.  
Yona Sabar, Ph.D.  
Hossein Ziai, Ph.D.

### Professors Emeriti

Amin Banani, Ph.D.  
Arnold J. Band, Ph.D.  
Seeger A. Bonebakker, Ph.D.  
Giorgio Buccellati, Ph.D.  
Herbert A. Davidson, Ph.D.  
Wolf Leslau, Docteur ès Lettres  
Thomas Penchoen, Ph.D.  
Moshe Perlmann, Ph.D.  
Hanns-Peter Schmidt, Ph.D.  
Stanislav Segert, Ph.D.

### Associate Professor

William M. Schniedewind, Ph.D.

### Assistant Professors

Michael D. Cooperson, Ph.D.  
Willemina Z. Wendrich, Ph.D.

### Lecturers

Nancy Ezer, Ph.D.  
Michael Fishbein, Ph.D.  
Latifeh Hagigi, M.A.  
Ralph Jaeckel, Ph.D.  
Anahid Keshishian, Ph.D.  
Michael Rosenbaum, Ph.D.

## Scope and Objectives

The mission of the department 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. Master's 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 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

To be admitted as Ancient Near Eastern Civilizations majors, transfer students 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.

### 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 (Ancient Near East M105, 150A). The remaining eight courses are to be selected from Ancient Near East M104A, M104B, 130, 140A, 140B, 140C, 145, 150B, 150C, 160A, 160B, 161A, 161B, 161C, 162, 163A, 163B, 164A, 164B, 164C, 170, Iranian 169, Jewish Studies M150A. One course must be in research methodology (such as Anthropology C115R, 130, 150, English 140A, or Linguistics 110) taken preferably in another department with the 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 M104A, M104B, 150B). The remaining seven courses are to be selected from Ancient Near East M105, 121B, 121C, 123A, 123B, 124, 130, 150A, 150B, 150C, 160A, 160B, 161A, 161B, 161C, 162, 163A, 163B, 164A, 164B, 164C, 170, Art History 101A, 101B, Iranian 169, Jewish Studies M150A, M191A. One course must be in research methodology (such as Anthropology C115R, 130, 150, English 140A, or Linguistics 110) taken preferably in another department with the 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 An-

thropology 111, M115A, C115R, 117, 130, 150). The remaining nine courses are to be selected from Ancient Near East M104A, M104B, M105, 120A, 120B, 120C, 121A, 121B, 121C, 123A, 123B, 124, 130, 150A, 150B, 150C, 160A, 160B, 161A, 161B, 161C, 162, 163A, 163B, 164A, 164B, 164C, 165, Art History 101A, 101B, M102A, M102B, Classics 168, Jewish Studies M150A, 170, M191A, 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 (Jewish Studies M150A, M191A, English 108B). The remaining seven courses are to be selected from Ancient Near East M104A, M104B, M105, 130, 150A, 150B, 160A, 160B, 161A, 161B, 161C, 162, 163A, 163B, 164A, 164B, 164C, 165, 170, English 108A, 108C, Greek 130, Hebrew 125, 130, 135, History 194A, 194B, 194C, Jewish Studies 150B, 170, 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, 1101 Hershey Hall, (310) 825-2770; for UCLA-affiliated excavations, contact the departmental student affairs officer at (310) 825-4165.

## Arabic B.A.

### Preparation for the Major

*Required:* Arabic 1A, 1B, 1C, 102A, 102B, 102C, 150.

### Transfer Students

To be admitted as Arabic majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Arabic and one Arabic literature and culture course.

### The Major

*Required:* Fifteen courses, including Arabic 103A, 103B, 103C, and History 107A or Islamics 110; five courses from Arabic 120, 130, 132, 141; three courses from Arabic 111A, 111B, 111C, 112A, 112B, 112C, 114A, 114B, 114C; three courses from Art History 104A, Geography 187, History 106A, 106B, 106C, 107B, 108A, 108B, Political Science 132A, 132B, 157.

## Hebrew B.A.

### Preparation for the Major

*Required:* Hebrew 1A, 1B, 1C, 102A, 102B, 102C, Jewish Studies M150A, 150B, or equivalent.

### Transfer Students

To be admitted as Hebrew majors, transfer students with 90 or more units must complete the

following introductory courses prior to admission to UCLA: two years of Hebrew and two Hebrew literature courses.

### The Major

*Required:* Sixteen courses, including Hebrew 103A, 103B, 103C; three terms of Hebrew 120 and/or 125; two courses from Hebrew 130, 135; two courses from Hebrew 140, 160; Hebrew 190A, 190B; two additional courses in Hebrew or Aramaic to be approved by the adviser; two courses from History M191A, M191B, M192A, M192B.

## 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, 150A, 150B.

### Transfer Students

To be admitted as Iranian Studies majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of Persian and two Persian literature survey courses.

### The Major

*Required:* Sixteen courses, including Iranian 102A, 102B, 102C, 103A, 103B, 103C, 140, 141, 142, 180A, 180B; five courses from Ancient Near East 163A, 163B, Arabic 1A, 1B, 1C, Art History 104A, 104B, C104C, Ethnomusicology 20B, History 106A, 106B, 106C, 110B, Iranian 120, 169, 170, 190A, 190B, Political Science 157.

## 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

To be admitted as Jewish Studies majors, transfer students 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.

### The Major

Majors in all five tracks are required to take 14 upper division courses selected in consultation with the program adviser, including six required core courses, five courses within the selected track, and three electives to be chosen from Hebrew, Jewish studies, or any courses listed under any track.

Core requirements include 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 M191A through M191D; 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 199. A maximum of 8 units of 199 courses 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 applied toward the Jewish Studies major may count toward fulfilling the requirements for 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 M191A through M191D and three courses from the following list, in addition to the core courses for the major: Ancient Near East 162, History 191E, 191F, 191G, 194A, 197A, 199, Jewish Studies 170, M192A, M192B, 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 194A, Jewish Studies 130, M150A, 151A, 155, 170, M191A, M191B, 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, 189, German 112, Hebrew 120, 125, 130, 140, Iranian 131, Jewish Studies M143, M150A, 150B, 151A, 155, 170, 175, M187, 197A through 197Z, 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, 189, 199, History 199, Jewish Studies 140A, 140B, 199, Yiddish 101A, 101B, 101C, 102A, 102B, 104.

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 140, History 191F, 199, Jewish Studies 142, 151B, 175, M191B, 199, Political Science 121, 132A, 132B, 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, 1333 Hershey 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 376 Kinsey Hall, (310) 825-4165.

*Required Upper Division Courses (28 units):* Seven courses in Arabic or Islamic; 199 courses may not be applied. With approval of the undergraduate adviser, two of the seven courses may be taken outside the department. Courses recommended as electives for the major in Arabic (Art History 104A, Geography 187, History 106A, 106B, 106C, 107A, 107B, 108A, 108B, Political Science 132A, 132B, 157) may be applied. Other courses may be applied as extra-departmental courses with approval of the adviser.

All minor courses must be taken for a letter grade, with 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 department, and file a petition in 376 Kinsey Hall, (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 approval of the undergraduate adviser, two of the seven courses may be taken outside the department. Ordinarily, courses listed as Related Courses under the Armenian section in the *UCLA General Catalog* may be applied.

All minor courses must be taken for a letter grade, with 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 376 Kinsey Hall, (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 approval of the undergraduate adviser and based on course content, two of the seven courses may be taken outside the department.

All minor courses must be taken for a letter grade, with 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 376 Kinsey Hall, (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 approval 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.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Near Eastern Languages and Cultures offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Near Eastern Languages and Cultures.

## Admission

In addition to the regular University requirements, the M.A. program requires a bachelor's degree or its equivalent in the language area chosen for the degree, the Graduate Record Examination (GRE) General Test, and three letters of recommendation. As a rule, applicants selected for admission have a grade-point average of at least 3.25 and a GRE combined score of at least 1,600. The GRE must be taken within 24 months prior to the date of the application.

In addition to these requirements, admission to the Ph.D. program requires an M.A. or the equivalent in the applicant's field (the M.A. need not have been completed at UCLA).

## Master's Degree

For major fields of specialization, see Doctoral Degree.

The M.A. degree is offered through the comprehensive examination plan. A minimum of nine upper division and graduate courses is required, six of which must be at the graduate level. Students are required to take an introductory course in bibliographical resources and methods of research in Near Eastern languages and cultures.

In general, students choosing either the language, literature, or archaeology option are required to study two Near Eastern languages, one of which is considered the major language. Students in Semitics or in Old Iranian study three languages.

In ancient Near Eastern civilizations, students may choose as their major language any of the following: ancient Egyptian (including Coptic), Akkadian, Aramaic (including Syriac), Hebrew (with Ugaritic and Phoenician), or Old Persian. For the second language, any of the above or Hittite or Sumerian may be chosen.

Students in Hebrew choose Hebrew and another Semitic language. In Turkic, either two Turkic languages or Turkish and a second culturally related language may be chosen. In Arabic, Armenian, and Iranian (modern), a major language and a second culturally related language are chosen.

Students in Semitics are required to study three Near Eastern languages, at least two of which should be Semitic (the third may be Hittite or Sumerian). In Old Iranian, Persian, Sanskrit, and Old and Middle Iranian are studied.

There is a language requirement for this degree.

## Doctoral Degree

Major fields of specialization are ancient Near Eastern civilizations, Arabic, Armenian, Hebrew, Iranian, Semitics, Turkic.

Students may concentrate on either language or literature in their selected field but are required to do work in both. In the field of ancient Near Eastern civilizations, the department also offers an archaeology emphasis.

Students who choose a language emphasis for the Ph.D. are required to add a third Near Eastern language to the two that are required for the M.A.

Students are required to achieve high competence in two of their languages and to familiarize themselves with the cultural backgrounds of each of the languages chosen. Students are also expected to take the equivalent of one year of general linguistics. Those studying Semitics or Old Iranian study three languages.

If the literature option is chosen, students are required to achieve high competence in two Near Eastern languages and their literatures. Students are required to familiarize themselves, through appropriate coursework, with the history of the cultural area, and the methods of literary research and the history of literary criticism.

If the archaeology emphasis in the ancient Near Eastern civilizations specialization is chosen, students are required to achieve high competence in two ancient Near Eastern languages and must be well-versed both in the history of the cultural area and in archaeological methodologies.

Written and oral qualifying examinations are required. Students in languages are examined in three Near Eastern languages and the literary and historical background of at least two of them. Students in literature are examined in the literatures written in two languages within the cultural area of concentration and the historical and cultural background of these languages, with emphasis on one of them. Students in ancient Near Eastern civilizations are examined in two ancient languages and in the history and archaeology of the major areas of the ancient Near East.

Following successful completion of the written examinations, students take the University Oral Qualifying Examination.

There is a language requirement for this degree.

## Ancient Near East

(Akkadian, Aramaic, Phoenician, and Ugaritic are listed under Semitics.)

## Lower Division Course

**10W. Jerusalem: The Holy City. (5)** (Formerly numbered 10.) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for former course 10. Survey of religious, political, and cultural history of Jerusalem over three millennia as a 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 the written word. Study of creation of the mythic Jerusalem through event and experience. Satisfies Letters and Science Writing II requirement. Letter grading.

## Upper Division Courses

**M104A-M104B. Ancient Egyptian Civilization. (4-4)** (Same as History M104A-M104B.) Lecture, three hours. Course M104A is not requisite to M104B. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. P/NP or letter grading. **M104A.** Chronological discussion of Prehistory, the Old and Middle Kingdom. **M104B.** The New Kingdom and the Late period until 332 B.C.

**M105. History of Ancient Mesopotamia and Syria. (4)** (Same as History M105.) Lecture, three hours. Designed for juniors/seniors. Political and cultural development of the "Fertile Crescent," including Palestine, from the Neolithic to the Achaemenid period. Letter grading.

**120A-120B-120C. Elementary Ancient Egyptian. (4-4-4)** Lecture, three hours; laboratory, two hours. Grammar and texts. P/NP or letter grading.

**121A-121B-121C. Intermediate Ancient Egyptian. (4-4-4)** Lecture, three hours. Requisites: courses 120A, 120B, 120C. Readings in ancient Egyptian literature. P/NP or letter grading.

**123A-123B. Coptic. (4-4)** Lecture, three hours. 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.

**130. Ancient Egyptian Religion. (4)** Lecture, three hours. Introductory survey of various ancient Egyptian religious beliefs and practices, their origin, and development. Discussions of religiopolitical institutions such as divine kingship and pious foundations. 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 the 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.

**160A-160B. Introduction to Near Eastern Archaeology. (4-4)** Lecture, three hours. Terminology, geography, principles, strategy of research, bibliography, and general survey of Near Eastern archaeology. P/NP or letter grading.

**161A-161B-161C. Archaeology of Mesopotamia. (4-4-4)** Lecture, three hours. Survey of main archaeological periods in Mesopotamia, with special emphasis on late prehistoric and early historical periods and with reference to neighboring cultural areas. Each course may be taken independently for credit. P/NP or letter grading.

**162. Archaeology and Religion of the Holy Land. (4)** Lecture, three hours. Survey of archaeology of Palestine from the Bronze Age to destruction of Jerusalem in A.D. 70, with emphasis on religious development of ancient Israel. P/NP or letter grading.

**163A-163B. Archaeology of Iran. (4-4)** Lecture, three hours. Designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. P/NP or letter grading. **163A.** Prehistoric and protohistoric phases of Iranian archaeology. **163B.** Archaeology of Elam, Iron Age, and Achaemenid Empire.

**164A-164B-164C. Archaeology of Historic Periods in Mesopotamia. (4-4-4)** Lecture, three hours. Requisites: courses M105, 161A, 161B, 161C. Survey of main archaeological periods in Mesopotamia, with special emphasis on historic periods and with reference to neighboring cultural areas. Each course may be taken independently for credit. P/NP or letter grading.

**165. Archaeology of Pharaonic Egypt. (4)** Lecture, three hours. Requisites: courses M104A, M104B. Selected topics on archaeology of Pharaonic Egypt, with emphasis on material culture as source for political, social, and economic history of ancient Egypt. P/NP or letter grading.

**170. Introduction to Biblical Studies. (4)** Lecture, two hours. Knowledge of original languages not required. The Bible (Old and New Testaments) as a book. Canon, text, and versions. Linguistic, literary, historical, and religious approaches to Bible study. Survey of history of interpretation from antiquity to the present. P/NP or letter grading.

**M194. The Hero in the Bible and the Ancient Near East. (4)** (Same as Folklore M185.) Lecture, three hours. Investigation of concepts of the hero/heroine in literatures of ancient Mesopotamia, Canaan, and Israel. Texts include epics of Gilgamesh and Aghat, Hebrew Bible, and New Testament. All texts read in translation. Letter grading.

**199. Special Studies in the Ancient Near East. (2 to 8)** Tutorial, to be arranged. P/NP or letter grading.

## Graduate Courses

**210. Late Egyptian. (4)** Lecture, three hours. Requisites: 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 the Greco-Roman Period. (4-4)** Lecture, three hours. Requisite: 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. Requisite: course 121C. Introduction to Demotic grammar and orthography. Reading of texts from various genres. 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 the homework required in course M250. May be repeated for credit. S/U grading.

**260. Seminar: Ancient Near Eastern Archaeology. (4)** Seminar, two hours. May be repeated for credit. S/U or letter grading.

**261. Practical Field Archaeology. (2 to 8)** Field-work, two hours. Participation in archaeological excavations or other archaeological research in the 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 archaeological 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 area of Luxor (Ancient Thebes). Architecture and decoration of temples and tombs; structure and occupation of settlements. May be repeated. 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 the literature, with specific test cases from actual excavations and site reports. Coverage of theoretical implications of such disciplines as surveying and pedology with the help of specialists. S/U or letter grading.

**272. Semitic Background of the New Testament. (4)** Lecture, two hours. Requisites: Hebrew 102A, 102B, 102C, Semitics 130, Greek 1, 2. Study of Semitic elements in the Greek New Testament: traditions transmitted in Aramaic, relations to the Old Testament and to post-Biblical literature, and Palestinian Judaism. S/U or letter grading.

**596. Directed Individual Study. (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U 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.

## Related Courses

### Art History

101A. Egyptian Art and Archaeology

### History

M104A-M104B. Ancient Egyptian Civilization

M105. History of Ancient Mesopotamia and Syria

193D. Religions of the Ancient Near East

201A-201U. Topics in History

## Arabic

### Lower Division Courses

**1A-1B-1C. Elementary Literary Arabic. (4-4-4)** Lecture, six hours. Basic grammar and syntax. P/NP or letter grading.

### Upper Division Courses

**102A-102B-102C. Intermediate Literary Arabic. (4-4-4)** Lecture, four hours; discussion, one hour. Requisites: courses 1A, 1B, 1C. Grammar and syntax; readings of excerpts from literary texts; composition. P/NP or letter grading.

**103A-103B-103C. Advanced Arabic. (4-4-4)** Lecture, four hours. Requisites: courses 102A, 102B, 102C. Review of grammar, composition, conversation, and readings from classical and modern literary texts. Letter grading.

**111A-111B-111C. Elementary Spoken Egyptian Arabic. (4-4-4)** Lecture, three hours. Requisites: courses 1A, 1B, 1C. Basic grammar and syntax of Egyptian colloquial Arabic. P/NP or letter grading.

**112A-112B-112C. Advanced Spoken Egyptian Arabic. (4-4-4)** Lecture, three hours. Requisites: courses 111A, 111B, 111C. Grammar and syntax; excerpts from literary texts using colloquial Arabic. P/NP or letter grading.

**113A-113B-113C. Elementary Spoken Levantine Arabic. (4-4-4)** Lecture, three hours. Requisites: courses 1A, 1B, 1C. General introduction to spoken Arabic of Syria, Lebanon, and Palestine. Grammar and syntax, with emphasis on language of everyday conversation. P/NP or letter grading.

**114A-114B-114C. Spoken Moroccan Arabic. (4-4-4)** Lecture, three hours; laboratory, one hour. Introduction to spoken Arabic dialect of Morocco. Phonology, morphology, and syntax. Emphasis on developing oral skills. 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.

**130. Classical Arabic Texts. (4)** Lecture, four hours. Requisite: course 103C. Readings from medieval 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 medieval and Kalam texts. May be repeated for credit. P/NP or letter grading.

**141. Modern Arabic Literature. (4)** Lecture, four hours. Requisite: course 103C. Conducted in Arabic. Readings in selected texts representing important trends in Arabic literature of the 19th and 20th centuries. May be repeated for credit. Letter grading.

**150. Introduction to Arabic Literature and Culture. (4)** Lecture, three hours. Readings in English; knowledge of Arabic not required. Culture of Arabic-speaking peoples through their literature. Texts range from pre-Islamic poetry to contemporary novels, along with works in history and anthropology, to place these writings in their social context. P/NP or letter grading.

**151. Survey of Modern Arabic Literature in English. (4)** Lecture, three hours. Readings of selected texts covering basic literary trends from middle of the last century to the present. 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.

**199. Special Studies in Arabic. (2 to 8)** Tutorial, to be arranged. P/NP or letter grading.

## Graduate Courses

**220. Seminar: Islamic Texts. (4)** Seminar, three hours. Doctrines and hermeneutics of various schools of thought in Islam, with selected readings from major works. May be repeated for a maximum of 24 units. S/U or letter grading.

**230. Medieval Literary Texts. (4)** Lecture, two hours. Readings in Arabic prose and poetry, survey of prosody. May be repeated for a maximum of 24 units. S/U or letter grading.

**240. Seminar: Arab Historians and Geographers. (4)** Seminar, three hours. Selected readings from works of major historians, geographers, and travelers. May be repeated for a maximum of 24 units. S/U or letter grading.

**250. Seminar: Arabic Literature. (4)** Seminar, two hours. Selected topics from Arabic literature. Readings of texts from manuscript. May be repeated for a maximum of 24 units. S/U or letter grading.

**251. Seminar: Modern Arabic Literature. (4)** Seminar, three hours. Requisite: course 141. Studies of specific problems and trends in Arabic prose and/or poetry in the 20th century. May be repeated for credit. 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.

## Related Courses

### History

106A-106B-106C. Survey of the Middle East from 500 to the Present

108A-108B. History of the Arabs

109A-109B. History of North Africa from the Moslem Conquest

109C. History of Islamic Iberia

204A-204B. Seminars: Near and Middle Eastern History

## Armenian

### Upper Division Courses

**101A-101B-101C. Elementary Modern Western Armenian. (4-4-4)** Lecture, four hours. Course 101A is requisite to 101B, which is requisite to 101C. Armenian grammar, conversation, and exercises. P/NP or letter grading.

**102A-102B-102C. Intermediate Modern Western Armenian. (4-4-4)** Lecture, four hours. Requisite: course 101C. Course 102A is requisite to 102B, which is requisite to 102C. Reading of selected texts, composition, and conversation. P/NP or letter grading.

**103. Advanced Modern Armenian. (4)** Lecture, three hours. Requisites: courses 102A, 102B, 102C. Readings in advanced modern Armenian texts. May be repeated twice for credit. P/NP or letter grading.

**104A-104B-104C. Elementary Modern Eastern Armenian. (4-4-4)** Lecture, four hours. Course 104A is requisite to 104B, which is requisite to 104C. Designed for students with little or no previous knowledge of Eastern Armenian, official idiom of Republic of Armenia. Introduction to basics of grammar and conversation. Letter grading.

**105A-105B-105C. Intermediate Modern Eastern Armenian. (4-4-4)** Lecture, four hours. Requisite: course 104C. Course 105A is requisite to 105B, which is requisite to 105C. 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 the idiom, both orally and in written form. Letter grading.

**106A-106B-106C. Advanced Modern Eastern Armenian. (4-4-4)** Lecture, four hours. Requisite: course 105C. Course 106A is requisite to 106B, which is requisite to 106C. 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. 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 the homeland and examination of degree to which its social structure and cultural and aesthetic norms were impacted by those of the 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.

**151. Canon Formation and Encounter with Modernity: Case Studies in Armenian Literature. (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 a result of exposure to European thought and expressive forms, as well as its response to sociopolitical, demographic, and economic changes in Armenian life. Letter grading.

**152. Modern Armenian Drama as Vehicle for Social Critique. (4)** Lecture, four hours. Readings of selected plays from 1668 to 1992 in English translation, with particular reference to comedy. Focus on their role as commentators on contemporary mores and as agents for social reform. Discussion supplemented by video recordings of staged performances. Letter grading.

**153. Art, Politics, and Nationalism in Modern Armenian Literature. (4)** Lecture, four hours. Readings in English. Examination of role of literature in modern Armenian society in service to a cause or causes, as propaganda for various ideologies, as art for art's sake, etc. Exploration of contrasting aesthetics implicit in these differing interpretations. Students may work on texts in original language for extra credit. Letter grading.

**155. Armenian American Literature and Culture. (4)** Lecture, four hours. 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. P/NP or letter grading.

**160A-160B. Armenian Literature of the 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 the Armenian cultural renaissance. P/NP or letter grading.

**199. Special Studies in Armenian Language and Literature. (2 to 8)** Tutorial, to be arranged. 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 the Armenian Language. (4)** Lecture, three hours. Development of the Armenian language in its various stages: classical, middle, and modern. S/U or letter grading.

**220. Armenian Literature of the Golden Age (A.D. 5th Century). (4)** Lecture, three hours. Requisites: courses 131A, 131B. 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 the 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 the Philhellene School of the 6th to 8th century and related works up to the 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.

**290. Seminar: Armenian Paleography. (4)** Seminar, three hours. Discussion of a 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.

## Related Courses

### History

112A-112B-112C. Armenian History

C112D. Introduction to Armenian Oral History

113. The Caucasus under Russian and Soviet Rule

200S. Advanced Historiography: Armenia and the Caucasus

201S. Topics in History: Armenia and the Caucasus

211A-211B. Seminars: Armenian History

C212. Methods in Armenian Oral History

### Indo-European Studies

M150. Introduction to Indo-European Linguistics

## 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. The 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.

**199. Special Studies in Berber Languages. (2 to 8)** Tutorial, to be arranged. Studies based on requirements of individual students. P/NP or letter grading.

## Related Courses

### History

109A-109B. History of North Africa from the Moslem Conquest

### Linguistics

225M. Linguistic Structures: Berber

## Hebrew

### Lower Division Courses

**1A-1B-1C. Elementary Hebrew. (4-4-4)** Lecture, three hours; laboratory, two hours. Structural principles of grammar. Students who have prior knowledge of reading and some vocabulary are advised to take courses 10A, 10B, 10C. Students with credit for course 10A cannot receive credit for 1A; those with credit for course 10B cannot receive credit for 1B and/or 1C.

**10A-10B-10C. Accelerated Elementary Hebrew. (4-4-4)** Lecture, five hours. Open to students who wish to cover equivalent of two years of college Hebrew in one academic year. Designed for students who have previously studied rudiments of Hebrew. Students with credit for course 1A cannot receive credit for 10A; those with credit for course 1B and/or 1C cannot receive credit for 10B.

**20A-20B. Introduction to Biblical Hebrew. (4-4)** Lecture, three hours. **20A.** Phonology, morphology, and structure of biblical Hebrew. **20B.** Enforced requisite: course 20A. Continuation of course 20A. Readings of biblical prose texts.

### Upper Division Courses

**101. Hebrew Conversation and Composition. (4)** Lecture, three hours; discussion, two hours. Requisites: courses 1A, 1B, 1C. Intensive course for students who are interested in improvement of their proficiency in basic Hebrew. Reading of simplified texts, written and oral grammatical drills, and conversation exercises. Offered in summer only. P/NP or letter grading.

**102A-102B-102C. Intermediate Hebrew. (4-4-4)** Lecture, five hours. Requisites: courses 1A, 1B, 1C. Amplification of grammar; reading of texts from modern literature.

**103A-103B-103C. Advanced Hebrew. (4-4-4)** Lecture, three hours. Requisites: courses 102A, 102B, 102C. Introduction to modern Hebrew literary texts.

**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 a maximum of 16 units.

**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 a maximum of 16 units.



- 140. Modern Hebrew Poetry and Prose. (4)** Lecture, three hours. Requisites: courses 103A, 103B, 103C. Study of major Hebrew writers of past one hundred years: prose — Mendele, Ahad Ha'am, Agnon, Yizhar; poetry — Bialik, Tchernichovsky, Greenberg, Shlonsky, Alterman, Amihai. May be repeated for credit.
- 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 and Biblical Studies. (4)** Lecture, three hours. Requisites: courses 102A, 102B, 102C, 120. Introduction to history of the Dead Sea Sect, their literature, and its impact on biblical studies, with focus on interpretation in the Qumran texts.
- 190A-190B. 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 the 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).
- 199. Special Studies in Hebrew. (2 to 8)** Tutorial, to be arranged.

## 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. Letter grading.
- 230. Seminar: Medieval Hebrew Literature. (4)** Seminar, three hours. May be repeated for credit.
- 231. Texts in Judeo-Arabic. (4)** Preparation: reading knowledge of Hebrew and Arabic. Reading of philosophical texts in Judeo-Arabic.
- 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.
- 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. (4-4-4)** Lecture, four hours; laboratory, two hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Not open to students with prior knowledge of Persian.
- 10A-10B-10C. Persian Conversation. (2-2-2)** Lecture, three hours. Systematic and structured Persian conversation.
- 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. (4-4-4)** Lecture, three hours; laboratory, three hours. Requisite: course 1C or 20C. Course 102A is requisite to 102B, which is requisite to 102C.

- 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.

- 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.

- 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 103A. Study of major Persian poets and prose writers: prose — Soh-ravardi, Hamadâni, Nasafi, Irâqi, and others; poetry — Hâfêz, 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 which 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.

- 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.

- 180A-180B. Iranian Civilization. (4-4)** Lecture, three hours; discussion, one hour. Cultural and social history of the Iranian world, with emphasis on legacy of Persian language and literature. Letter (majors) or P/NP or letter (nonmajors) grading.

- 190A-190B. Introduction to Modern Iranian Studies. (4-4)** Lecture, three hours. Requisites: courses 1A, 1B, 1C. Survey of Iranian languages. Comparative and historical grammar.

- 197A-197Z. Variable Topics in Iranian Studies. (4 each)** Lecture, three hours. Variable topics; consult *Schedule of Classes* for topics to be offered in a specific term. P/NP or letter grading.

- 199. Special Studies in Iranian. (2 to 8)** Tutorial, to be arranged.

### Graduate Courses

- 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 Indic M222A-M222B.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to Indic 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. Only course M222B may be repeated for credit.

- 230A-230B. Old Iranian. (4-4)** Studies in grammars and texts of Old Persian and Avestan. Comparative considerations. Only course 230B may be repeated for credit.

- 231A-231B. Middle Iranian. (4-4)** Studies in grammars and texts of such Middle Iranian languages as best serve students' needs (e.g., Pahlavi, Sogdian, Sakan). Only course 231B may be repeated for credit.

- 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.

- 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.

## Related Courses

### Art History

- 104A. Western Islamic Art  
104B. Eastern Islamic Art  
C104C. Problems in Islamic Art  
213. Advanced Studies in Islamic Art

### Ethnomusicology

- 91L. Music of Persia

### History

- 9D. Introduction to Asian Civilizations: History of the Near and Middle East  
106A-106B-106C. Survey of the Middle East from 500 to the Present  
110A-110B. Iranian History

### Indic (East Asian Languages)

- 110A. Elementary Sanskrit  
110B. Intermediate Sanskrit  
110C. Advanced Sanskrit

### Indo-European Studies

210. Indo-European Linguistics: Advanced Course II  
280A-280B. Seminars: Indo-European Linguistics

## Islamic

### Upper Division Courses

- 110. Introduction to Islam. (4)** Lecture, three hours. 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.

- 130. Shi'a in Islamic History. (4)** Lecture, three hours. 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.

### Graduate Courses

- 596. Directed Individual Study. (2 to 8)** Tutorial, to be arranged. May be repeated for credit.

- 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.

- 599. Ph.D. Dissertation Research and Preparation. (2 to 8)** Tutorial, to be arranged. S/U grading.

## Related Courses

### History

- 107A-107B. Islamic Civilization

## Jewish Studies

### Lower Division Course

**10. Social, Cultural, and Religious Institutions of Judaism.** (4) 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.

### 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.

**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, Beiliss 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.

**M143. Introduction to Jewish Folklore.** (4) (Same as Folklore M142.) Nature of Jewish folklore; narrative, folk song, folk art, folk religion, and methods and perspectives used in their analysis.

**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 the Hebrew Bible and the 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.

**151A-151B. Modern Jewish Literature in English.** (4-4) Lecture, three hours. Each course may be taken independently for credit. **151A.** Diaspora Literature. 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. Literature of the Cabala.** (4) Lecture, three hours. Cabalistic literature in the broad sense (i.e., Jewish esoteric literature from the rabbinic to modern period). Topics include precabalistic esoteric texts, the early cabala, the Zohar, Lurianic cabala, nature of mysticism, the question of whether there was a Jewish mysticism.

**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.

**175. Modern Hebrew Novel as a Film.** (4) Reading of literary works written by modern Hebrew writers which have been translated into English and then made into movies. Lectures, readings, and discussion of novels and movies and guest speakers from movie industry and UCLA.

**M187. The Holocaust in Literature.** (4) (Same as Comparative Literature M165.) Lecture, three hours. Requisite: History 191E or 191F or 191G. Investigation of how the Holocaust informs a variety of literary and cinema works and raises a wide range of aesthetic and moral questions. P/NP or letter grading.

**190. Undergraduate Seminar: Jewish Studies.** (4) Examination of a single topic in depth with object of encouraging and guiding students' research in area of Jewish studies. Literary, cultural, and historical subjects included.

**M191A-M191B. Survey of Jewish History.** (4-4) (Same as History M191A-M191B.) Designed for juniors/seniors. Survey of social, political, and religious developments. **M191A.** From Biblical Times to End of the Middle Ages; **M191B.** From End of the Middle Ages to the Present.

**M191C-M191D. Focal Themes in Jewish History.** (4-4) (Same as History M191C-M191D.) Designed for juniors/seniors. Treatment in depth of one major theme in Jewish history (such as history of Messianic Movements, structure of the Jewish communities) through the ages.

**M192A-M192B. Jewish Intellectual History.** (4-4) (Same as History M192A-M192B.) Designed for juniors/seniors. **M192A.** Medieval Period. Examination of three intellectual worldviews that competed for hegemony in the medieval Jewish world — rabbinic Judaism, medieval rationalism as embodied in philosophy, and cabala; **M192B.** Modern Period. Exploration of some of most important currents and figures in Jewish intellectual history from the 18th century to the present.

**197A-197Z. Variable Topics in Jewish Studies.** (4 each) Lecture or seminar, three hours. Variable topics; consult *Schedule of Classes* for topics to be offered in a specific term. P/NP or letter grading. **197A.** 20th-Century Jewish Thought. May not be repeated for credit. **197B.** Jewish Feminist Theology.

**199. Special Studies in Jewish Studies.** (2 to 8) Tutorial, to be arranged. Limited to Jewish Studies majors.

### Related Courses

#### Yiddish (English)

101A, 101B, 101C. Elementary Yiddish

102A-102B. Accelerated Elementary Yiddish

104. Advanced Yiddish

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

131A. Modern Yiddish Poetry

131B. Modern Yiddish Prose and Drama

131C. Special Topics in Yiddish Literature

199. Special Studies in Yiddish

## Near Eastern Languages

### Lower Division Courses

**50A. First Civilizations.** (4) Lecture, three hours. 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. Ascendancy of Monotheism.** (4) Lecture, three hours. 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.** (4) Lecture, three hours. 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.

**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.

**M241. Folklore and Mythology of the Near East.** (4) (Same as Folklore M241.) Requisite: Folklore 101.

**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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

**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.

**199. Special Studies in Semitics.** (2 to 8) Tutorial, to be arranged.

## Graduate Courses

**210. Ancient Aramaic.** (4) Lecture, two hours. Requisite: course 130. Reading of surviving inscriptions and papyri. May be repeated for credit.

**215B. Syriac.** (4) Lecture, two hours. Morphology and syntax of Syriac language; readings in Syriac translation of the Bible and Syriac literature. May be repeated for credit.

**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.

**225. Phoenician.** (4) Lecture, two hours. Requisites: Hebrew 102A, 102B, 102C. Study of Phoenician language and inscriptions. May be repeated for credit.

**230. Seminar: Northwest Semitic Languages and Literatures.** (4) Seminar, two hours. May be repeated for credit.

**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.

**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.

**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.

**596. Directed Individual Study. (2 to 8)** Tutorial, to be arranged. May be repeated for credit.

**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. (4-4-4)** Lecture, five hours. Grammar, reading, conversation, and elementary composition drills.

**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)** 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.

**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.

**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.

**199. Special Studies in Turkic Languages. (2 to 8)** Tutorial, to be arranged.

## 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 Diplomats. (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.

**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.

## Related Courses

### Art History

104B. Eastern Islamic Art

### History

111A-111B. History of the Turks

209A-209B. Seminars: Ottoman and Modern Turkish History

## NEAR EASTERN STUDIES

*Interdepartmental Program  
College of Letters and Science*

### UCLA

10286 Bunche Hall

Box 951480

Los Angeles, CA 90095-1480

(310) 825-1181

<http://www.isop.ucla.edu/cnes/>

Irene A. Bierman, Ph.D., *Chair*

### Faculty Advisory Committee

Irene A. Bierman, Ph.D., *Chair*

Leonard Binder, Ph.D.

Michael D. Cooperson, Ph.D.

Khaled Abou El Fadl, M.A., Ph.D., J.D., *Acting*

Osman M. Galal, M.D., Ph.D.

Sondra Hale, Ph.D.

Michael G. Morony, Ph.D.

Ismail K. Poonawala, Ph.D.

Hossein Ziai, Ph.D.

### Affiliated Faculty

#### Professors

Leonard Binder, Ph.D. (*Political Science*)

Andras Bodrogligeti, Ph.D. (*Near Eastern Languages and Cultures*)

Elizabeth F. Carter, Ph.D. (*Near Eastern Languages and Cultures*)

S. Peter Cowe, Ph.D. (*Near Eastern Languages and Cultures*)

Susan B. Downey, Ph.D. (*Art History*)

Robert K. Englund, Ph.D. (*Near Eastern Languages and Cultures*)

Osman M. Galal, M.D., Ph.D. (*Community Health Sciences*)

Lev Hakak, Ph.D. (*Near Eastern Languages and Cultures*)

Antonio Loprieno, Dr.phil.habil. (*Near Eastern Languages and Cultures*)

Ismail K. Poonawala, Ph.D. (*Near Eastern Languages and Cultures*)

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Yona Sabar, Ph.D. (*Near Eastern Languages and Cultures*)

Hossein Ziai, Ph.D. (*Near Eastern Languages and Cultures*)

#### Professors Emeriti

Richard Hovannisian, Ph.D. (*History*)

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#### Associate Professor

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Irene A. Bierman, Ph.D. (*Art History*)

James L. Gelvin, Ph.D. (*History*)

Michael G. Morony, Ph.D. (*History*)

Aamir R. Mufti, Ph.D. (*Comparative Literature*)

David N. Myers, Ph.D. (*History*)

William M. Schniedewind, Ph.D. (*Near Eastern Languages and Cultures*)

**Assistant Professors**

Michael D. Cooperson, Ph.D. (*Near Eastern Languages and Cultures*)  
 Aziza Khazzoom, Ph.D. (*Sociology*)  
 Ghislaine E. Lydon, Ph.D., in *Residence* (*History*)  
 Claudia Rapp, D.Phil. (*History*)  
 Gabriel Piterberg, Ph.D. (*History*)  
 Willemina Z. Wendrich, Ph.D. (*Near Eastern Languages and Cultures*)

**Adjunct Professor**

Sondra Hale, Ph.D. (*Anthropology*)

**Scope and Objectives**

The graduate major in this discipline is called Islamic Studies. For details, see the program by that name earlier in this section.

The undergraduate major is designed primarily for (1) students seeking a general education and desiring a special emphasis in this geographic area from the ancient to the modern period, (2) those who plan to live and work in the Near East whose careers can be aided by a knowledge of its peoples, languages, and institutions, and (3) students preparing for academic study in the various disciplines pertaining to the Near East.

**Undergraduate Study****Near Eastern Studies B.A.****Preparation for the Major**

*Required:* The first-year course in Arabic, Armenian, Hebrew, Persian, or Turkish. Students must also obtain reading proficiency in French, German, Italian, Russian, or Spanish as demonstrated by completing six quarter courses or the equivalent in the language of their choice. Students may substitute for the European language requirement Program in Computing 1 and one course from Economics M40, Political Science 6, Sociology M18, or Statistics 10, plus one course from Geography M171, Political Science 102, Psychology 142H, or Sociology C112. Also required are History 9D and four courses from History 1A, 1B, 1C, Anthropology 8, 9, Art History 104A, Economics 1, 2, Geography 3, Political Science 20, 50, Sociology 1.

**Transfer Students**

To be admitted as Near Eastern Studies majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of Arabic, Armenian, Hebrew, Persian, or Turkish, two years of French, German, Italian, Russian, or Spanish (coursework in computing and statistics may be substituted for the European language), one course in Near and Middle Eastern history, and four courses from history of Western civilization, archaeology, sociocultural anthropology, Western Islamic art, principles of economics, cultural geography, world politics, comparative politics, or sociology.

**The Major**

*Required:* Sixteen courses as follows: (1) completion of the advanced level or equivalent in

the same language taken in lower division; (2) History 106A, 106B, 106C, and three additional courses in the history of the Near East, two of which are related to the major language; (3) four courses (two of which must be in the same discipline) from Ancient Near East M104A, M104B, Anthropology 110, Art History 101A, 101B, M102A through M102H, 104A, 104B, C104C, 105E, Economics 110, 111, 112, 190, Ethnomusicology 20B, Geography 187, Political Science 132A, 132B, 157, Sociology 187. This program may be modified in exceptional cases with consent of the adviser.

For further information, contact Professor Irene A. Bierman at the program address.

**NEUROBIOLOGY***School of Medicine*

UCLA  
 73-235 Center for the Health Sciences  
 Box 951763  
 Los Angeles, CA 90095-1763  
 (310) 206-7625, 825-9553  
<http://www.neurobio.ucla.edu/>

Jack L. Feldman, Ph.D., *Chair*  
 Nicholas C. Brecha, Ph.D., *Vice Chair*

**Professors**

George W. Bernard, D.D.S., Ph.D.  
 Dean Bok, Ph.D. (*Dolly Green Professor of Ophthalmology*)  
 Nicholas C. Brecha, Ph.D., in *Residence*  
 John H. Campbell, Ph.D.  
 Carmine D. Clemente, Ph.D.  
 Edwin L. Cooper, Ph.D.  
 Jean S. de Vellis, Ph.D., in *Residence*  
 V. Reggie Edgerton, Ph.D.  
 Jerome Engel, M.D., Ph.D.  
 Jack L. Feldman, Ph.D.  
 Robin S. Fisher, Ph.D., in *Residence*  
 David Glanzman, Ph.D.  
 Roger A. Gorski, Ph.D.  
 Ronald M. Harper, Ph.D.  
 Carolyn R. Houser, Ph.D., in *Residence*  
 Lawrence Kruger, Ph.D.  
 John K. Lu, Ph.D.  
 Paul E Micevych, Ph.D.  
 Arnold B. Scheibel, M.D.  
 John D. Schlag, M.D.  
 Alcino Silva, Ph.D.  
 Michael Sofroniew, M.D., Ph.D.  
 Catia Sternini, M.D.  
 Anna N. Taylor, Ph.D., in *Residence*  
 Jaime R. Villablanca, M.D., in *Residence*  
 Charles D. Woody, M.D., in *Residence*  
 Guido A. Zampighi, D.D.S., Ph.D.

**Professors Emeriti**

Nathaniel A. Buchwald, Ph.D.  
 Emilio E. Decima, M.D.  
 Ellen R. Dirksen, Ph.D.  
 Earl Eldred, M.D.  
 Ynez V. O'Neill, Ph.D.  
 Daniel C. Pease, Ph.D.  
 Charles H. Sawyer, Ph.D.  
 José P. Segundo, M.D.  
 M.B. Sterman, Ph.D.  
 Bernard Towers, M.D.  
 Richard W. Young, Ph.D.  
 Emery G. Zimmermann, M.D., Ph.D.

**Associate Professor**

Robert G. Frank, Jr. Ph.D. (*Medical History Division*)

**Assistant Professors**

Dean Buonomano, Ph.D.  
 Sheila Nirenberg, Ph.D.  
 Thomas Otis, Ph.D.  
 Dario Ringach, Ph.D.  
 Felix Schweizer, Ph.D.

**Adjunct Professor**

Margaret N. Shouse, Ph.D.

**Adjunct and Clinical Associate Professors**

Earle E. Crandall, M.D., Ph.D., F.A.C.S., *Clinical*  
 Carlos A.E. Lemmi, Ph.D., *Adjunct*  
 Anselmo R. Pineda, M.D., *Clinical*

**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 that level and for the conduct of productive 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**

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

**Graduate Degrees**

The Department of Neurobiology offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Anatomy and Cell Biology.

## Admission

The department normally admits only students whose degree objective is the Ph.D. Applicants must have a bachelor's degree in a physical or life science, psychology, or a premedical curriculum. Introductory courses in general and organic chemistry, biochemistry, and physics are required. Courses in cell biology, genetics, molecular biology, psychology, neuroscience, physiology, and statistics are highly recommended.

Applicants may apply either through the Department of Neurobiology, 73-235 CHS, UCLA, Box 951763, Los Angeles, CA 90095-1763 or through 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, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu).

## Master's Degree

For major fields, see Doctoral Degree.

The M.S. degree is offered through the comprehensive examination and thesis plans. A minimum of 36 units of coursework is required, 24 of which must be in graduate-level courses. All M.S. candidates must take required core courses, other courses essential to their program, and courses in the minor field (for those under the comprehensive plan).

## Doctoral Degree

The major fields are microscopic anatomy and cell biology, molecular biology, and neuroscience.

Ph.D. course requirements include core courses, seminar and journal club courses, lecture series, electives, an ethics course, and laboratory rotations. The Department of Neurobiology is a participant in UCLA ACCESS, and students are referred to that program for questions about course requirements related to the ACCESS Program.

Students are required to serve as teaching assistants for two quarters.

Written and oral qualifying examinations are required. The written qualifying examination is a research proposal in the format of an individual National Institutes of Health (NIH) grant application and reflects, as closely as possible, the plan for the dissertation research.

Following successful completion of the written examination, students take the University Oral Qualifying Examination, which consists of an oral defense of the proposal accompanied by a presentation with appropriately prepared visual aids.

## 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.

**120. Health Care in Los Angeles: Introduction to Cultural Medical Traditions. (4)** Lecture, one hour; discussion, three hours. Exploration of health beliefs, traditions, and practices of major ethnic groups in Los Angeles area. Scholarly perspective on uses of alternative medicine to prepare students interested in health care to assist patients in clinical settings. P/NP or letter grading.

**135. Popular Beliefs and Medicine. (4)** Lecture, three hours. Investigation of some basic health beliefs and traditions that can potentially conflict with biomedicine and exploration of educational resources necessary to prepare health care students for the clinical situation. P/NP or letter grading.

### Graduate Courses

**240A-240B. History of Medical Sciences. (2-2)** Lecture, one hour. Survey of development of scientific and medical thought from ancient times to the present. S/U or letter grading.

**M246. Survey of History of Neuroscience: Its Impact on Psychology and Medicine. (4)** (Formerly numbered 246.) (Same as Neurobiology M246.) Lecture, one hour; discussion, two hours. Development of experimental neuroscience from ancient concepts of nervous system through medieval, Renaissance, and Enlightenment eras to mid-20th century. Emphasis on landmarks in history of human brain and behavior demonstrating multidisciplinary approaches to contemporary social contexts. Letter grading.

**250. History of Medical Psychology. (2)** Lecture, one hour. Examination of themes underlying modern mental health theories. Beginning with review of contemporary thinking, lectures focus on various factors shaping present concepts of mental disorders and provide a framework for understanding current issues. S/U or letter grading.

**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. Requisite: satisfaction of Subject A requirement. Variable topics seminar which 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 a professional school faculty member. Letter grading.

### Upper Division Courses

**104. Histology and Cell Biology. (6)** Lecture, four hours; laboratory, six hours. Designed for dental students. Required of freshman dental students. Lectures, demonstrations, and laboratories dealing with structural organization of cells, tissues, and organs at microscopic level. Nervous system included. P/NP or letter grading.

**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, the 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.

**199. Individual Special Studies. (2 to 8)** Tutorial, to be arranged. Studies in anatomy and related subject areas appropriate for training of particular students, which may include reading assignments or laboratory work leading to a final oral or written report. P/NP or letter grading.

### Graduate Courses

**M200A. Synapses, Cells, and Circuits. (4)** (Formerly numbered M209B.) (Same as Neuroscience M244.) 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. Molecular, Cellular, and Developmental Neurobiology. (6)** (Formerly numbered M209A.) (Same as Molecular, Cell, and Developmental Biology CM220 and Physiology M209A.) Lecture, two hours; discussion, two hours; laboratory, two hours. Fundamental topics concerning molecular, cellular, and developmental neurobiology, including intracellular signaling, cell-cell communication, neurogenesis and migration, synapse formation and elimination, programmed neuronal death, and neurotropic factors. Letter grading.

**200C. Sensory Systems Neurobiology. (3)** Lecture, one hour; discussion, one hour; laboratory, one hour. Fundamental topics in sensory systems neurobiology, including sensory transduction, taste and olfaction, audition, vision, and somatosensory system. Letter grading.

**200D. Motor Systems Neurobiology. (3)** Lecture, one hour; discussion, one hour; laboratory, one hour. 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. Requisites: Molecular, Cell, and Developmental Biology 171 or Organismic Biology M166, 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.

**201. Microscopic Anatomy and Cell Biology. (7)** Lecture/laboratory, two to three three-hour sessions (16-week semester). Designed for medical students. Microscopic study of structure and function of tissues and cells, with special reference to the human body. Letter grading.

**M202. Neuroanatomy: Structure and Function of Nervous System. (4)** (Same as Neuroscience M201.) Lecture, three hours; laboratory, three hours. Requisite: Molecular, Cell, and Developmental Biology 171 or Organismic Biology M166. Anatomy of central and peripheral nervous system at the cellular histological and regional systems level. 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.

**M203A-M203B. Neuroscience. (4-4)** (Same as Physiology M203A-M203B.) Lecture/laboratory, two to three hours. Designed for medical and qualified graduate program students. Lectures, conferences, demonstrations, and laboratory procedures necessary to understand functions of nervous system, with emphasis on their applications in the medical sciences. To receive credit, both courses must be taken together in same academic year. In Progress and letter grading.

**M204. Cellular and Molecular Developmental Neurobiology. (4)** (Same as Neuroscience M204, Physiology M204, and Psychiatry M204.) Lecture, three hours; discussion, one hour. Requisites: Neuroscience M201, M202, and M203, or Biological Chemistry 201A and 201B. Cellular and molecular processes that regulate development of nervous systems of vertebrates and invertebrates. Topics include regional specification in early neurogenesis, generation of neuronal diversity, cell surface interactions and growth factors, neuronal and glial proliferation and migration, axonal outgrowth and guidance, synaptogenesis, trophic interaction, plasticity, regeneration, and aging. Letter grading.

**211. Cellular Basis of Learned Behavior. (2)** Lecture/discussion, one two-hour session; laboratory, to be arranged. Preparation: microscopic anatomy, mammalian physiology. Anatomy and physiology of cerebral processes in alerting, learning, focusing attention, and memory. S/U or letter grading.

**M221. Cellular and Molecular Neurochemistry. (4)** (Same as Biological Chemistry M221, Neuroscience M240, Pharmacology M221, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Preparation: biochemistry. Contemporary neurochemistry topics — metabolic specialization and compartments, metabolism and function of ion channels, structure and function of neurotransmitters. Inborn errors and molecular genetics, molecular imaging, aging, and regeneration. Receptor/effector coupling. S/U or letter grading.

**M227. Cellular, Molecular, and Functional Aspects of Reproductive System. (4)** (Same as Physiological Science M227.) Lecture, three hours; discussion, one hour. Didactic presentations and discussion of developmental, anatomical/histological, physiological, cellular, and molecular aspects of reproductive system and functional integration of neuroendocrine-reproductive axis. Letter grading.

**M229. Oral Embryology and Histology. (4)** (Same as Oral Biology 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.

**M234. Seminar: Developmental Neuroendocrinology. (2)** (Same as Oral Biology 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 a developmental perspective. S/U or letter grading.

**M235. Neuroactive Peptides: Molecular Biology to Function. (2)** (Same as Medicine M235 and Neuroscience M246.) Lecture, two hours. Presentation of current knowledge of gut and brain peptides by surveying their chemistry, anatomy, and physiology. Experimental approaches used to study biologically active peptides. Review of current information about each of the major gut and brain peptides. S/U or letter grading.

**M246. Survey of History of Neuroscience: Its Impact on Psychology and Medicine. (4)** (Same as Medical History M246.) Lecture, one hour; discussion, two hours. Development of experimental neuroscience from ancient concepts of nervous system through medieval, Renaissance, and Enlightenment eras to mid-20th century. Emphasis on landmarks in history of human brain and behavior demonstrating multidisciplinary approaches to contemporary social contexts. Letter grading.

**251. Problems in Developmental and Comparative Immunology. (2)** Lecture/discussion, two hours. Review of current literature emphasizing early development and evolution of immune competence. S/U or letter grading.

**252. Evolution as a Complex Process. (2)** Lecture, two hours. Designed for graduate students. Study and examination of biological evolution as a fundamental complex process. S/U or letter grading.

**254. Structure and Function of Cells and Tissues. (2)** Lecture, one hour; discussion, one hour. Requisite or corequisite: course 104. Current topics on structural and functional aspects of microscopic anatomy; term paper required. May be repeated for credit. S/U 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 the 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.

**258. Seminar: Neuroscience. (2)** Seminar, two hours. Preparation: basic neurology. Topics of current interest or ongoing research projects; examination of both content and method of presentation. May be repeated for credit. S/U or letter grading.

**259. Current Topics in Neurobiology. (2)** Discussion, two hours. Review and discussion of current research literature in varying areas of neurobiology. S/U grading.

**M261. Neuronal Circuit Analysis. (2)** (Same as Neuroscience M261.) Lecture, two hours; discussion, one hour. Seminar with strong emphasis on specific reading assignments. Integrated view of neuronal circuit analysis at advanced level; layout and performance of a variety of networks serving cognitive or motor functions. S/U or letter grading.

**265. Evolution of Cancer. (2)** Lecture, two hours. Review of current literature emphasizing appearance of tumors and neoplasms in representative invertebrates, fishes, amphibians, and reptiles. Theories of cancer development from the evolutionary viewpoint. S/U or letter grading.

**270A-270B-270C. Cell, Molecular, and Integrative Biology Seminars. (1-1-1)** (Formerly numbered M270A-M270B-M270C.) Seminar, one hour. Formal lectures on current research topics in neuroscience by speakers from national, international, and local neuroscience communities. S/U grading.

**290. Tutorials in Anatomy. (2)** Tutorial, one hour. Individual study with a faculty member leading to submission of a scientific document (usually a review article) on a topic of mutual interest to instructor and student. 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.

**390A-390B. Peer Review System. (2-2)** Discussion, two hours. Preparation: advancement to candidacy in integrative or systems biology. Introduction to peer review system for evaluation of research proposals. After consideration of grant review process, each student prepares abbreviated grant application which is evaluated in a mock peer review session moderated by the faculty. In Progress and S/U grading.

**495A-495F. Preparation for Teaching in Anatomical Sciences. (2 to 4 each)** 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. Maximum of three 495 courses may be taken; none may be repeated. 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

*School of Medicine*

UCLA  
C-128 Reed Neurological Research Center  
Box 951769  
Los Angeles, CA 90095-1769

(310) 206-6584  
<http://neurology.medsch.ucla.edu/>

### Chairs

Robert C. Collins, M.D. (*Frances Stark Professor of Neurology*), Chair

Jeffrey L. Cummings, M.D., *Vice Chair*

Mark A. Goldberg, M.D., Ph.D., *Vice Chair, Harbor-UCLA*

Christopher M. DeGiorgio, M.D., *Vice Chair, Olive View-UCLA*

Claude G. Wasterlain, M.D., *Vice Chair, Sepulveda VA*

### 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.

For further details on the Department of Neurology and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

## Neurology

### Upper Division Course

**199. Special Studies. (2 to 8)** Discussion, one to two hours; laboratory, four to six hours. Individual projects carried out under direction of a faculty member. Special studies in neurology, with appropriate objectives, readings, laboratory work, or other assignments designed for proper training of students.

## NEUROSCIENCE

### Interdepartmental Undergraduate Program

#### College of Letters and Science

UCLA  
1506D Gonda Center  
Box 951761  
Los Angeles, CA 90095-1761  
(310) 206-2349  
<http://www.neurosci.ucla.edu/>

Michael S. Levine, Ph.D., *Chair*  
Scott H. Chandler, Ph.D., *Vice Chair*

#### Faculty Advisory Committee

Scott H. Chandler, Ph.D., *Vice Chair*  
Franklin B. Krasne, Ph.D.  
Michael S. Levine, Ph.D., *Chair*  
Thomas Otis, Ph.D.  
Barney A. Schlinger, Ph.D.

#### Affiliated Faculty

##### Professors

Arthur P. Arnold, Ph.D. (*Physiological Science*)  
Utpal Banerjee, Ph.D. (*Anesthesiology, Biological Chemistry, Molecular, Cell, and Developmental Biology*)  
Jackson Beatty, Ph.D. (*Psychology, Statistics*)  
Nicholas C. Brecha, Ph.D., *in Residence (Neurobiology)*  
Larry L. Butcher, Ph.D. (*Psychology*)  
Tyrone D. Cannon, Ph.D. (*Psychology*)  
Joseph Caprioli, M.D. (*Ophthalmology*)  
Scott H. Chandler, Ph.D. (*Physiological Science*)  
Michael H. Chase, Ph.D. (*Physiology*)  
Marie-Françoise Chesselet, M.D. Ph.D. (*Neurology; Charles H. Markham Professor of Neurology*)  
Robert C. Collins, M.D. (*Neurology; Frances Stark Professor of Neurology*)  
Edwin L. Cooper, Ph.D. (*Neurobiology*)  
Jeffrey L. Cummings, M.D., *in Residence (Neurology)*  
Jean S. de Vellis, Ph.D., *in Residence (Neurobiology, Psychiatry and Biobehavioral Sciences)*  
Joseph J. DiStefano III, Ph.D. (*Computer Science, Medicine*)  
Bruce H. Dobkin, M.D. (*Neurology*)  
V. Reggie Edgerton, Ph.D. (*Physiological Science*)  
Rita B. Effros, Ph.D. (*Pathology and Laboratory Medicine*)  
Christopher J. Evans, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Gordon L. Fain, Ph.D. (*Physiological Science, Ophthalmology*)  
Michael S. Fanselow, Ph.D. (*Psychology*)  
Debra B. Farber, Ph.D. (*Ophthalmology*)  
Kym F. Faulk, Ph.D. (*Psychiatry and Biobehavioral Sciences*)  
Jack L. Feldman, Ph.D. (*Physiological Science, Neurobiology*)  
Joaquin M. Fuster, M.D., Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Roger A. Gorski, Ph.D. (*Neurobiology*)  
Carlos V. Grijalva, Ph.D. (*Psychology*)  
Alan D. Grinnell, Ph.D. (*Physiology*)

Barry H. Guze, M.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Volker Hartenstein, Ph.D. (*Molecular, Cell, and Developmental Biology*)  
Keith Holyoak, Ph.D. (*Psychology*)  
Vincente Honrubia, M.D. (*Surgery*)  
David Hovda, Ph.D. (*Surgery*)  
Franklin B. Krasne, Ph.D. (*Psychology*)  
Michael S. Levine, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
John K.H. Lu, Ph.D. (*Obstetrics and Gynecology*)  
Neil A. Martin, M.D. (*Surgery*)  
Mario Mendez, M.D., Ph.D., *in Residence (Neurology)*  
Paul E. Micevych, Ph.D. (*Neurobiology*)  
Istvan Mody, Ph.D. (*Neurology, Physiology*)  
Peter M. Narins, Ph.D. (*Physiological Science*)  
Edward M. Ornitz, M.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Gregory S. Payne, Ph.D. (*Biological Chemistry*)  
Arnold B. Scheibel, M.D. (*Neurobiology*)  
John D. Schlag, M.D. (*Neurobiology*)  
Oscar Scremin, M.D., Ph.D., *in Residence (Physiology)*  
Gary W. Small, M.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Judith L. Smith, Ph.D. (*Physiological Science*)  
Allan J. Tobin, Ph.D. (*Physiological Science, Neurology*)  
Arthur W. Toga, Ph.D. (*Neurology*)  
Jaime R. Villablanca, M.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Eran Zaidel, Ph.D. (*Psychology*)  
Lonnie K. Zeltzer, M.D. (*Pediatrics, Anesthesiology*)  
S. Larry Zipursky, Ph.D. (*Biological Chemistry*)

#### Professor Emeritus

Gaylord D. Ellison, Ph.D. (*Psychology*)

#### Associate Professors

Susan Y. Bookheimer, Ph.D. (*Psychiatry and Biobehavioral Sciences*)  
James R. Boulter, Ph.D., (*Psychiatry and Biobehavioral Sciences*)  
Jeff Bronstein, M.D., Ph.D. (*Neurology*)  
Andrew C. Charles, M.D., *in Residence (Neurology)*  
Francesco Chiappelli, Ph.D. (*Dentistry*)  
Milan Fiala, Ph.D., *in Residence (Medicine)*  
Itzhak Fried, M.D., Ph.D., *in Residence (Surgery)*  
Alan Garfinkel, Ph.D. (*Medicine, Physiological Science*)  
David L. Glanzman, Ph.D. (*Physiological Science*)  
Sherrel G. Howard, Ph.D. (*Molecular and Medical Pharmacology, Psychiatry and Biobehavioral Sciences*)  
Daniel L. Kaufman, Ph.D. (*Molecular and Medical Pharmacology*)  
Sally J. Krasne, Ph.D. (*Physiology*)  
Nigel Maidment, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
William P. Melega, Ph.D. (*Molecular and Medical Pharmacology*)  
Karen A. Miotto, M.D. (*Psychiatry and Biobehavioral Sciences*)  
Thomas J. O'Dell, Ph.D. (*Physiology*)  
Paul H. O'Lague, Ph.D. (*Molecular, Cell, and Developmental Biology*)  
Diane M. Papazian, Ph.D. (*Physiology*)  
Helen Raybould, Ph.D., *in Residence (Medicine)*  
Stanley J. Schein, M.D., Ph.D. (*Psychology*)  
Barney A. Schlinger, Ph.D. (*Physiological Science*)  
Igor Spigelman, Ph.D. (*Dentistry*)  
Alexander Van der Blik, Ph.D. (*Biological Chemistry*)  
James A. Waschek, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Joseph B. Watson, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Nancy L. Wayne, Ph.D. (*Physiology*)  
Geraldine A. Weinmaster, Ph.D. (*Biological Chemistry*)

#### Assistant Professors

Bernard W. Balleine, Ph.D. (*Psychology*)  
Mark G. Barad, M.D., Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Ellen M. Carpenter, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Christopher S. Colwell, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Ana Maria Correa, Ph.D., *in Residence (Anesthesiology)*  
Stephan A. Engel, Ph.D. (*Psychology*)  
Daniel Geschwind, M.D., Ph.D. (*Neurology*)  
Marco Iacoboni, M.D., Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Barbara Knowlton, Ph.D. (*Psychology*)  
Harley I. Kornblum, M.D., Ph.D. (*Molecular and Medical Pharmacology*)  
Linda Liao, M.D., Ph.D. (*Surgery*)  
Xin Liu, M.D., Ph.D. (*Pathology and Laboratory Medicine*)  
Kelsey C. Martin, M.D., Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Gary W. Mathern, M.D., *in Residence (Surgery)*  
John D. McCann, M.D., Ph.D. (*Ophthalmology*)  
Michael S. Mega, M.D., Ph.D., *in Residence (Neurology)*  
Sheila Nirenberg, Ph.D. (*Neurobiology*)  
Thomas Otis, Ph.D. (*Neurobiology*)  
Patricia E. Phelps, Ph.D. (*Physiological Science*)  
Uma Rao, M.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Sanjaya Saxena, M.D., *in Residence (Psychiatry and Biobehavioral Sciences)*  
Felix Schweizer, Ph.D. (*Neurobiology*)  
Jeffrey L. Twiss, M.D., Ph.D. (*Pathology and Laboratory Medicine*)  
Cui-Wei Xie, M.D., Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

#### Adjunct Professors

Charles L. Wilson, Ph.D. (*Neurology*)  
Dahlia Zaidel, Ph.D. (*Psychology*)

#### Adjunct Associate Professors

Larry F. Hoffman, Ph.D. (*Surgery*)  
Jen Yu Wei, Ph.D. *in Residence (Medicine/Digestive Diseases)*

## 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

### Neuroscience 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.

All core curriculum courses must be passed with a grade of C– or better and must be completed with an overall grade-point average of 2.5 or better. Students are encouraged to fulfill the preparation requirements prior to enrollment in courses for the major. Transfer students are counseled on an individual basis.

In fulfilling the college general education requirements, students are encouraged to select

courses that complement the major; Psychology 10 is recommended as a social sciences elective. They are also encouraged to take a statistics course (e.g., Statistics 10 or approved lower or upper division equivalent).

### Transfer Students

To be admitted as Neuroscience majors, transfer students 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.

### The Major

The following 12 courses are required for the Neuroscience major. Consult respective departmental or program listings for course descriptions:

Group 1: Neuroscience M101A, M101B, M101C, M102, Chemistry and Biochemistry 153A, 153L

Group 2: Three 4-unit area electives (one from each area) as follows:

Area 2A: One *behavioral and cognitive neuroscience* course from Neuroscience M119L, M130, C172, 197A, Psychology 110, 112A, 118, 119A, 119B, 119D, 119E, 119M, 120A, 124A

Area 2B: One *systems and integrative neuroscience* course from Neuroscience M119N, M130, M145, 197B, Organismic Biology, Ecology, and Evolution M173, Physiological Science C125, 126, 138, 147, Psychology 119A, 119M

Area 2C: One *molecular, cell, and developmental neuroscience* course from Molecular, Cell, and Developmental Biology C139, Neuroscience M145, M148, 151, 197C, Physiological Science 126, 147

Group 3: One research-related course from the following: Neuroscience 101L (one term) or 199 (two terms) or 199HA and 199HB (one term in each course) or Psychology M181A and M181B (with approval of the neuroscience curriculum committee before start of project; one term in each course). All majors who elect to do two terms (one term applies toward Group 3 and one toward Group 4) of Neuroscience 199 or 199HA and 199HB or Psychology M181A and M181B must do one term of Honors Collegium 99 in the same laboratory. In addition, they must submit a poster to the neuroscience undergraduate poster session or the curriculum committee prior to graduation

Group 4: Two additional elective courses from the Group 2 or 3 list or from Neurobiology/Medical History M246 or Physiological Science C135. Students who select two terms of Neuroscience 199 or 199HA and 199HB or Psy-

chology M181A and M181B must select only one additional elective to satisfy Group 4

Psychology 115 cannot be substituted for Neuroscience M101A; however, Physiological Science 111A can be substituted.

No more than eight courses may be from any one department. A maximum of 8 units of Neuroscience 199 or 199H (in any combination) may be applied toward the major. All required and elective courses must be taken for a letter grade, and a C average must be maintained 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. Requirements for admission include completion of at least 40 units toward the preparation for the major with a 3.2 grade-point average and an overall GPA of 3.2 at UCLA. Applications and program requirements are available in the Neuroscience Undergraduate Office, 1506D Gonda Center. Completed applications should be submitted at least two weeks prior to the term in which students plan to begin the honors program. 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.

*Required Upper Division Courses (31 units):* Neuroscience M101A, M101B, M101C (5 units each) and four elective courses (16 units) selected from M102 or from Group 2, 3, or 4 as listed under the Neuroscience major.

All minor courses must be taken for a letter grade, with 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.

## 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 or former course 10D or 30 (14C may be taken concurrently), Life Sciences 2, Physics 1B or 6C. 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.

**M102. Introduction to Functional Anatomy of Central Nervous System. (4)** (Same as Psychology M117K.) Lecture, two hours; laboratory, two hours. Requisite: Life Sciences 2. 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.

**103. Neuroscience for Physicists, Mathematicians, and Engineers. (4)** Lecture, three hours. Introduction to the brain and neural function; mathematical models and computer simulations of neural networks. Biophysics of neurons, engineering approaches to neural control systems.

**M119L. Human Neuropsychology. (4)** (Same as Psychology M119L.) Lecture, three hours. 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. The Visual System. (4)** (Same as Psychology M119N.) Lecture, three hours. Requisite: course M101A or Molecular, Cell, and Developmental Biology 171 or Physiological Science 111A or Psychology 115. The ability to image and analyze the visual world is a truly remarkable feat. Coverage of anatomy and physiology of visual processing from the retina to visual cortex through lectures, extensive reading, and discussions.

**M130. Biological Bases of Psychiatric Disorders. (4)** (Same as Molecular, Cell, and Developmental Biology M191, Physiological Science M181, Psychiatry M191, 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 CM145.) 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. Molecular and Cellular Physiology of Neurons. (4)** (Same as Physiological Science M148.) Lecture, three hours. Requisite: course M101A or Physiological Science 111A or M180A. Advanced treatment of selected topics in cellular neurophysiology. Letter grading.

**151. Transgenic Models and Gene Transfer Technology in Understanding and Treatment of Neuropsychiatric Disease. (4)** Lecture, three hours. Requisite: course M101B. Genetic defects in neuropsychiatric disease; how genome is experimentally manipulated to understand more about role of genes in normal development of brain and in disease. Required student participation in discussions.

**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 M102. 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.

**194. Independent Study of Neuroscience Literature. (2)** Library research, six hours minimum. Requisite: course M101A. Directed independent library research with a faculty member. Written proposal must be submitted prior to start of course, with a paper required at end of term. May not be applied toward elective requirements for the major and may not be taken concurrently with course 199, 199HA, or 199HB. P/NP grading.

**196H. Honors in Neuroscience. (4)** Lecture, one hour; discussion, two 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 the major. Must be taken during Winter Quarter of academic year that student enrolls in courses 199HA and 199HB. Letter grading.

**197A-197B-197C. Special Topics in Neuroscience. (4-4-4)** Lecture, four hours. Requisite: course M101A or Physiological Science 111A. Topics on one or more aspects of neuroscience. May be applied as an elective only in the specific area of group 2. Each course may be repeated once for credit. P/NP or letter grading.

**197A.** Behavioral and Cognitive Neuroscience. Description of specific neurological diseases from clinical perspective, in-depth analysis and discussion of mechanisms responsible for the disorder, and examination of new treatments. Designed to be interactive with considerable student participation. **197B.** Systems and Integrative Neuroscience; **197C.** Molecular, Cell, and Developmental Neuroscience.

**199. Independent Research in Neuroscience. (4)** Laboratory, 12 hours minimum. Requisites: course M101A, Honors Collegium 99. Limited to seniors and juniors with grades of B (3.0) or better. Directed independent research with a faculty member. Maximum of 8 units of courses 199, 199HA, 199HB may be applied toward the major. Letter grading.

**199HA. Honors Thesis in Neuroscience. (4)** Laboratory, 12 hours minimum. Requisites: course M101A, Honors Collegium 99. Limited to neuroscience honors program students. Directed independent research involving extensive reading and research in the field of proposed honors thesis. For departmental honors, students must also take course 196H. Maximum of 8 units of courses 199, 199HA, 199HB may be applied toward the major. In Progress grading (credit to be given only on completion of course 199HB).

**199HB. Honors Thesis in Neuroscience. (4)** Laboratory, 12 hours minimum. Requisite: course 199HA. Continued reading and research that culminate in honors thesis. For departmental honors, students must also take course 196H. Maximum of 8 units of courses 199, 199HA, 199HB may be applied toward the major. Letter grading.

## Course List

### Molecular, Cell, and Developmental Biology

C139. Molecular, Cellular, and Developmental Neurobiology

### Organismic Biology, Ecology, and Evolution

M173. Anatomy and Physiology of Sense Organs

### Physiological Science

C125. Comparative Endocrinology: Molecular to Behavioral

126. Biological Clocks

C135. Dynamical Systems Modeling of Physiological Processes

138. Neuromuscular Physiology and Adaptation

147. Neurobiology of Learning and Memory

### Psychology

110. Fundamentals of Learning

112A. Basic Processes of Motivated Behavior

118. Comparative Psychobiology

119A. Neuropsychopharmacology

119B. Human Neurophysiology

119D. Behavioral Pharmacology

119E. Stress and Bodily Disease

119M. Physiological Psychology of Learning

120A. Cognitive Psychology

124A. Advanced Topics in Sensation and Perception

M181A-M181B. Research in Contemporary Problems in Mental Retardation

## NEUROSCIENCE

### Interdepartmental Graduate Program School of Medicine

UCLA  
1506D Gonda Center  
Box 951761  
Los Angeles, CA 90095-1761

(310) 825-8153  
e-mail: neurophd@mednet.ucla.edu  
<http://www.neuroscience.ucla.edu>

Marie-Francoise Chesselet, M.D. Ph.D., *Chair*

### Professors

Arthur P. Arnold, Ph.D. (*Physiological Science*)

Utpal Banerjee, Ph.D. (*Anesthesiology, Biological Chemistry, Molecular, Cell, and Developmental Biology*)

Francisco J. Bezanilla, Ph.D. (*Physiology*)

Lutz Birnbaumer, Ph.D. (*Anesthesiology, Biological Chemistry*)

Mariel Birnbaumer, Ph.D. (*Anesthesiology, Physiology*)

Nicholas C. Brecha, Ph.D., *in Residence (Medicine, Neurobiology)*

Anthony T. Campagnoni, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Scott H. Chandler, Ph.D. (*Physiological Science*)

Michael H. Chase, Ph.D. (*Physiology*)  
Marie-Francoise Chesselet, M.D., Ph.D. (*Neurology; Charles H. Markham Professor of Neurology*)

Robert C. Collins, M.D. (*Neurology; Frances Stark Professor of Neurology*)

Jean S. de Vellis, Ph.D., *in Residence (Neurobiology, Psychiatry and Biobehavioral Sciences)*

V. Reggie Edgerton, Ph.D. (*Neurobiology, Physiological Science*)

Christopher J. Evans, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Gordon L. Fain, Ph.D. (*Ophthalmology, Physiological Science*)

Michael S. Fanselow, Ph.D. (*Psychology*)

Debra B. Farber, Ph.D. (*Ophthalmology*)

Kym F. Faull, Ph.D., *in Residence (Chemistry and Biochemistry, Psychiatry and Biobehavioral Sciences)*

Jack L. Feldman, Ph.D. (*Neurobiology*)

Robin S. Fisher, Ph.D., *in Residence (Neurobiology, Psychiatry and Biobehavioral Sciences)*

Joaquin M. Fuster, M.D., Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Roger A. Gorski, Ph.D. (*Neurobiology*)

Carlos V. Grijalva, Ph.D. (*Psychology*)

Alan D. Grinnell, Ph.D. (*Physiological Science, Physiology*)

Ronald M. Harper, Ph.D. (*Neurobiology*)

Volker Hartenstein, Ph.D. (*Molecular, Cell, and Developmental Biology*)

Harvey R. Herschman, Ph.D. (*Biological Chemistry*)

Vincente Honrubia, M.D. (*Surgery*)

Carolyn R. Houser, Ph.D., *in Residence (Neurobiology)*

David A. Hovda, Ph.D. (*Neurosurgery*)

Bruce D. Howard, M.D. (*Biological Chemistry*)

Franklin B. Krasne, Ph.D. (*Psychology*)

Michael S. Levine, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Julio Licinio, M.D. *in Residence (Psychiatry and Biobehavioral Sciences)*

John C. Mazziotta, M.D., Ph.D. (*Molecular and Medical Pharmacology, Neurology, Radiological Sciences*)

James T. McCracken, M.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Paul E. Micevych, Ph.D. (*Neurobiology*)

Istvan Mody, Ph.D. (*Neurology, Physiology*)

Peter M. Narins, Ph.D. (*Physiological Science*)

Richard W. Olsen, Ph.D. (*Molecular and Medical Pharmacology*)

William M. Pardridge, M.D. (*Medicine*)

Gregory S. Payne, Ph.D. (*Biological Chemistry*)

Michael E. Phelps, Ph.D. (*Molecular and Medical Pharmacology*)

Russell E. Poland, Ph.D. (*Psychiatry and Biobehavioral Sciences*)

Leonard H. Rome, Ph.D. (*Biological Chemistry*)

Arnold B. Scheibel, M.D. (*Neurobiology, Psychiatry and Biobehavioral Sciences*)

John D. Schlag, M.D. (*Neurobiology*)

Jerome M. Siegel, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Gary W. Small, M.D. *in Residence (Psychiatry and Biobehavioral Sciences)*

Michael Sofroniew, Ph.D. (*Neurobiology*)

Enrico Stefani, M.D., Ph.D. (*Anesthesiology, Physiology*)

Allan J. Tobin, Ph.D. (*Neurology, Physiological Science*)

Arthur W. Toga, Ph.D. (*Neurology*)

Julio L. Vergara, Ph.D. (*Physiology*)

Harry V. Vinters, M.D. (*Pathology and Laboratory Medicine*)

Claude G. Wasterlain, M.D., *in Residence (Neurology)*

Peter C. Whybrow, M.D. (*Psychiatry and Biobehavioral Sciences*)

Charles D. Woody, M.D., *in Residence (Neurobiology, Psychiatry and Biobehavioral Sciences)*

Eran Zaidel, Ph.D. (*Psychology*)

S. Larry Zipursky, Ph.D. (*Biological Chemistry*)

### Professors Emeriti

Carmine D. Clemente, Ph.D. (*Neurobiology*)

Samuel Eiduson, Ph.D. (*Psychiatry and Biobehavioral Sciences*)

Lawrence Kruger, Ph.D. (*Anesthesiology, Neurobiology*)

### Associate Professors

Susan Y. Bookheimer, Ph.D. (*Psychiatry and Biobehavioral Sciences*)

James R. Boulter, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Jeff Bronstein, M.D., Ph.D. (*Neurology*)  
 Mark S. Cohen, Ph.D. (*Neurology, Psychiatry and Biobehavioral Science, Radiological Sciences*)  
 Joseph L. Demer, M.D., Ph.D. (*Ophthalmology, Neurology*)  
 Itzhak Fried, M.D., Ph.D., in Residence (*Neurosurgery, Psychiatry and Biobehavioral Sciences*)  
 Alan Garfinkel, Ph.D. (*Medicine, Physiological Science*)  
 David L. Glanzman, Ph.D. (*Neurobiology, Physiological Science*)  
 Cameron B. Gundersen, Ph.D. (*Molecular and Medical Pharmacology*)  
 Daniel L. Kaufman, Ph.D. (*Molecular and Medical Pharmacology*)  
 Sally J. Krasne, Ph.D. (*Physiology*)  
 Andrew F. Leuchter, M.D., in Residence (*Psychiatry and Biobehavioral Sciences*)  
 Nigel T. Maidment, Ph.D., in Residence (*Psychiatry and Biobehavioral Sciences*)  
 William P. Melega, Ph.D. (*Molecular and Medical Pharmacology*)  
 Thomas J. O'Dell, Ph.D. (*Physiology*)  
 Diane M. Papazian, Ph.D. (*Physiology*)  
 Stanley J. Schein, M.D., Ph.D. (*Psychology*)  
 Barney A. Schlinger, Ph.D. (*Physiological Science*)  
 Alcino J. Silva, Ph.D. (*Neurobiology*)  
 Igor Spigelman, Ph.D. (*Dentistry, Oral Biology*)  
 Ligia Toro, Ph.D. (*Anesthesiology*)  
 Alexander Van der Blik, Ph.D. (*Biological Chemistry*)  
 Rhonda R. Voskuhl, M.D. (*Neurology*)  
 Joseph B. Watson, Ph.D., in Residence (*Psychiatry and Biobehavioral Sciences*)  
 Geraldine A. Weinmaster, Ph.D. (*Biological Chemistry*)

#### Assistant Professors

Mark G. Barad, M.D., Ph.D. in Residence (*Psychiatry and Biobehavioral Sciences*)  
 Dean V. Buonomano, Ph.D. (*Neurobiology, Psychology*)  
 Ellen M. Carpenter, Ph.D., in Residence (*Psychiatry and Biobehavioral Sciences*)  
 Susana Cohen-Cory, Ph.D., in Residence (*Psychiatry and Biobehavioral Sciences*)  
 Christopher S. Colwell, Ph.D. (*Psychiatry and Biobehavioral Sciences*)  
 Ana Maria Correa, Ph.D., in Residence (*Anesthesiology*)  
 Stephen A. Engel, Ph.D. (*Psychology*)  
 Daniel H. Geschwind, M.D., Ph.D. (*Neurology*)  
 Susan Harkema, Ph.D. (*Neurology*)  
 Marco Iacoboni, M.D., Ph.D., in Residence (*Psychiatry and Biobehavioral Sciences*)  
 George Jackson, M.D., Ph.D., in Residence (*Neurology*)  
 Joanna C. Jen, M.D., in Residence (*Neurology*)  
 Jack Judy, Ph.D. (*Electrical Engineering*)  
 Barbara Knowlton, Ph.D. (*Psychology*)  
 Harley I. Kornblum, M.D., Ph.D. (*Molecular and Medical Pharmacology*)  
 David E. Krantz, M.D., Ph.D., in Residence (*Psychiatry and Biobehavioral Sciences*)  
 Linda M. Liau, M.D., Ph.D. (*Neurosurgery*)  
 Xin Liu, M.D., Ph.D. (*Molecular and Medical Pharmacology, Pathology and Laboratory Medicine*)  
 Kelsey C. Martin, M.D., Ph.D., in Residence (*Psychiatry and Biobehavioral Sciences*)  
 Paul Mischel, M.D. (*Pathology and Laboratory Medicine*)  
 Jonathan R. Monck, Ph.D. (*Physiology*)  
 Sheila Nirenberg, Ph.D. (*Neurobiology*)  
 Thomas Otis, Ph.D. (*Neurobiology*)  
 Patricia E. Phelps, Ph.D. (*Physiological Science*)  
 Dario L. Ringach, Ph.D. (*Neurobiology, Psychology*)  
 N. Carolyn Schanen, M.D., Ph.D. (*Human Genetics, Pediatrics*)  
 Felix E. Schweizer, Ph.D. (*Neurobiology*)  
 Desmond Smith, M.D., Ph.D. (*Molecular and Medical Pharmacology*)  
 Jeffrey L. Twiss, M.D., Ph.D. (*Pathology and Laboratory Medicine*)  
 Eric Vilain, M.D., Ph.D. (*Human Genetics*)  
 James A. Waschek, Ph.D., in Residence (*Psychiatry and Biobehavioral Sciences*)  
 Nancy L. Wayne, Ph.D. (*Physiology*)

Stephaine A. White, Ph.D. (*Physiological Science*)  
 Cui-Wei Xie, M.D., Ph.D., in Residence (*Psychiatry and Biobehavioral Sciences*)  
 Xianjie Yang, Ph.D., in Residence (*Ophthalmology*)

#### Adjunct Professor

Dennis J. McGinty, Ph.D. (*Psychology*)  
 Charles L. Wilson, Ph.D. (*Neurology*)

#### Adjunct Assistant Professor

Valeriy I. Nenov, Ph.D. (*Neurosurgery*)

## 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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degree

The Neuroscience Program offers the Doctor of Philosophy (Ph.D.) degree in Neuroscience.

## Admission

Applicants must satisfy the University minimum requirements. In addition, Graduate Record Examination (GRE) or Medical College Admission Test (MCAT) scores are required. Recommended preparation includes mathematics through calculus and at least one year each of general chemistry, organic chemistry and biochemistry, physics, and basic biology, including molecular and cell biology. Three letters of recommendation are required.

## Doctoral Degree

Major fields include neuroengineering and molecular, cellular, developmental, systems, behavioral, and clinical neuroscience.

First-year Ph.D. students take a five-course sequence in neuroscience and participate in at least two laboratory rotations. Students also attend a "Meet the Professors" presentation series and enroll in a three-quarter seminar se-

ries. In the first or second year, students take a course in scientific ethics.

Second-year students take at least one quarter of biomathematics, as well as three courses from a menu of advanced neuroscience courses. In the second or third year, students take an additional three quarters of the seminar series.

First-year students specializing in neuroengineering take one required course in neuroscience and one in biomedical engineering, one course from a menu of engineering courses, and two courses selected from a four-course sequence in neuroscience. First-year neuroengineering students participate in at least two laboratory rotations, one in neuroscience and one in engineering. Students also attend a "Meet the Professors" presentation series.

In the first and second years, neuroengineering students enroll in six courses from a menu of seminar courses. In the first or second year, students take a course in scientific ethics. Second-year students take at least one quarter of biomathematics from a departmental list, as well as three courses from a menu of advanced neuroscience and engineering courses.

One quarter of teaching experience is required.

Written and oral qualifying examinations are required. The written examination tests basic knowledge and ability to relate knowledge in different neuroscience areas, to locate and interpret literature, and to apply research problems.

Following successful completion of the written examination, students prepare a research proposal (in the basic format of an NIH grant proposal focusing on an important question pertinent to the field of study) and take the University Oral Qualifying Examination, which consists of a defense of the proposal. Students also are required to present a midstream seminar at the end of the fourth year.

## Neuroscience

### Graduate Courses

**M201. Neuroanatomy: Structure and Function of Nervous System. (4)** (Same as Neurobiology M202.) Lecture, three hours; laboratory, three hours. Requisite: Molecular, Cell, and Developmental Biology 171 or Organismic Biology M166. Anatomy of central and peripheral nervous system at the cellular histological and regional systems level. 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.

**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 Organismic Biology M166, 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. Molecular Neurobiology. (4)** (Same as Psychiatry M203.) Lecture, three hours; discussion, one hour. Preparation: basic biochemistry. Requisites: Biological Chemistry 201A, 201B. Introduction to neurochemistry for neuroscience students. Topics include protein structure and function, lipid structure and metabolism, nucleic acids/molecular biology.

**M204. Cellular and Molecular Developmental Neurobiology. (4)** (Same as Neurobiology M204, Physiology M204, and Psychiatry M204.) Lecture, three hours; discussion, one hour. Requisites: courses M201, M202, and M203, or Biological Chemistry 201A and 201B. Cellular and molecular processes that regulate development of nervous systems of vertebrates and invertebrates. Topics include regional specification in early neurogenesis, generation of neuronal diversity, cell surface interactions and growth factors, neuronal and glial proliferation and migration, axonal outgrowth and guidance, synaptogenesis, trophic interaction, plasticity, regeneration, and aging.

**M205. Behavioral and Systems Neuroscience. (4)** (Same as Physiological Science M205 and Psychology M205Z.) Lecture, three hours. Requisites: courses M201, M202, M203, M204. Introduction to fundamentals of behavioral and systems neuroscience, with emphasis on role of behavioral analysis in understanding the functioning of nervous system and identifying anatomical circuits, cell physiological processes, and molecular mechanisms that mediate behaviorally defined functions.

**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)** Critical discussion of current research literature related to topics of the five core courses in neuroscience graduate curriculum. S/U grading. **210A.** Corequisites: courses M201, M202, M203. **210B.** Corequisite: course M204. **210C.** Corequisite: course M205.

**211A-211B-211C. Evaluation of Research Literature in Neuroscience. (2-2-2)** Requisites: courses M201, M202, M203, M204, M205. Advanced critical analysis of current research in neuroscience. S/U grading.

**215. Seminar: Neuroscience. (2)** Topics of current importance presented for discussion. S/U 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 or Physiology M209A. 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.

**M233. Mechanisms and Relief of Pain. (2)** (Same as Oral Biology M204.) 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.

**M240. Cellular and Molecular Neurochemistry. (4)** (Same as Biological Chemistry M221, Neurobiology M221, Pharmacology M221, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Preparation: biochemistry. Contemporary neurochemistry topics — metabolic specialization and compartments, metabolism and function of ion channels, structure and function of neurotransmitters. Inborn errors and molecular genetics, molecular imaging, aging, and regeneration. Receptor/effector coupling. S/U or letter grading.

**M244. 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.

**M246. Neuroactive Peptides: Molecular Biology to Function. (2)** (Same as Medicine M235 and Neurobiology M235.) Presentation of current knowledge of gut and brain peptides by surveying their chemistry, anatomy, and physiology. Experimental approaches used to study biologically active peptides. Review of current information about each of the major gut and brain peptides. S/U or letter grading.

**M247. Neural Control of Cardiopulmonary Function. (4)** (Same as Physiological Science M247.) Lecture, two hours; discussion, two hours. Requisites: Physiological Science 111A, 111B or 133 or 142 or M180A, M180B. Cardiorespiratory homeostasis is accomplished via central nervous system (CNS) control of respiratory and circulatory pumping systems. Focus on CNS mechanisms underlying (1) generation of respiratory rhythm, sympathetic and parasympathetic tone, (2) determination of patterns of motor outflow, and (3) responses to changes in behavioral state or afferent signals. Emphasis on critical reading of literature.

**254. Interdisciplinary Research Seminar. (2)** Lectures and discussions on many different disciplinary approaches to knowledge of brain function in order to broaden experience of students studying in fields other than that of lecturer; new information in depth from students in fields closely related to subject discussed. S/U grading.

**M255. Functional Organization of Behavior. (2)** (Same as Psychiatry M255.) 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.

**257. Structure and Function of Limbic System. (2)** Current knowledge of mammalian limbic system presented by surveying studies of its developmental anatomy, intrinsic synaptic organization, synaptic chemistry, afferent and efferent circuits, and dysfunctions in memory and cognition association with limbic system function. S/U or letter grading.

**M259. Neurobiology of Sleep. (3)** (Same as Psychiatry M249 and Psychology M296.) Lecture, one hour; discussion, two hours. Critical review of primary research publications concerning neural basis of sleep. Discussion of neural and biochemical control of REM and NREM sleep after reviewing sleep behavior and phenomenology, including developmental and comparative aspects. Presentation of relevant clinical phenomena. S/U or letter grading.

**M260. Neuromuscular Factors in Movement Regulation. (4)** (Same as Physiological Science M260.) Requisite: Physiological Science 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.

**M261. Neuronal Circuit Analysis. (2)** (Same as Neurobiology M261.) Lecture, two hours; discussion, one hour. Seminar with strong emphasis on specific reading assignments. Integrated view of neuronal circuit analysis at advanced level; layout and performance of a variety of networks serving cognitive or motor functions.

**M262. Neural Systems for Motor Control. (4)** (Same as Physiological Science M240.) Requisite: Physiological Science C143. Advanced topics on neural mechanisms related to control of posture, locomotion, and highly skilled arm and hand movements. Emphasis on role of movement-dependent feedback at spinal segments and within sensorimotor areas of cerebral cortex, with respect to modification of motor output.

**M263. Neuronal Mechanisms Controlling Rhythmical Movements. (4)** (Same as Physiological Science M263.) Requisite: Physiological Science CM145. 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.

**M266A-M266B-M266C. Seminars: Cellular Neuroscience. (2 to 4 each)** (Same as Physiological Science 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.

**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.

**271. Neurobiology of Disease. (2)** Analysis of clinical neurological and psychiatric disorders from perspective of basic neuroscience.

**CM272. Neuroimaging and Brain Mapping. (4)** (Formerly numbered M272.) (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.

**274. Computational Neuroscience. (4)** Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses M201, M202. Systematic introduction to computational neuroscience and hands-on experience in neural simulations. Computational models at synaptic, neuronal, and network levels. Sensory, motor, memory, and attentional systems and some higher cognitive functions, including language and consciousness. S/U or letter grading.

**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.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**495. Methods in Neuroscience Public Education. (2)** Seminar, one hour; fieldwork, six hours. Designed for juniors/seniors and graduate students. Training and supervised practicum for students in teaching, presentation techniques, and public outreach of neuroscience principles. Hands-on experience through fieldwork in approved community setting. Students assist in preparation of educational materials and development of innovative programs. 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.

# NURSING

## School of Nursing

UCLA  
2-200 Factor Building  
Box 951702  
Los Angeles, CA 90095-1702  
(310) 825-7181  
<http://www.nursing.ucla.edu/son/>

Marie J. Cowan, R.N., Ph.D., F.A.A.N., *Dean*  
Adeline M. Nyamathi, R.N., Ph.D., F.A.A.N.,  
*Associate Dean for Academic Affairs*  
Mary A. Woo, R.N., D.N.Sc., *Associate Dean  
for Research*

### Professors

Nancy L.R. Anderson, R.N., Ph.D., F.A.A.N.  
Betty L. Chang, R.N., D.N.Sc., F.A.A.N.  
Marie J. Cowan, R.N., Ph.D., F.A.A.N.  
Jacquelyn H. Flaskerud, R.N., Ph.D., F.A.A.N.  
Deborah Koniak-Griffin, R.N., Ed.D., F.A.A.N.  
Charles E. Lewis, M.D., Sc.D.  
Mary A. Lewis, R.N., Dr.P.H., F.A.A.N.  
Adeline M. Nyamathi, R.N., Ph.D., F.A.A.N.  
Geraldine V. Padilla, Ph.D.  
Gwen M. van Servellen, R.N., Ph.D., F.A.A.N.  
Donna L. Vredevoe, Ph.D.

### Professors Emeriti

Olive Y. Burner, R.N., Ph.D.  
Barbara A. Davis, R.N., Ed.D.  
Dorothy E. Johnson, R.N., M.P.H.  
Harriet C. Moidel, R.N., M.A.  
Agnes A. O'Leary, R.N., M.P.H.  
Sharon J. Reeder, R.N., Ph.D., F.A.A.N.  
Maria W. Seraydarian, Ph.D.  
Donna F. Ver Steeg, R.N., Ph.D., F.A.A.N.  
Frances M. Wiley, R.N., M.N.

### Associate Professors

Lina K. Badr, R.N., D.N.Sc., F.A.A.N.  
Linda P. Sarna, R.N., D.N.Sc., F.A.A.N.  
Mary A. Woo, R.N., D.N.Sc.  
Anne K. Wuerker, R.N., Ph.D.

### Assistant Professors

Jill P. Berg, R.N., Ph.D.  
Margaret A. Compton, R.N., Ph.D.  
Lynn V. Doering, R.N., D.N.Sc.  
Marie N. Fongwa, R.N., Ph.D.  
Karen H. Gyllys, R.N., Ph.D.  
MarySue V. Heilemann, R.N., Ph.D.  
Donna K. McNeese-Smith, R.N., Ed.D.  
Janet C. Mentes, R.N., Ph.D.  
Robertta K. Oka, R.N., Ph.D.  
Wendie A. Robbins, R.N., Ph.D.  
Dorothy J. Wiley, R.N., Ph.D., *in Residence*

### Lecturers

Nancy J. Bush, R.N., M.N.  
Mary M. Canobbio, R.N., M.N., F.A.A.N.  
Deborah R. Caswell, R.N., M.N.  
Shelly R. Cote, R.N., M.N.  
Lori A. Cutler, R.N., M.N.  
Mary Day, R.N., M.S.N.  
Jan M. Fredrickson, R.N., M.N.  
Major L. King, R.N., Ph.D.  
Susan M. Huser, R.N., M.S.  
Young Kee Markham, R.N., M.N.  
Joyleen Y. Martinez, R.N., M.S.N.  
Nancy E. McGrath, R.N., M.S.N.  
Lisa A. Mylar, R.N., M.S.N.  
Josephine D. Ortiz, R.N., M.S.N..  
Dale R. Perry, R.N., M.S.N.  
Deborah A. Rice, R.N., M.N.  
Stacie Schurman-Wolcott, R.N., M.S.N., C.N.M.  
Dawn S. Stone, R.N., M.N.  
Anita A. Trudell, R.N., M.S.N., C.N.M.

### Adjunct Associate Professors

Mary P. Cadogan, R.N., Dr.P.H.  
Anna Gawlinski, R.N., D.N.Sc.  
Colleen K. Keenan, R.N., Ph.D.

### Adjunct Assistant Professors

Suzette Cardin, R.N., D.N.Sc.  
Joan E. Hahn, R.N., D.N.Sc.  
Janna Lesser, R.N., Ph.D.  
Susan R. Opas, R.N., Ph.D.

## Scope and Objectives

The UCLA School of Nursing gives direction to interested potential applicants through monthly open counseling sessions. Students interested in the academic programs offered are urged to attend a counseling session or request a copy of the *Announcement of the UCLA School of Nursing* by writing to the Student Affairs Office, School of Nursing, UCLA, Box 951702, Los Angeles, CA 90095-1702, or by calling (310) 825-7181 Tuesday through Thursday.

## History and Accreditation

In 1949 The Regents of the University authorized the School of Nursing as one of the professional schools of the UCLA Center for the Health Sciences. This action paved the way for the development of an undergraduate basic program in Nursing leading to the Bachelor of Science degree and made possible the establishment of a graduate program leading to the Master of Science degree. In 1966 the Master of Nursing (M.N.) degree was established as an alternate option to the M.S. degree. The Master of Science degree program was discontinued in 1971. The Regents approved the Doctor of Nursing Science (D.N.Sc.) degree program in 1986, and in Fall Quarter 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 B.S. degree curriculum was revised in 1997 to meet the educational needs of students who are registered nurses with Associate Degrees or diplomas in nursing. The first group of students began their studies in the summer of 1997.

The School of Nursing became an agency member of the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing in 1952. The National League for Nursing Accrediting Commission (NLNAC, 350 Hudson Street, New York, NY 10014, 212-989-9393, ext. 153) has granted full accreditation to the programs since 1954. The master's nurse practitioner and nurse-midwifery programs have Board of Registered Nursing approval. In 2000, the Commission on Collegiate Nursing Education gave preliminary approval of the baccalaureate and master's degree programs.

## Undergraduate Study

### Nursing B.S.

The baccalaureate program leading to the Bachelor of Science degree provides for a close interweaving of general and professional

education. The physical, social, and emotional health aspects of nursing are emphasized throughout the curriculum. Clinical nursing experience under the guidance of faculty members is provided in hospitals, outpatient clinics, homes, and community health centers.

## Admission

The School of Nursing strives to attract a culturally and ethnically diverse student population. Admission, beginning in the junior year, is based on 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 grades of C or better in requisite courses and an overall grade-point average of 3.0 or better. Three letters of recommendation are also required. Diverse life experiences, including previous employment, volunteer work, and community service which reflect leadership, responsibility, multicultural involvement, multilingual abilities, and other unusual skills and knowledge are evaluated. Consideration is also given to social and economic disadvantage such as educational background, heavy work schedule during school, housing conditions, family responsibilities, and mastery of physical disabilities. Completed applications should reflect clearly identified career goals and documentation of potential in advanced practice nursing.

Applications for acceptance to the baccalaureate program must be filed no later than November 30 for the next Fall Quarter. The School of Nursing admits students each Fall Quarter. In addition to the regular *UC Application for Undergraduate Admission and Scholarships* which must be returned in the self-addressed envelope included in the packet, an application must be filed with the school by November 30. This application is available directly from the Student Affairs Office, School of Nursing, UCLA, Box 951702, Los Angeles, CA 90095-1702.

## Degree Requirements

Students must complete 180 quarter units of college work and satisfy the general University requirements as follows:

1. Completion of all required general education courses as specified for completion both prior to admission and/or at UCLA: human anatomy (one course), sociocultural anthropology (one course), humanities (one or more courses), English composition (two courses), mathematics (one course), introductory or general microbiology with laboratory (one course), human nutrition (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), and electives as needed

2. Completion of 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 unit credit applies to the Nursing major only)
3. Completion of 76 to 88 units of lower and upper division coursework in residence, including Biostatistics 100A, Chemistry and Biochemistry 14A, 14B, 14C, Epidemiology 100, Life Sciences 2, 3, Nursing 102, 104, 190, 192, 193, 195, 196, 200A, 220, and one or more courses from 213A, 214F, 216F, 237A, and three 4-unit electives

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.

All required nursing courses in the school must be completed with a grade of C or better in each course.

#### Study Lists

Students may not enroll in more than four courses per term unless a petition is approved in advance by the associate dean.

### Honors

#### Dean's Honors

Dean's Honors are awarded annually to undergraduate students completing the academic year with distinction. To be eligible students must achieve an overall grade-point average of 3.75 on a minimum of 36 graded units of work completed during the academic year.

#### Honors at Graduation

Honors are awarded at graduation to students with a superior overall grade-point average. The levels of honors and the requirements for each level are: *summa cum laude*, an overall average of 3.844; *magna cum laude*, 3.736; *cum laude*, 3.588. To be eligible students must have completed at least 98 University of California units for a letter grade. See the *Schedule of Classes* for the most current calculations of Latin honors.

#### School of Nursing Faculty Award

The Faculty Award for excellence in nursing, established in 1965, is awarded to a student graduating from the bachelor's and the master's program with the highest grade-point average in all nursing courses.

### Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined

in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

#### 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.

### Admission

#### Master of Science in Nursing

The following is required of applicants to the M.S.N. program:

1. Either graduation from a recognized college or university having an accredited baccalaureate nursing program satisfactory to the School of Nursing and to the Graduate Division, or graduation with a baccalaureate degree in nursing from an international institution with a nursing program satisfactory to the School of Nursing and to the Graduate Division. If admitted under the latter, applicants may be required to enroll in certain undergraduate nursing courses which generally may not be applied toward requirements for advanced degrees
2. Status as a licensed registered nurse. Prior to entry into any clinical practicum, evidence of current licensure as a registered nurse in the State of California is mandatory
3. An upper division statistics course or a lower division statistics course with content equivalent to Biostatistics 100A, to be completed before entering the school
4. An upper division nursing research course taken at an accredited institution and equivalent to Nursing 193, to be completed before entering the school
5. An upper division physical assessment course taken at an accredited institution and equivalent to Nursing 192, to be completed before entering the school (not required of students selecting the nursing administration specialty)
6. Professional and/or academic competence in nursing attested through three letters of recommendation
7. A satisfactory scholarship record
8. Since written and verbal communication skills are basic to the practice of nursing, it is essential that applicants read, write, and speak English well. International applicants from a country in which English is not the first language and medium of instruction, whether a licensed registered nurse in the U.S. or not, are required to pass the Test of English as a Foreign Language (TOEFL) with a score of 560 (paper and pencil test) or 220 (computer-based test) or higher or the International English Language Testing System (IELTS) examination with an overall band score of 7.0 or

higher. Scores must be submitted prior to consideration for admission

9. All international applicants who are not licensed registered nurses in the U.S. prior to consideration for admission are required to pass the Commission on Graduates of Foreign Nursing Schools (CGFNS) examination

Prospective students interested in the M.S.N. program must file two applications: (1) *UCLA Application for Graduate Admission* and (2) *Application for Admission to the School of Nursing*. Both applications may be obtained from the Student Affairs Office. Applications are accepted for Fall Quarter admission only. The application deadline for priority consideration is December 15; February 1 is the final deadline.

#### Nursing M.S.N./Management M.B.A.

The School of Nursing and the John E. Anderson Graduate School of Management offer a three-year concurrent degree program designed for students who seek careers in hospital and nursing administration. By providing knowledge of both management and clinical care issues, the program prepares individuals for management positions in an increasingly complex environment. Application materials should be requested separately from both schools.

#### M.S.N. Curriculum for Certified Nurse Practitioners/Midwives

The School of Nursing offers the opportunity for applicants with a B.S. degree in Nursing and certification in California as an adult nurse practitioner (N.P.), family N.P., pediatric N.P., women's health care N.P. or a nurse midwife (C.N.M.), to earn the M.S.N. degree in one year.

Students in this plan meet all the same admission requirements for the M.S.N. degree except for an upper division physical assessment course. In addition, prior to consideration for admission, applicants are required to submit evidence of certification as an N.P. or C.N.M., be practicing N.P.s at least 50 percent time, and submit three letters attesting to their competency.

While students who follow this curriculum are held to the school minimum of 44 units for the M.S.N., up to 8 units may be waived via petition based on skill and knowledge obtained through certification training. Course requirements include Nursing 200A, 200B, 204, 220, 225 (not required for students with a BRN furnishing number), 230, 237D or 238C or 239C, 264, 437D or 438D or 439D, 597, and 4 units of theory elective.

#### Ph.D. in Nursing

Priority for admission to the Ph.D. program is given to graduates of accredited master's programs in nursing. Those admitted to doctoral study with a bachelor's degree in nursing and a master's degree in a nonnursing field are re-

quired to make up clinical specialty deficiencies by taking clinical courses in one of the current master's advanced practice programs. Such courses may be taken concurrently with doctoral courses. Individuals admitted with a bachelor's degree in nursing are required to complete a program of master's courses in nursing at UCLA as a requisite to entry into doctoral courses.

Applicants to the Ph.D. program must provide evidence of the following:

1. A master's degree in nursing; a B.S. degree in Nursing and a master's degree in a nonnursing field; or a B.S. degree in Nursing. Degrees must be from an accredited program satisfactory to the School of Nursing and the Graduate Division. Students who are accepted with deficiencies are required to complete appropriate master's courses
2. A scholarship record satisfactory to the Graduate Division and to the School of Nursing with a minimum grade-point average of 3.5
3. Scores on the GRE General Test taken within the past five years.
4. An upper division statistics course with content equivalent to Biostatistics 100A or Biomathematics 170A
5. A graduate-level nursing research course with content equivalent to Nursing 204
6. A 4-unit graduate-level nursing theory development course
7. A minimum score of 560 (paper and pencil test) or 220 (computer-based test) on the Test of English as a Foreign Language (TOEFL) or an overall band score of 7.0 on the International English Language Testing System (IELTS) examination for applicants from countries in which English is not the primary language and medium of instruction. Scores must be submitted prior to consideration for admission
8. A passing score on the nursing and English portions of the Commission on Graduates of Foreign Nursing Schools (CG-FNS) examination for international applicants who are not licensed as registered nurses in the U.S., prior to consideration for admission
9. Status as a licensed registered nurse; evidence of current licensure as a registered nurse in the State of California is mandatory
10. Four letters of reference affirming the applicant's potential for scholarly, investigative, and creative endeavors in nursing
11. Examples of scholarly papers and/or creative works
12. A statement of educational objectives, specific focus of research, and program and career goals
13. Curriculum vitae

Prospective students interested in the Ph.D. program must file two applications: (1) *UCLA Application for Graduate Admission* and (2) *Application for Admission to the School of Nursing*. Both applications may be obtained from the Student Affairs Office. Applications are accepted for Fall Quarter admission only. The application deadline for priority consideration is December 15; February 1 is the final deadline.

## Master's Degree

The School of Nursing offers graduate studies in the following areas which, for administrative and teaching purposes, are organized within the sections of acute care and primary care:

1. Acute Care Section: acute care, nursing administration, nursing administration/occupational and environmental health, oncology
2. Primary Care Section: family, gerontology, nurse-midwifery, occupational and environmental health nursing, pediatric

Within selected advanced practice specialties, students may elect to focus on the nurse-midwife, nurse practitioner, or clinical nurse specialist role. Some specialties have course requirements over and above the minimum requirements for the M.S.N. degree. Applicants are advised to seek counseling prior to admission in order to select the specialty and role most appropriate to career goals, as well as to meet requirements for acceptance into the particular area of concentration. Students in the nurse practitioner specialties also may take the neuropsychiatric subspecialty.

All graduates are strongly encouraged to sit for advanced practice certification by accredited agencies after graduation.

The M.S.N. degree is offered through the comprehensive examination plan. A minimum of 44 units is required, but each specialty area has additional requirements. Three core courses and additional coursework in the 100, 200, and 400 series are required for each area of clinical specialization. There are core courses, courses for the specialty areas, elective courses, and other special conditions and stipulations.

## Doctoral Degree

In the Ph.D. program, students focus their study in one of two areas: biobehavioral research or health systems research.

Students who choose biobehavioral research focus on studies that describe, explain, and predict biologic and behavioral factors that relate to health promotion and disease prevention. Students who choose health systems research focus on studies that examine the function, structure, process, and outcome of a range of multidisciplinary health delivery systems such as hospitals, nursing homes, and community-based organizations. Both research areas incorporate human diversity and

the influence of the psychosocial and physical environments.

Core course requirements include nine required courses in nursing and one statistics sequence. Cognate course requirements include 24 units of courses in the major area of study (biobehavioral research, health systems research). Of the 24 units, a minimum of 4 units and a maximum of 12 units are taken in nursing. The remainder are taken in support discipline areas.

Written and oral qualifying examinations are required. The written examination evaluates three areas of knowledge: (1) the basic concepts of nursing science, (2) nursing research methods and analysis, and (3) the basic concepts of the student's focused area of study.

Following successful completion of the written examination, students take the University Oral Qualifying Examination, which consists of an evaluation of the dissertation proposal.

## Nursing

### Upper Division Courses

**102. Professional Nursing in Culturally Diverse Communities. (5)** Lecture, four hours; community experience, one hour. Introductory course to assist registered nurses in transition to professional nursing in context of a complex and dynamic health care system. Analyses include individual and population-based approaches to health care in dynamic multicultural communities. Letter grading.

**104. Health and Illness Behaviors across Culturally Diverse Communities. (4)** Lecture, four hours. Requisite: course 102. Examination of basic concepts of health and illness from a biobehavioral and health systems framework. Nursing theory as it relates to roles, stress, loss, self-concept, and pain among culturally diverse populations. 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.

**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.

**190. Community Health Nursing. (8)** Lecture, three hours; clinical, 15 hours; clinical conference, 30 minutes. Clinical concentration in multicultural community health nurse settings: public health, rehabilitation, mental health centers, home health, occupational health, and schools. Theoretical content focuses on the community as a context for understanding relationship between health status of individuals and groups with psychosociophysical environment. Letter grading.

**192. Physical Assessment. (4)** Lecture, three hours; laboratory, three hours. Designed to provide in-depth review and synthesis of physical assessment skills and knowledge covering the life span. Individual study, use of audiovisual aids, physical assessment skills practice in laboratory, and required text are mandatory. Letter grading.

**193. Introduction to Research. (4)** Lecture, four hours. Introduction to planning a research project based on a 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.

**195. Nursing Management. (3)** Lecture, two hours; field study, three hours. Prerequisites: courses 102, 104. Management theory applied to nursing practice. Acquisition of basic knowledge of management concepts and skills as practiced in organizational structures and community health care settings. Letter grading.

**196. Issues in Providing Health Care to Culturally Diverse Populations. (4)** Lecture, three hours; discussion, one hour. Open to non-nursing students with consent of instructor. Theoretical and experiential course designed to provide a base for understanding issues of providing health care to culturally diverse populations, with emphasis on strategies to facilitate intercultural/intra-cultural communication and intergroup/intragroup dynamics in health care settings. P/NP or letter grading.

**199. Special Studies in Nursing. (2 to 16)** Tutorial, to be arranged. Limited to seniors. Individual study of a problem in the field of nursing. May be repeated for credit, but only 4 units may be applied toward degree requirements. P/NP or letter grading.

## Graduate Courses

**200A-200B. Biobehavioral Foundations of Health Assessment. (3-3)** (Formerly numbered C200A-C200B.) Lecture, two hours. Theories of health behaviors in relation to assessment of epidemiological, psychological, and developmental disorders across life span. Analysis of preventive health, disease screening, risk evaluation, and health promotion theories and interventions. Letter grading. **200A.** Prerequisite: course 192 or approved physical assessment course. **200B.** Prerequisite for acute care, family, gerontology, nurse midwifery, occupational and environmental health, oncology, and pediatric specialty students: course 200A.

**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. Philosophical Foundations of Science of Nursing. (4)** Lecture, four hours. Designed for Ph.D. students. Intended to explore major schools of thought in contemporary Western philosophy of science, with emphasis on ways in which these schools may and do influence nursing science and practice. S/U or letter grading.

**203. History of Nursing Thought. (2)** Lecture, two hours. Analysis and evaluation of contextual forces which influenced development of discipline of nursing. Examination of nursing's historical influence on sociopolitical environment. Letter grading.

**204. Research Design and Critique. (4)** Lecture, 90 minutes; discussion, 90 minutes. Prerequisite: course 193 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.

**205. Advanced Research Methods. (4)** Lecture, four hours. Preparation: one statistics course. Prerequisites: courses 193, 204. Research process and development of research proposals, including quantitative and qualitative approach to designs. Students encouraged to develop research proposal for clinical or basic research problem related to nursing care or variables affecting such care. Letter grading.

**206A-206B. Nursing Theory Development. (4-4)** Seminar, three hours. Preparation: 4 units of nursing theory. Prerequisite or corequisite: course 202 or philosophy of science course. Focus on major issues involved in development of nursing knowledge, including content and methods of developing nursing theory. In Progress and S/U or letter grading.

**207. Research in Nursing: Measurement of Clinical Variables. (4)** Lecture, three hours; discussion, one hour. Prerequisites: courses 204, 205. Introduction to wide array of research designs and measurement techniques for testing clinical nursing phenomena. Emphasis on dynamic interaction between research process and theory, as well as on comparative analyses of various designs, content analysis, use of appropriate controls, sources of error, and sensitivity problems. Letter grading.

**208. Research in Nursing: Measurement of Outcomes. (4)** Lecture/discussion, three hours. Prerequisites: courses 206A, 207. Measurement theories, including topics related to scaling and tool development. Emphasis on opportunity to develop knowledge and skills through course content and individualized direct involvement in a clinical research project. S/U or letter grading.

**209. Human Diversity in Health and Illness. (2)** Lecture, two 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.

**211. Theoretical Foundations of Women's Health Care. (2)** Lecture, two hours. Critical evaluation and application of women's health, gynecological and family planning theory, and research and practice guidelines. Health promotion in diverse populations of women integrated within context of management of common health care problems, needs, and deficits. Letter grading.

**211F. Theoretical Foundations of Women's Health Care. (4)** (Formerly numbered C211F.) Lecture, three hours; discussion, one hour. Critical evaluation and application of women's health, gynecological and family planning theory, and research and practice guidelines. Health promotion in diverse populations of women integrated within context of management of common health care problems, needs, and deficits. Letter grading.

**212. Health-Related Family Theory. (2)** (Formerly numbered C212.) 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)** (Formerly numbered C213A.) 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)** (Formerly numbered 213C.) Lecture, three hours. Prerequisite: 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)** (Formerly numbered C214F.) 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 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.

**215F. Human Responses to Cancer. (4)** (Formerly numbered C215F.) Lecture, three hours; selected field experiences. Prerequisite: 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)** (Formerly numbered C216F.) 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. Prerequisite: 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)** (Formerly numbered C217F.) Lecture, three hours; discussion, one hour. Prerequisite: 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. Prerequisites: courses 219A, 219B. Synthesis and evaluation of organizational theory in leadership and management of health care organizations, with emphasis on organizational structure, processes, and outcomes. Letter grading.

**218B. Nursing Administration Theory. (4)** Lecture, four hours. Prerequisite: 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. Prerequisite: course 218B. Project management, organizational communication, governance, development and change, diverse relationships within the organization, risk management, liability, and ethics of administration decision making. Emphasis on issues affecting local, national, and international health care management. Letter grading.

**218D. Nursing Administration Theory. (4)** Lecture, four hours. Prerequisite: course 218C. Community health care needs, political action and health care policy, marketing, and media. Planning for future continuous personal and professional growth. Emphasis on issues affecting local, national, and international health care management and policy development. Letter grading.

**219A. Essentials of Accounting and Budgeting in Health Care Organizations. (4)** Lecture, four hours. Theories of management, organization, and administration presented in relation to techniques of accounting, budgeting, finance, and health care economics. Focus on definition of terms and concepts, followed by practical applications within a variety of health care 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 health care, models for forecasting productivity determinations, and program planning and evaluation for nurse administrators. Emphasis on practical methods and techniques within wide variety of health care situations. Letter grading.

**220. Theories of Instruction and Learning in Nursing. (3)** (Formerly numbered C220.) Lecture, two hours; computer practice, one hour. 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.

**222. Immunosuppression and Patient Care. (2)** Lecture, two hours. Research related to immunosuppression, its causes, clinical manifestations, and modifiers. Special emphasis on physiologic and pathophysiologic mechanisms of immunosuppression as a basis for information used in patient education and clinical decisions, and supportive treatments and modifiers. Letter grading.

**223. Childhood Development: Research and Application to Nursing. (2)** (Formerly numbered C223.) Lecture, two 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. Health-Related Problems of Vulnerable Populations. (2)** Lecture, two hours. Health-related research and models focusing on health promotion and health intervention, and health ethics and policy regarding vulnerable populations. Emphasis on vulnerable or at-risk social groups in the U.S. Letter grading.

**225. Pharmacology for Advanced Practice Nurses. (4)** Lecture, four hours. Knowledge of and skills in pharmacology necessary for advanced practice nurses who have clients/patients with stable acute or chronic conditions. Letter grading.

**229. Biologic/Psychologic Interface in Health and Illness. (2)** Lecture, two hours. Interaction of physiologic, behavioral, and psychosocial factors in illness, and theory and research underlying these factors, including differential influence of gender, ethnicity, and culture. Letter grading.

**230. Advanced Pathophysiology. (4)** (Formerly numbered C230.) Lecture, four hours. Requisite: course 105 or equivalent taken within past five years. In-depth examination of pathophysiological processes that underlie human illness and disease, with detailed study of these in major body systems. Examination of manifestations of and responses to processes of cellular and molecular pathology at extracellular, system, and human levels. Letter grading.

**231. Special Topics in Cellular Physiology. (2)** Lecture, two hours. Requisite: course 230. Designed for graduate nursing students. Functional organization and genetic control of human cell. Letter grading.

**232. Human Responses to Aging and Chronic Illness. (2)** Lecture/discussion, four hours. Pathophysiologic 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)** (Formerly numbered C232F.) Lecture/discussion, four hours. Pathophysiologic 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.

**235. Reproductive Endocrinology. (2)** Lecture, two hours. Requisite: course 105. Recommended: course 230. Current theory and research related to systematic evaluation of normal reproductive physiology. Highlights human growth and development, sexual differentiation, menstrual cycle, hormonal aspects of puberty, male and female reproduction, placenta, parturition, postpartum period, lactation, and menopause. Letter grading.

**237A. Primary Care of Women: Antepartum Management. (4)** (Formerly numbered C237A.) Lecture, four hours. Presentation of theory and research on assessment and management of women during pregnancy, with emphasis on current nursing models of primary and independent/collaborative care of women/families during antepartum period. Review of management of normal pregnancy and health and social complications. Letter grading.

**237B. Primary Care of Women: Intrapartum and Postpartum Management. (4)** (Formerly numbered 237C.) Lecture, four hours. Requisite: course 237A. Biologic and behavioral issues pertinent to care of women during labor, birth, and postpartum, including analysis of relevant research and critical thinking/decision making in clinical management. Presentation of content as outlined in ACNM Core Competencies, "Care of Childbearing Family," Sections IIC and D. Letter grading.

**237C. Theoretical Foundations of Health Assessment of Women: Primary Care. (4)** (Formerly numbered 237B.) Lecture, four hours. Requisite: course 237B. Application of current theory, research, and knowledge relevant to assessment and management of common health problems in women, with emphasis on physiologic, psychosocial, and behavioral factors and on nurse-midwifery management process. Systematic evaluation of current nursing conceptual models in independent and collaborative primary care of women. Letter grading.

**237D. Primary Care of Women: Advanced Nurse-Midwifery Management. (4)** Lecture, four hours. Requisites: courses 237A, 237B, 237C, 238A (2 units). Builds on previous core and nurse-midwifery coursework, with focus on management of complex antepartum, intrapartum, and postpartum situations and on comanagement or referral as necessary. Basic theory of obstetric ultrasonography and appropriate use of ultrasound information in pregnancy and parturition. Exploration of nurse-midwifery professional issues at local, state, and national levels in accordance with professional organization guidelines. Letter grading.

**238A. Theoretical Foundations of Nursing of Children: Assessment and Health Guidance. (2 or 4)** Lecture, four hours. Requisite: course 200B. 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. Biobehavioral Foundations of Acuity and Chronicity in Illness. (4)** Lecture, four hours. Requisite: course 230. 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 health care problems managed by advanced practice nurses and nurse practitioners in variety of clinical settings. Letter grading.

**239B. Biobehavioral Foundations of Acuity and Chronicity in Illness. (4)** Lecture, four hours. Requisite: course 239A. Organ systems approach to acuity and chronicity in syndromes related to endocrine, gastrointestinal, and neurological systems and selected content in oncology. Second of three-course sequence in diagnosis and management of commonly occurring medical and nursing health care problems managed by advanced practice nurses and nurse practitioners in variety of clinical settings. Letter grading.

**239C. Biobehavioral Foundations of Acuity and Chronicity in Illness. (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 health care 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 of 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.

**241F. Biobehavioral Foundations of Neuropsychiatric Assessment. (4)** Lecture, four hours. Biologic and behavioral theories and research from variety of disciplines, including nursing, for application of 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. 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.

**243. Theoretical Foundations of Complementary Health Care I. (2)** Lecture, two hours. Overview of theories and research underlying commonly used therapeutic systems available in the U.S. Major emphasis on fundamental mind-body-environment theories and principles. Focus on categories of alternative systems within framework of Western clinical practice. Letter grading.

**243F. Theoretical Foundations of Complementary Health Care I. (4)** Lecture, four hours. Overview of theories and research underlying commonly used therapeutic systems available in the U.S. Major emphasis on fundamental mind-body-environment theories and principles. Focus on categories of alternative systems within framework of Western clinical practice. Letter grading.

**244. Theoretical Foundations of Complementary Health Care II. (2)** Lecture, two hours. Specifics of alternative therapies, body-mind principles, and traditional Chinese medicine assessment and diagnosis provided within framework of theory and research. Major emphasis on understanding integration of these complementary therapies with Western diagnosis and management. Letter grading.



**244F. Theoretical Foundations of Complementary Health Care II. (4)** Lecture, four hours. Specifics of alternative therapies, body-mind principles, and traditional Chinese medicine assessment and diagnosis provided within framework of theory and research. Major emphasis on understanding integration of these complementary therapies with Western diagnosis and management. 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 health care systems through case-study analysis, with focus on application to clinical practice settings which include culturally diverse populations. Letter grading.

**264. Professional Issues in Nursing. (3)** Lecture, three hours. Requisite: course 418A or 437A or 438A or 439A. Assessment of organizational, legal, ethical, and health care policy issues in relation to delivery of health care services by advanced practice nurses in evolving health care system. Letter grading.

**M273. Advanced Seminar: Medical Anthropology. (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 the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the relevant public agencies. Letter grading.

**299A. Nursing Research Seminar. (4)** Seminar, three hours. Requisites: courses 206A, 206B, 207, 208. Seminar to assist students who are beginning careers in scientific research to understand issues of misconduct and scientific integrity. Highlights practical experience of faculty in assuring scientific integrity while conducting research, culminating in communication and dissemination of their research. S/U grading.

**299B-299C. Nursing Research/Laboratory Experiences. (4-4)** Seminar/discussion, one hour; research/laboratory, three hours. Requisites: courses 202, 206A, 206B. 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. (1 to 4)** Seminar, one hour; discussion, one to four hours. Requisites: courses 206A, 206B, 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**416. Advanced Practice Nursing: Acute Care Laboratory Practicum. (1)** Laboratory, three hours. Required of acute care and oncology specialty students. Introduction to advanced practice diagnostic or therapeutic procedures and related indications, complications, and follow-up care in laboratory setting, including advanced electrocardiograms and chest X-ray interpretation, suturing, central and arterial line placement, intubation, bone marrow aspiration, and lumbar puncture. S/U grading.

**418A. Nursing Administration Practicum. (2)** Clinic practicum, six hours. 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. (2)** Clinic practicum, six hours. 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. (2)** Clinic practicum, six hours. 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 the organization, risk management, liability, and ethics of administration decision making. Letter grading.

**418D. Nursing Administration Residency. (11)** Clinic practicum, 32 hours; clinical conference, one hour. Requisites: courses 218C, 418C. Experience in organization setting as students assume leadership role in planning, managing, and evaluating an administrative project. Synthesizing of content from course 218D, including assessing community health care needs, marketing, media, and political action and health care policy. Letter grading.

**434. Nurse-Midwifery Clinical Practicum. (4)** Clinic, 12 hours. Requisite: course 237C. Building on previous core and nurse-midwifery coursework, focus on application of principles of health assessment and primary care of women, with emphasis on physiologic, psychosocial, and behavioral factors and on clinical components of nurse-midwifery process. Use of critical analysis in data collection, assessment, diagnosis, treatment, and counseling in clinical settings. Letter grading.

**437A. Nurse-Midwifery Clinical Management I. (2)** Clinic, five hours; clinical conference, one hour. Preparation: completion of physical assessment course. Application of theory, knowledge, and research of primary care of women during antepartum period, with emphasis on counseling and screening for prevention and early detection of common risk conditions that may complicate prenatal period. Letter grading.

**437B. Nurse-Midwifery Clinical Management II. (4)** (Formerly numbered 437C.) Clinic, 12 hours. Corequisite: course 237B. Application of current theory, research, and knowledge relevant to nurse-midwifery management of childbearing family during intrapartum and postpartum periods and continued practice of previous clinical content. Clinical practice of intrapartum, postpartum, and professional competencies as outlined in ACNM Core Competencies. Letter grading.

**437C. Nurse-Midwifery Clinical Management III. (4)** (Formerly numbered 437B.) Clinic, 12 hours. Corequisite: course 237C. Synthesis of previous course and clinical work and continued practice of assessment and management of childbearing family and newborn. Emphasis on development of expanded skills in comprehensive assessment of health problems, including elements of primary care that focus on health promotion, education, disease prevention, and client advocacy. Letter grading.

**437D. Nurse-Midwifery Clinical Management IV. (6)** Clinic, 18 hours. Requisite: course 437C. Corequisite: course 237D. Synthesizing previous course and clinical work, students continue to practice assessment and management of childbearing family. Emphasis on management of complications in antepartal, intrapartal, and postpartal periods, interpretation and utilization of ultrasonography in clinical settings, and performance of limited third-trimester ultrasound examinations. Letter grading.

**437E. Nurse-Midwifery Clinical Management V. (4)** Clinic, 11 hours; clinical conference, one hour. Corequisite: course 211F. Primary care for gynecology, family planning, sexually transmitted diseases, and premenopausal and perimenopausal women/families. Principles of prevention, assessment, diagnosis, treatment, and counseling applied in clinical experiences, case studies, and skills laboratories. Letter grading.

**437F. Nurse-Midwifery Integration. (8)** Clinic, 24 hours. Requisite: course 437E. Students assume management responsibility for full scope of nurse-midwifery practice, providing continuity and comprehensive obstetric care to the childbearing woman, care to the newborn, family planning, and gynecologic care to the well woman. Students expected to implement one of the functional aspects of clinical nurse specialist role (i.e., educator, practitioner, researcher, or consultant). Letter grading.

**438A. Advanced Practice Nursing in Care of Children: Wellness Care. (2)** Clinic practicum, six hours. Requisite: 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. (4)** Clinic practicum, 12 hours. Requisite: 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. (4)** Clinic practicum, 12 hours. Requisite: 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. (9)** Clinic practicum, 27 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. Advanced Practice Nursing: Clinical Practicum. (2)** Clinic practicum, six hours. Corequisite: course 239A. Advanced practice nursing in acute care, family, gerontology, occupational and environmental health, and oncology. Nursing management and evaluation of health problems in selected populations. Developmental needs of clients in relation to family, social, and cultural structures. Letter grading.

**439B. Advanced Practice Nursing: Clinical Practicum. (4)** Clinic practicum, 12 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. (4)** Clinic practicum, 12 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 life span. Letter grading.

**439D. Advanced Practice Nursing: Residency. (9)** Clinic practicum, 27 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.

**441. Neuropsychiatric Subspecialty Clinical Seminar. (1)** 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.

**442. Neuropsychiatric Subspecialty Clinical Seminar. (1)** Clinical seminar, one hour; self-study, two hours. Requisite: course 441. Designed for advanced practice nurses in any nurse practitioner specialty. Continuation of course 441. S/U grading.

**445. Advanced Practice Nursing: Clinical Nurse Specialty Practicum. (4 or 9)** Clinic practicum, 12 or 27 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 health care systems. Letter 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. (4 to 8)** 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 8)** 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

*School of Medicine*

UCLA  
27-117A Center for the Health Sciences  
Box 951740  
Los Angeles, CA 90095-1740  
(310) 794-1884  
<http://www.obgyn.medsch.ucla.edu/>

### Chairs

Alan H. DeCherney, M.D., *Executive Chair*  
Teichiro Fukushima, M.D., *Vice Chair, King/Drew*  
Howard L. Judd, M.D., *Vice Chair, Olive View-UCLA*  
Lawrence Platt, 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 which emphasize subspecialties such as maternal/fetal medicine, reproductive endocrinology, gynecologic oncology, and family planning.

For further details on the Department of Obstetrics and Gynecology and a listing of the

courses offered, see the *Announcement of the UCLA School of Medicine*.

## OPHTHALMOLOGY

*School of Medicine*

UCLA  
2-142 Jules Stein Eye Institute  
Box 957000  
Los Angeles CA 90095-7000  
(310) 825-5053  
<http://www.medsch.ucla.edu/som/jsei/>

### Chairs

Bartly J. Mondino, M.D. (*Bradley R. Straatsma Professor of Ophthalmology*), *Chair*  
Sherwin J. Isenberg, M.D. (*Grace and Walter Lantz Endowed Professor*), *Vice Chair, Harbor-UCLA*  
Arthur L. Rosenbaum, M.D., *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 the *Announcement of the UCLA School of Medicine*.

## ORAL BIOLOGY

*School of Dentistry*

UCLA  
63-050 Dentistry  
Box 951668  
Los Angeles, CA 90095-1668  
(310) 825-1955  
<http://www.dent.ucla.edu/sod/oralBio/>

George W. Bernard, D.D.S., Ph.D., *Chair*

### Professors

George W. Bernard, D.D.S., Ph.D.  
Robert Chiu, Ph.D.  
Douglas Junge, Ph.D.  
Lawrence E. Wolinsky, D.D.S., Ph.D.

### Professors Emeriti

Colin K. Franker, Ph.D.  
Louis J. Goldberg, D.D.S., Ph.D.

### Associate Professors

Francesco Chiappelli, Ph.D.  
Jacob Fleischmann, M.D.  
Susan A. Haake, D.M.D., M.D.S., Ph.D.  
Kenneth T. Miyasaki, D.D.S., M.S., Ph.D.  
Wenyuan Shi, Ph.D.  
Igor Spigelman, Ph.D.

### Assistant Professors

George Huang, Ph.D.  
Anahid Jewett, M.P.H., Ph.D.

### Adjunct Professors

Carol A. Bibb, Ph.D., D.D.S.  
Bernard G. Sarnat, M.D., M.S., D.D.S.

### Adjunct Associate Professor

Diana Messadi, D.D.S., Ph.D.

### Adjunct Assistant Professor

Shen Pang, Ph.D.

### Scope and Objectives

Oral biology is that area of knowledge which 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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Section of Oral Biology in the School of Dentistry offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Oral Biology.

### Admission

#### M.S./Ph.D. in Oral Biology

In addition to meeting the general admission requirements set by the Graduate Division, applicants to the M.S. or Ph.D. program must have received a B.S., D.D.S., or D.M.D. degree, or the equivalent, with strong background in basic sciences, including two years of chemis-

try (inorganic, organic, and biological chemistry), one year of biology, and one year of physics.

Applicants must submit three letters of recommendation, at least two of which should be from science faculty familiar with their scholarly abilities, and a statement of purpose describing their background, work experience, research interests, and career goals.

In addition, applicants to the Ph.D. program are required to take the Graduate Record Examination (GRE) General Test.

### Oral Biology M.S. or Ph.D./ Dentistry D.D.S. or Certificate

Applicants may apply for a combined D.D.S./Oral Biology M.S. or Ph.D. or advanced certificate training/Oral Biology M.S. or Ph.D. by making simultaneous application for graduate study in the Oral Biology Section and for admission to the School of Dentistry and to the certificate programs. Applicants must submit the *UCLA Application for Graduate Admission* and the application required for the D.D.S. or advanced certificate training and must be accepted by both of the concerned units in order to participate in a combined program.

### Master's Degree

For areas of study, see Doctoral Degree.

The M.S. degree is offered through the thesis plan. A total of 36 units is required, 20 of which must be at the graduate level. Eight core graduate courses in oral biology are required. Students must take additional elective courses (a minimum of 5 units), either at the upper division or graduate level, that are essential to the research area.

### Doctoral Degree

Major fields include bacterial and fungal pathogenesis, biochemistry, calcified tissue metabolism and developmental biology, immunology, neuroscience, pharmacology and therapeutics, and virology.

In the first two Ph.D. years, seven core courses in oral biology, two laboratory rotations, and a seminar are required. In the second year, students are expected to choose an area of emphasis and continue to take additional required and elective courses (a minimum of four to five courses).

Participation in teaching activities is required by assisting the faculty in a one-quarter oral biology course offered to dental students.

Written and oral qualifying examinations are required. The written examination consists of a broad essay-type examination in the major areas of oral biology and cell biology.

Following successful completion of the written examination, students prepare a dissertation proposal and take the University Oral Qualifying Examination, which includes a discussion of the proposal and questions on general topics related to oral biology.

## Oral Biology

### Graduate Courses

**201A-201B-201C. Advanced Oral Biology. (3-2-3)** Lecture, three hours/two hours/three hours:

**201A.** Ontogenesis. (3) Lecture, three hours. Evolutionary perspective of cellular development from simple molecules that were formed during the first billion years of the Earth to development of cells, tissues, and organs of invertebrates and vertebrates. Development of vertebrate feeding apparatus from a comparative anatomical and physiological point of view, followed by embryogenesis of orofacial and dental structures of humans. S/U or letter grading.

**201B.** Homeostasis in Oral Systems. (2) Lecture, two hours. Normal regulatory functions of various oral systems. Topics include mechanisms of salivary secretion and nonspecific salivary protective mechanisms; integrative action of oral sensory systems such as touch, pain, and taste; normal control of movements in jaw and face. Letter grading.

**201C.** Pathobiology. (3) Lecture, three hours. Molecular basis for pathogenic processes in tissues of the 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.

**M203. Oral Embryology and Histology. (4)** (Same as Neurobiology M229.) Lectures and laboratory instruction in development and histological structure of facial region and oral and peri-oral organs and tissues.

**M204. Mechanisms and Relief of Pain. (2)** (Same as Neuroscience M233.) 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.

**205. Methodology in Research Design and Data Analysis. (4)** Lecture, two hours; discussion, one hour; computer laboratory, one hour. 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 Ph.D. research.

**206. Current Topics in Oral Immunology. (1)** 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.

**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 the Temporomandibular Joint. (2)** Anatomy, histology, physiology, and biomechanics of the temporomandibular joint (TMJ) and related musculature. Pain mechanisms, sensorimotor integration, and motor mechanisms in TMJ function, and current methods of TMJ imaging.

**215. Fundamentals of Immunology. (2)** Basic cellular and molecular mechanisms involved in responses mediated by immune effectors, with emphasis on immunopathology involved in autoimmunity, cancer, and immunodeficiency syndromes.

**226A-226B. Craniofacial Growth and Development. (2-2)** 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 which aid their understanding and analysis of course content that has application to their specific and professional fields. In Progress grading.

**227. Dental Embryology and Histology. (2)** Description and interpretation of important stages in development of the 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 the orofacial apparatus which are of significance to clinical dental specialists.

**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.

**M234. Seminar: Developmental Neuroendocrinology. (2)** (Same as Neurobiology M234.) 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 a developmental perspective. S/U or letter grading.

**260. Oral Biology Seminar. (2)** Seminar, one hour; outside research, one hour. Research seminar to discuss faculty and student research of oral biology and related disciplines. Discussion of basic sciences related to oral biology, involving participants in important areas of investigation. 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.

**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.

**596. Directed Individual Study or Research. (2 to 8)** Tutorial, to be arranged. S/U 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.

## ORGANISMIC BIOLOGY, ECOLOGY, AND EVOLUTION

*College of Letters and Science*

UCLA  
2203 Life Sciences  
Box 951606  
Los Angeles, CA 90095-1606

(310) 825-3482  
<http://www.obee.ucla.edu/>

Blaire Van Valkenburgh, Ph.D., *Chair*

### Professors

Clifford F. Brunk, Ph.D.  
Donald G. Buth, Ph.D.  
Martin L. Cody, Ph.D.  
Arthur C. Gibson, Ph.D.  
Elma González, Ph.D.  
Malcolm S. Gordon, Ph.D.  
William M. Hamner, Ph.D.  
Henry A. Hespenheide, Ph.D.  
Glen M. MacDonald, Ph.D.  
Kenneth A. Nagy, Ph.D.  
Park S. Nobel, Ph.D.  
Philip W. Rundel, Ph.D.  
Charles E. Taylor, Ph.D.  
Blaire Van Valkenburgh, Ph.D.  
Robert K. Wayne, Ph.D.  
Eduardo Zeiger, Ph.D.

Cheryl Ann Zimmer, Ph.D.

### Professors Emeriti

Albert A. Barber, Ph.D.  
George A. Bartholomew, Ph.D.  
Joseph Cascarano, Ph.D.  
Nicholas E. Collias, Ph.D.  
Wilbur T. Ebersold, Ph.D.  
Eric B. Edney, Ph.D.  
Franz Engelmann, Ph.D.  
Arthur W. Haupt, Ph.D.  
Thomas R. Howell, Ph.D.  
J. Lee Kavanau, Ph.D.  
F. Harlan Lewis, Ph.D.  
O. Raynal Lunt, Ph.D.  
Austin J. MacInnis, Ph.D.  
Leonard Muscatine, Ph.D.  
Bernard O. Phinney, Ph.D.  
Richard W. Siegel, Ph.D.  
Henry J. Thompson, Ph.D.  
Peter P. Vaughn, Ph.D.  
Boyd W. Walker, Ph.D.  
Samuel G. Wildman, Ph.D.

### Associate Professors

Robert M. Gibson, Ph.D.  
Richard R. Vance, Ph.D.  
Richard Zimmer, Ph.D.

### Assistant Professors

Daniel T. Blumstein, Ph.D.  
Peggy Fong, Ph.D.  
Gregory F. Grether, Ph.D.  
Nicolas Gruber, Ph.D.  
David K. Jacobs, Ph.D.  
Peter N. Nonacs, 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 Organismic Biology, Ecology, and Evolution 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 four different majors within the department: Biology (general biology); Ecology, Behavior, and Evolution; Marine Biology;

and Plant 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 and for students who later seek admission to health sciences-related professional schools. The remaining three majors — Ecology, Behavior, and Evolution, Marine Biology, and Plant Biology — provide more specialized instruction and strong preparation for employment or subsequent graduate study in the respective disciplines.

## 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; Organismic Biology, Ecology, and Evolution M22.

All core curriculum courses must be passed with a grade of C– or better and 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

To be admitted as Biology majors, transfer students 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.

#### The Major

*Required:* Two morphology and systematics/ecology, behavior, and evolution courses (Microbiology and Molecular Genetics 101, 101L, Organismic Biology, Ecology, and Evolution 103, 105, 110, 116, 120, 122, C126, 129, 130, C135, 136); two developmental and molecular biology/physiology courses (Molecular, Cell, and Developmental Biology 138, C141, 144,

171, Organismic Biology, Ecology, and Evolution 121, 128, C134A or 134B, 146, M158, 162, M166, 167, 179); two additional upper division courses in molecular, cell, and developmental biology (except Molecular, Cell, and Developmental Biology 193) or organismic biology, ecology, and evolution (except Organismic Biology, Ecology, and Evolution 192); Chemistry and Biochemistry 153A, 153L; three additional upper division courses in atmospheric sciences (one course from Atmospheric Sciences 101, 102, 104, or 130), chemistry, mathematics (except Mathematics 104, 106), microbiology, molecular, cell, and developmental biology (except Molecular, Cell, and Developmental Biology 193), organismic biology, ecology, and evolution (except Organismic Biology, Ecology, and Evolution 192, 199I), physics, physiological science (except Physiological Science 193, 195A, 195B, 196), or from Biomathematics 110, Biostatistics 100B, Earth and Space Sciences 116, Geography 112, Psychology 115. Courses selected must include two laboratory courses (Organismic Biology, Ecology, and Evolution 101, 103, 105, 110, 136, M158, 162, M166, 167, 181).

A maximum of 8 units of the Organismic Biology, Ecology, and Evolution 190 series or 4 units of Organismic Biology, Ecology, and Evolution 199 may be applied toward the major. Credit for 199 courses from other departments may not be applied.

Courses 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.

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; Organismic Biology, Ecology, and Evolution M22.

All core curriculum courses must be passed with a grade of C– or better and 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

To be admitted as Ecology, Behavior, and Evolution majors, transfer students 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.

#### The Major

*Required:* One morphology and systematics course (Organismic Biology, Ecology, and Evolution 103, 105, 110, or 130); one physiology course (Organismic Biology, Ecology, and Evolution 146, 162, M166, or 167); one additional laboratory course (Organismic Biology, Ecology, and Evolution 103, 105, 110, 136, 146, 162, M166, 167, or 181); three ecology, behavior, and evolution courses (Organismic Biology, Ecology, and Evolution C119, 120, 122, 129, C135); one field quarter consisting of two to four courses from the Field Biology Quarter (FBQ), Marine Biology Quarter (MBQ), or equivalent; Chemistry and Biochemistry 153A, 153L; two or more upper division courses in chemistry, geography, geology, mathematics (except Mathematics 104, 106), microbiology, organismic biology, ecology, and evolution (except Organismic Biology, Ecology, and Evolution 192, 199I), or physics (recommended: taxon-oriented courses such as Organismic Biology, Ecology, and Evolution 111, 112, 113A, 114, C115, 152; other courses in ecological, behavioral, and evolutionary processes such as Organismic Biology, Ecology, and Evolution 116, 117, 122, M127, 128, C134A, in addition to courses listed above).

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 high grade-point average.

Courses 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 10 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 Organismic Biology, Ecology, and Evolution C109 or C215 prior to applying for the Marine Biology Quarter.

### Marine Biology B.S.

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 6 or 6A; Organismic Biology, Ecology, and Evolution M22.

All core curriculum courses must be passed with a grade of C– or better and 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

To be admitted as Marine Biology majors, transfer students 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.

#### The Major

*Required:* Chemistry and Biochemistry 153A, Organismic Biology, Ecology, and Evolution C109; one laboratory course (Organismic Biology, Ecology, and Evolution 110, M158, or 181); one marine organismic biology course (Organismic Biology, Ecology, and Evolution 101, 105, 112, or 137); one physiology course (Organismic Biology, Ecology, and Evolution 128, 162, M166, 167, or 179); one ecology, behavior, and evolution course (Organismic Biol-

ogy, Ecology, and Evolution 116, C119, 120, 122, 129, C135, or 136); one field quarter consisting of four courses from the Marine Biology Quarter (MBQ) or equivalent field studies given elsewhere (for a 16-unit equivalent, see undergraduate adviser); two physical, chemical, or geological oceanography courses from Atmospheric Sciences 102, 103, 104, 130, Chemistry and Biochemistry 103, Earth and Space Sciences 100, 116, 119, 153, Geography 100, 101, 103, 123, 130, Mechanical and Aerospace Engineering 103 (strongly recommended), 150A.

Courses 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 10 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 Organismic Biology, Ecology, and Evolution C109 or C215 prior to applying for the Marine Biology Quarter.

### Plant Biology B.S.

The Plant Biology major prepares students for postgraduate programs and careers in plant biology, including environmental biology, ecology, agricultural sciences, plant physiology, and cellular biology. Students select key courses to obtain a sound, broad foundation in plant biology, learning state-of-the-art research techniques. They are also given opportunity to participate in individual supervised research projects using plants as experimental organisms.

#### 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; Organismic Biology, Ecology, and Evolution M22.

All core curriculum courses must be passed with a grade of C– or better and 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

To be admitted as Plant Biology majors, transfer students 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.

## The Major

**Required:** Chemistry and Biochemistry 153A, Organismic Biology, Ecology, and Evolution 146 or 162; one laboratory course (Organismic Biology, Ecology, and Evolution 101, 103, 105, 110, M158, 162, M166, or 167); one plant morphology or anatomy course (Organismic Biology, Ecology, and Evolution 101, 103, or 152); two molecular or cellular plant biology courses (Molecular, Cell, and Developmental Biology C141, C150, M170, Organismic Biology, Ecology, and Evolution 121); one ecology or evolution course (Organismic Biology, Ecology, and Evolution 120, 122, 128, or 130); one field quarter course involving research in plant biology (Organismic Biology, Ecology, and Evolution 118, 124, 128, or 148) or a laboratory internship (Organismic Biology, Ecology, and Evolution 190 series or 199) which requires a written paper on some aspect of plant research; two additional upper division courses in chemistry, computer science, geography, microbiology, molecular, cell, and developmental biology (except Molecular, Cell, and Developmental Biology 193), or organismic biology, ecology, and evolution (except Organismic Biology, Ecology, and Evolution 192, 199I).

A maximum of 8 units of the Organismic Biology, Ecology, and Evolution 190 series or 4 units of Organismic Biology, Ecology, and Evolution 199 may be applied toward the major. Credit for 199 courses from other departments may not be applied.

Courses applied toward requirements for preparation for the major and the major must be taken for a letter grade. Plant 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.

## 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 occurs during Spring Quarter and involves some combination of Organismic Biology, Ecology, and Evolution 103, 113B, 114, C115, 118, 124, C125, C126, 131, 132, and 134B. The Marine Biology Quarter occurs during Fall Quarter and includes some combination of Organismic Biology, Ecology, and Evolution 102, C104, 106,

123, 147, 148, 163, 164, and 165. 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 Organismic Biology, Ecology, and Evolution 190A and 190B.

## Computing Specialization

Majors in Biology, Ecology, Behavior, and Evolution, Marine Biology, and Plant 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 M196B, Geography 168, Organismic Biology, Ecology, and Evolution C159, 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.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Organismic Biology, Ecology, and Evolution offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Biology.

## Admission

Applicants are urged to seek the advice of departmental faculty members in their field of interest. The department encourages applications from students in all areas of science, but expects successful applicants to have or to acquire a background comparable to the requirements for the bachelor's degree in biology at UCLA. A background in chemistry, physics,

and mathematics is desirable. Deficiencies in these or other subjects should be made up at the earliest opportunity. Undergraduates who are prospective applicants should remedy their deficiencies by preparatory study at an appropriate institution. Students with academic deficiencies may be admitted on a provisional basis.

All applicants must take the General Test (verbal, quantitative, and analytical) and the Subject Test in Biology of the Graduate Record Examination (GRE). Three letters of recommendation are required. The letters should be from professors, supervisors, or others who may provide an evaluation of the applicant's accomplishments or potential in research, teaching, and related scholarly activities.

Applications, departmental brochures, and additional information may be obtained from the Graduate Affairs Office, Department of Organismic Biology, Ecology, and Evolution.

Students are admitted in Fall Quarter only. Following the January 1 deadline, applications to the department are reviewed by the departmental admissions committee which advises prospective sponsors about the desirability of admission.

## Master's Degree

For areas of study, see Doctoral Degree.

The M.A. degree is offered through the comprehensive examination and thesis plans. The program consists of at least nine courses, five of which must be graduate (200 series) courses.

## Doctoral Degree

Study consists of coursework and research within the department and within related programs in biochemistry, geology, microbiology, and molecular biology on campus. Opportunities are also available off campus for intensive study of marine biology at a marine science center in Fall Quarter, field biology in Spring Quarter, and tropical biology through courses offered by the Organization for Tropical Studies.

Ph.D. students must complete a minimum of 20 units of graduate-level (200 series) courses.

Students are required to serve as teaching assistants for three terms.

Written and oral qualifying examinations are required. The written examination consists of two parts. Part I examines the breadth of understanding (conceptual and synthetic) of the diversity of specialized subjects within integrative biology and is coupled to two required graduate courses in evolutionary biology and ecology. Part II is designed to test the student's ability to read critically and evaluate the literature in the chosen scientific specialty.

Following successful completion of the written examination, students prepare a dissertation proposal and take the University Oral Qualifying Examination, which consists of a defense of the proposal.

# Organismic Biology, Ecology, and Evolution

## 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.

**11. Biomedical Research Issues in Minority Communities. (4)** 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 the 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.

**21. Field Biology. (4)** Lecture, three hours; discussion, two hours, or field trips, three to four hours. Recommended preparation: course 2. 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.

**M22. Introduction to Statistical Methods for Life and Health Sciences. (5)** (Same as Statistics M13.) Lecture, three hours; discussion, one hour; laboratory, one hour. 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.

**25. Marine Biology. (4)** Lecture, three hours; discussion, 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.

## Upper Division Courses

**101. Marine Botany. (6)** (Formerly numbered 101A.) Lecture, four hours; laboratory, six hours; three to four field trips. Requisite: Life Sciences 1. Introduction to biology and ecology of marine plants, including algae, sea grasses, and mangroves, 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 a marine science center.

**103. Plant Evolution and Systematics. (5)** Lecture, three hours; laboratory, three hours; field trip. Requisites: Life Sciences 1, 2, 3, 4. Evolution, systematics, morphology, principles of taxonomy, phytogeography, phylogenetic analysis, speciation, and natural history of plants. P/NP or letter grading.

**C104. Experimental Invertebrate Zoology. (6)** Lecture, two hours; laboratory, 12 hours. Requisite: Life Sciences 1. Advanced treatment of physiology, behavior, and ecology of invertebrates, with emphasis on independent laboratory and field investigations. Concurrently scheduled with course C212.

**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.

**106. Experimental Marine Invertebrate Biology. (4 or 6)** Lecture, two hours; laboratory, 12 hours. Requisites: courses 105, and M166 or 167 (either may be taken concurrently). Offered either as a 6-unit quarter-long course or as a 4-unit Marine Biology Quarter course. Advanced course of natural history, physiology, biochemistry of invertebrates, with emphasis on independent laboratory and field investigations.

**C109. Introduction to Marine Science. (4)** Lecture, three hours; laboratory, three hours; weekend field trips. Requisite: Life Sciences 1. Strongly recommended for prospective MBQ students. Introduction to physical, chemical, and biological aspects of marine science. Emphasis on biological systems and natural communities. Concurrently scheduled with course C215.

**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.

**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 examine fishes of the 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. Vertebrate zoology course restricted to biology of reptiles and amphibians of the world, covering current systematics, ecology, behavior, morphology, and physiology of these animals. Letter grading.

**113B. Field Herpetology. (8)** Requisite: Life Sciences 1. Recommended: course 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.

**114. Ornithology. (5)** Lecture, three hours; laboratory/field trips, three hours. Requisite: course 111. Limited enrollment. Systematics, distribution, physiology, behavior, and ecology of birds. P/NP or letter grading.

**C115. Mammalogy. (5)** Lecture, three hours; laboratory, three hours. Requisite: course 110 or 111. Topics in mammalian biology, including evolution, ecology, behavior, functional morphology, systematics, physiology, and biogeography. Concurrently scheduled with course C213. Letter grading.

**116. Conservation Biology. (4)** Lecture, three hours; discussion, two hours. Requisites: Life Sciences 1, 2, 3, 4. 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.

**117. Evolution of Vertebrates. (5)** Lecture, three hours; laboratory, three hours. Requisite: course 110. Recommended: one general geology course. Fossil record of the 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. Preparation: completion of preparation for the major courses. *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.

**C119. Mathematical Ecology. (4)** Lecture, three hours. Requisites: Mathematics 31A, 31B, 32A. Differential equation models of population growth explore theory of evolutionary ecology to determine why natural environments of the world support the kinds of living organisms they do and why organisms of the world possess the adaptations they do. Concurrently scheduled with course C219.

**120. Evolution. (4)** Lecture, three hours; discussion, two hours. Requisites: Life Sciences 1, Mathematics 3A and 3B, or 31A. Recommended: Life Sciences 4. 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 Biology and 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: Life Sciences 1, Mathematics 3A and 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, five hours. Recommended prerequisite: course 122. Offered either as an 8-unit quarter-long course or as a 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.

**124. Field Ecology. (4 or 8)** Lecture, two hours; laboratory or field trip, 10 hours. Requisite: Life Sciences 1. Recommended: courses 111, 120, 122. Offered either as a 4-unit quarter-long course with weekend field trips or as a 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.

**C125. Tropical Animal Communication. (4 or 8)** Requisite: Life Sciences 1. Offered either as a 4-unit quarter-long course or as an 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. Concurrently scheduled with course C225.

**C126. Behavioral Ecology. (4 or 8)** Requisites: course 120 or 122 or 129, Life Sciences 1, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A. Offered either as a 4-unit quarter-long course or as an 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. Concurrently scheduled with course C227.

**M127. Soils and Environment. (5)** (Same as Environment M127 and Geography M127.) Lecture, five hours; discussion, one hour; field trips. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL. 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. Letter grading.

**128. Plant Physiological Ecology. (5)** Lecture, three hours; laboratory, three hours; one two-day field trip. Requisites: Life Sciences 1, Physics 1C or 6C. 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: Life Sciences 1, 4. 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.

**130. Principles of Systematic Biology. (4)** Lecture, three hours; discussion, two hours. Requisite: Life Sciences 1. Recommended: courses 120, C135. Concepts, principles, and methods of comparative biology as they apply to the inference of evolutionary relationships among organisms. Principles and application of biological nomenclature.

**131. Insect Ecology. (4 or 8)** Lecture, two hours; laboratory or field trip, eight hours. Requisite: Life Sciences 1. Recommended: courses 120, 122. Offered either as a 4-unit quarter-long course with weekend field trips or as an 8-unit Field Biology Quarter course with amount of fieldwork increased accordingly. Analysis of ecological roles of insects in terrestrial communities, with emphasis on interactions with both plants and vertebrates. Group and individual field projects.

**132. Field Behavioral Ecology. (8)** Lecture, two hours; laboratory/field trip, 10 hours. Requisite: 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.

**C134A. Physiological Ecology of Desert Animals. (5)** Lecture, three hours; laboratory, two hours; two two-day field trips per term. Requisite: Life Sciences 1. Consideration of physiological, behavioral, morphological, and ecological mechanisms desert animals use to enhance their survival in an arid habitat. Concurrently scheduled with course C214. Letter grading.

**134B. Field Physiological Ecology of Desert Animals. (8)** Requisite: Life Sciences 1. 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 an arid habitat. Students carry out supervised research projects, then write up and orally present their results in seminar fashion.

**C135. Population Genetics. (4)** (Formerly numbered 135.) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Highly recommended: 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. Concurrently scheduled with course C235. 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 120 or 122 or 129 (may be taken concurrently), Life Sciences 1, 4, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A. Strongly recommended: course 122. 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 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 the 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.

**CM145. Advanced Paleontology. (4)** (Same as Earth and Space Sciences CM118.) 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. Concurrently scheduled with course CM245. P/NP or letter grading.

**146. Physicochemical Biology. (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, Physics 1C or 6C. 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 a marine science center. Letter grading.

**C151A. Tropical Ecology. (4)** Requisite: Life Sciences 1. Broad introduction to biodiversity, community structure, and dynamics and ecosystem function of a range of tropical forest habitats. Discussion of such themes as biogeography, forest structure, plant growth forms, animal communities, herbivory, forest dynamics, and disturbance regimes. Concurrently scheduled with course C221A. P/NP or letter grading.

**C151B. Field Tropical Ecology. (8)** Requisite: 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 a tropical forest habitat. Concurrently scheduled with course C221B.

**152. Functional Plant Anatomy. (5)** Lecture, three hours; laboratory, three hours. Requisites: Life Sciences 1, 2, 3, 4. Structure and functional significance of various cell and tissue types in higher plants, plus patterns of growth and differentiation in roots, stems, leaves, flowers, and fruits. P/NP or letter grading.

**154. California Ecosystems. (5)** Lecture, three hours; laboratory or field trip, four hours. Requisite: Life Sciences 1. 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.

**157. Functional Integrated Histology. (6)** Lecture, three hours; laboratory, four hours. Requisites: Chemistry 14CL or 30BL, 153A, Life Sciences 1, 2, 3, 4, Mathematics 3C or 32A, Physics 4BL or 6C. Not open for credit to students with credit for former course 153 or 153L. Structure and function of cell and extracellular matrix as basic building blocks of tissues and organs, structural specializations of cells and their interactions in forming four basic tissues, how cells and tissues are structurally and functionally linked in organs. 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.

**C159. Computational Biology. (4)** Lecture, three hours; laboratory, one hour. Requisites: Life Sciences 1, 4. Introduction to computational biology. Topics include statistical and mathematical analysis, computer simulation, use of Internet for remote databases, and connections to supercomputers, with emphasis on biological applications and individual or group projects. Concurrently scheduled with course C275.

**162. Plant Physiology. (6)** Lecture, four hours; laboratory, four hours. 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.

**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 a 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 the diverse assemblage of local marine fishes. Fieldwork strongly emphasized. Given off campus at a marine science center.

**165. Ecological Physiology of Marine Vertebrates. (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. Recommended: Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C. Introduction to physiological adaptations of marine vertebrates to major physicochemical variables in the oceans of the world and to major marine habitats. Given off campus at a marine science center. Letter grading.

**M166. Animal Physiology. (6)** (Same as Physiological Science M166.) Lecture, three hours; laboratory, five hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, 153A, Life Sciences 1, 2, 3, Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C. Not open for credit to students with credit for course 167 or 170 or to Physiological Science majors. Introduction to physiological principles, with emphasis on organ systems and intact organisms. Letter grading.

**167. Regulatory Physiology. (6)** Lecture, three hours; laboratory, five hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 2, 3, Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C. Not open for credit to students with credit for course M166 or 170 or to Physiological Science majors. Introduction to whole animal and organ physiology. Primary considerations to neuronal and endocrine regulations of body functions and integration of organ systems. 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. Prerequisites: Chemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL, Life Sciences 1, 2, 3, 4, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C. Not open for credit to students with credit for course M166 or 167. 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.

**M173. Anatomy and Physiology of Sense Organs. (4)** (Same as Physiological Science M173.) Lecture, three hours; discussion, one hour. Prerequisites: Molecular, Cell, and Developmental Biology 171 (or Physiological Science 111A) or M175A and M175B (or Physiological Science M180A and M180B). 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.

**179. Comparative Endocrinology. (4)** Lecture, three hours; discussion, two hours. Recommended requisite: course M166 or 167 or Molecular, Cell, and Developmental Biology 138. In-depth treatment of basic principles of endocrinology, with emphasis on physiological endocrinology. Examples from both invertebrates and vertebrate animals. Letter grading.

**181. Parasitology. (6)** Lecture, three hours; laboratory, six hours. Prerequisites: 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.

**182. Field Community and Population Ecology. (4)** Lecture, five hours; field study, seven hours. Corequisites: courses 183, 184, 199. Introduction to experimental field research, with emphasis on investigating communities and populations of native plants and animals to reveal their structures, their relationships to individual members, and environmental factors in their success and limitation. Given off campus as part of UC Environmental Biology Supercourse.

**183. Applied Conservation Biology. (4)** Lecture, five hours; field study, seven hours. Corequisites: courses 182, 184, 199. Introduction to complexities and realities of natural resource exploitation and preservation, with emphasis on trade-offs between economic benefits and ecosystem stability and sustainability. Given off campus as part of UC Environmental Biology Supercourse.

**184. Physiological Ecology. (4)** Lecture, five hours; field study, seven hours. Corequisites: courses 182, 183, 199. Examination of functional means by which animals and plants cope with their environments, and physiological limits determining boundary conditions of ecological niches. Emphasis on unifying principles describing regulatory features of animals and plants, and responses of species in extreme environments. Given off campus as part of UC Environmental Biology Supercourse.

**188. Seminar: Biology and Society. (2)** 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.

**CM189A-CM189B. Theoretical Behavioral Ecology. (4-4)** (Same as Anthropology CM189A-CM189B.) Lecture, three hours. Preparation: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Course CM189A is requisite to CM189B. Students expected to do simple algebra, elementary calculus, and probability. A rich body of mathematical theory describing the evolution of animal behavior exists. Introduction to this body of theory at a 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 the models, and how main results are derived. Presentations supplemented by a survey of results printed in the literature, especially those derived using more advanced methods. Concurrently scheduled with courses CM295A-CM295B.

**190A-190D. Honors Research in Organismic Biology, Ecology, and Evolution. (2 to 4 each)** Individual research designed to broaden and deepen students' knowledge of some phase of biology. Must be taken with Organismic Biology, Ecology, and Evolution Department faculty for at least two terms and for a total of at least 8 units. In Progress grading (credit to be given only on completion of course 190B). Students may elect to enroll in additional research through courses 190C and 190D (letter grading). A report on progress must be presented to undergraduate adviser each term a 190 course is taken. Eight units may be applied toward departmental majors.

**192. Teaching Practicum in Organismic Biology, Ecology, and Evolution. (1 to 4)** Tutorial, to be arranged. Limited to junior/senior departmental majors. Training and supervised practicum for advanced undergraduates in teaching courses related to biology. Students assist in preparation of materials and development of innovative programs under guidance of faculty and teaching assistants. Consult Undergraduate Office for further information. May not be applied toward course requirements for departmental majors. May be repeated for credit. P/NP or letter grading.

**M194. Undergraduate Seminar: Current Topics in Biomedical Sciences. (2)** (Same as Molecular, Cell, and Developmental Biology M194 and Physiological Science M194.) Seminar, two 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 a paper selected from current literature. May be repeated for credit. P/NP or letter grading.

**199. Special Studies. (2 to 16)** Preparation: submission of written proposal outlining the study or research to be undertaken. Studies to involve laboratory or field-related research, not literature surveys or library research. Proposal should be worked out in consultation with instructor and submitted for approval to undergraduate adviser before the day instruction begins in that term. At end of term a report describing progress of the study or research and signed by the student and instructor must be presented to undergraduate adviser. Students who wish to take more than 8 units of course 199 in any one term must obtain authorization from department chair and appropriate dean. Only one 199 course may be applied toward departmental majors.

**199I. Independent Studies in Application of Biology. (2 to 4)** Discussion, one hour; fieldwork, five to 12 hours. Independent studies course to be supervised by Field Studies Office, fieldwork site, and faculty adviser. Consult Undergraduate Office for more information. May not be applied toward requirements for departmental majors. May be repeated for a maximum of eight units. Each repetition must have its own analytical focus or show progression of research. P/NP 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, Behavior, and Functional Ecology. (4)** (Formerly numbered Biology 200B, 200C.) Lecture, two hours; discussion, two hours. Principles and current topics in ecology, behavioral biology, and plant and animal physiology. Topics may include island biogeography, habitat selection, community structure, disturbance ecology, life history evolution, social behavior, sexual selection, foraging theory, energetics, photosynthesis, water relations, chemical ecology, endocrinology, physiological ecology, and adaptational biology. 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 a marine science center.

**204. Advanced Biology of Algae. (4)** Lecture, four hours; discussion, one hour. Consideration of current research in experimental phyecology. 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.

**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 the living animal and its habitat. Given off campus at a marine science center.

**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.

**208. Advanced Vertebrate Morphology. (4)** Lecture, two hours; laboratory, eight hours. Requisite: course 110. Emphasis on a 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.

**209. Behavior of Arthropods. (4)** Lecture, three hours; discussion, one hour. Requisite: course 105 or 107. 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.

**210. Advanced Ornithology. (4)** Lecture, two hours; laboratory, two hours; fieldwork, two hours. Requisite: course 114. 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).

**C212. Experimental Invertebrate Zoology. (6)** Lecture, two hours; laboratory, 12 hours. Requisite: Life Sciences 1. Advanced treatment of physiology, behavior, and ecology of invertebrates, with emphasis on independent laboratory and field investigations. Concurrently scheduled with course C104.

**C213. Mammalogy. (5)** Lecture, three hours; laboratory, three hours. Requisite: course 110 or 111. Topics in mammalian biology, including evolution, ecology, behavior, functional morphology, systematics, physiology, and biogeography. Concurrently scheduled with course C115. Letter grading.

**C214. Physiological Ecology of Desert Animals. (5)** Lecture, three hours; laboratory, two hours; two-day field trips per term. Requisite: Life Sciences 1. Consideration of physiological, behavioral, morphological, and ecological mechanisms desert animals use to enhance their survival in an arid habitat. Concurrently scheduled with course C134A. Letter grading.

**C215. Introduction to Marine Science. (4)** Lecture, three hours; laboratory, three hours; weekend field trips. Requisite: Life Sciences 1. Strongly recommended for prospective MBQ students. Introduction to physical, chemical, and biological aspects of marine science. Emphasis on biological systems and natural communities. Concurrently scheduled with course C109.

**M216. Statistical Methods for Life Sciences. (4)** (Formerly numbered 216.) (Same as Statistics M251.) Lecture, three hours. Requisite: Statistics M13. 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 a marine science center.

**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 a marine science center.

- C219. Mathematical Ecology. (4)** Lecture, three hours. Requisites: Mathematics 31A, 31B, 32A. Differential equation models of population growth explore theory of evolutionary ecology to determine why natural environments of the world support the kinds of living organisms they do and why organisms of the world possess the adaptations they do. Concurrently scheduled with course C119.
- C221A. Tropical Ecology. (4)** Requisite: Life Sciences 1. Broad introduction to biodiversity, community structure, and dynamics and ecosystem function of a range of tropical forest habitats. Discussion of such themes as biogeography, forest structure, plant growth forms, animal communities, herbivory, forest dynamics, and disturbance regimes. Concurrently scheduled with course C151A. S/U or letter grading.
- C221B. Field Tropical Ecology. (8)** Requisite: 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 a tropical forest habitat. Concurrently scheduled with course C151B.
- 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 a marine science center.
- C225. Tropical Animal Communication. (4 or 8)** Requisite: Life Sciences 1. Offered either as a 4-unit quarter-long course or as an 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. Concurrently scheduled with course C125. S/U or letter grading.
- C227. Behavioral Ecology. (4 or 8)** Requisites: course 120 or 122 or 129, Life Sciences 1, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A. Offered either as a 4-unit quarter-long course or as an 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. Concurrently scheduled with course C126. S/U 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 the 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.
- C235. Population Genetics. (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Highly recommended: 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. Concurrently scheduled with course C135. Letter grading.
- 236. Seminar: Marine Molecular Biology. (4)** Discussion, 10 hours. Requisite: course 224. Seminar on current issues and work in marine molecular biology. Given off campus at a marine science center.
- M238. Ocean Biogeochemical Dynamics and Climate. (4)** (Same as Atmospheric 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 a few million years to a few 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. 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 a marine science center.
- 243. Animal Communication. (4)** Lecture, three hours; discussion, one hour. Requisites: Mathematics 3C, Physics 6C. Open to qualified undergraduates with consent of instructor. 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 of the sensory modalities. Examples of communication systems using visual, auditory, chemical, electrical, and magnetic cues, with emphasis on biological adaptations for efficiently signaling species-specific information.
- 244. Advanced Insect Physiology. (4)** Lecture, two hours; laboratory, five hours. Requisite: course 168. Detailed discussion of current problems in insect physiology, with advanced laboratory.
- CM245. Advanced Paleontology. (4)** (Same as Earth and Space Sciences CM218.) 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. Concurrently scheduled with course CM145. 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.
- 251. Seminar: Systematics. (2)** Discussion, 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.
- 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)** Discussion, three hours. Seminar on current approaches to herpetology. Main theme varies from year to year in areas such as biogeography, ecology, behavior, environmental physiology.
- 260. Seminar: Biology of Terrestrial Vertebrates. (2)** Seminar, two hours. S/U or letter grading.
- 263. Seminar: Population Genetics. (2 or 4)** Discussion, three to six hours. Seminar on topics of current interest in population genetics, such as kin selection, sociobiology, cultural evolution, conservation genetics, etc.
- 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.
- 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)** Discussion, three hours. Advanced study of specific topics in animal ecology and related fields.
- 270. Seminar: Environmental Physiology. (2)** S/U grading.
- 271. Seminar: Phycology and Mycology. (2)** Requisite: course 101A. 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.
- 272. Seminar: Marine Biology. (2)** Seminar, two hours. S/U or letter grading.
- 273. Seminar: Entomology. (2)** 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)** Discussion of theoretical and empirical aspects of topics in behavioral ecology. S/U or letter grading.
- C275. Computational Biology. (4)** Lecture, three hours; laboratory, one hour. Requisites: Life Sciences 1, 4. Introduction to computational biology. Topics include statistical and mathematical analysis, computer simulation, use of Internet for remote databases, and connection to supercomputers, with emphasis on biological applications and individual or group projects. Concurrently scheduled with course C159.
- 279. Seminar: Evolutionary Biology. (2)** Seminar, two hours. Requisite: course M231. Emphasis on a 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)** 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.
- 288. Seminar: Plant Cell Biology. (2)** Recommended preparation: course 162.
- 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.
- CM295A-CM295B. Theoretical Behavioral Ecology. (4-4)** (Same as Anthropology CM289A-CM289B.) Lecture, three hours. Preparation: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Course CM295A is requisite to CM295B. Students expected to do simple algebra, elementary calculus, and probability. A rich body of mathematical theory describing the evolution of animal behavior exists. Introduction to this body of theory at a 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 the models, and how main results are derived. Presentations supplemented by a survey of results printed in the literature, especially those derived using more advanced methods. Concurrently scheduled with courses CM189A-CM189B.
- 296. Seminar: Integrative Biology — Cellular, Organismic, and Population. (1 to 4)** Discussion, 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.
- 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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)** 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 a marine science center.

**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.

## ORGANIZATIONAL STUDIES

*Interdepartmental Program  
College of Letters and Science*

UCLA  
4256 Bunche Hall  
Box 951472  
Los Angeles, CA 90095-1472  
(310) 825-3862  
<http://www.polisci.ucla.edu/>

### Faculty Advisory Committee

Bryan C. Ellickson, Ph.D. (*Economics*)  
Oscar Grusky, Ph.D. (*Sociology*)  
Eric H. Monkkonen, Ph.D. (*History*), *Chair*

## Scope and Objectives

Organizations are multifaceted and can usefully be explored from more than one disciplinary perspective. The undergraduate specialization in Organizational Studies brings together students and faculty from the Departments of Economics, Geography, History, Political Science, Psychology, and Sociology who share an interest in modern organizations. The program gives students a solid grounding in the organizational perspectives and methods of at least two departments. The specialization must be taken in conjunction with a major in the social sciences.

## Undergraduate Study

### Organizational Studies Specialization

Students may elect to combine the Organizational Studies specialization with a departmental major and may petition to have the area of specialization recognized with the bachelor's degree.

The option of completing an individual major in Organizational Studies is also open to qualified students. For more information on individual majors, see the College of Letters and Science section of this catalog.

Students with a departmental major should seek advising in their major department. Those interested in the individual major should consult a Letters and Science counselor.

Courses within the specialization must be taken for a letter grade. The specialization must be taken in conjunction with a major in the division of social sciences.

### Preparation for the Specialization

*Required:* At least five of the following courses appropriate to the courses to be taken in the specialization: Economics 1, 2; Geography 4; Psychology 10; Sociology 1, or M18 and 104 or equivalent.

### Upper Division Requirements

*Required:* Nine upper division courses, including (1) at least three courses outside the major department selected from Management 190, Political Science 146D, Sociology 168, 173; (2) a minimum of three courses selected from one of the following suites within the major department: Economics 147A, 147B, 170, 171; Geography 148, M149; Political Science 141C, 142A, 142B, 146E; Psychology 135; Sociology 132, 135, 156, 182; (3) a minimum of three courses selected from one of the suites in item 2 in a department outside the major department; (4) internship experience in a governmental or service organization.

Professor Eric H. Monkkonen (9252 Bunche Hall, 310-825-3376) is the program adviser. For further information, contact the political science undergraduate counselor in the program office.

## ORTHOPAEDIC SURGERY

*School of Medicine*

UCLA  
76-134 Center for the Health Sciences  
Box 956902  
Los Angeles, CA 90095-6902  
(310) 825-6986  
<http://www.medsch.ucla.edu/som/deptlist.htm>

### Chair

Gerald A.M. Finerman, M.D.

## 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 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, see the *Announcement of the UCLA School of Medicine*.

## PATHOLOGY AND LABORATORY MEDICINE

*School of Medicine*

UCLA  
13-145G Center for the Health Sciences  
Box 951732  
Los Angeles, CA 90095-1732  
(310) 825-5719  
<http://www.pathnet.medsch.ucla.edu/>

Jonathan Braun, M.D., Ph.D., *Chair*

### Professors

Anthony Adinolfi, Ph.D.  
Sanford H. Barsky, M.D.  
Judith A. Berliner, Ph.D., *in Residence*  
Jonathan Braun, M.D., Ph.D.  
Alistair J. Cochran, M.D., *in Residence*  
Kenneth Dorshkind, Ph.D.  
Rita B. Effros, Ph.D., *in Residence*  
Michael Fishbein, M.D.  
Tomas Ganz, M.D.  
Richard A. Gatti, M.D., *in Residence*  
Wayne W. Grody, M.D., Ph.D., *in Residence*  
Oliver Hankinson, Ph.D., *in Residence*  
Klaus J. Lewin, M.D.  
Faramarz Naeim, M.D., *in Residence*  
Aarno Palotie, M.D., Ph.D.  
Jonathan Said, M.D.  
Harry V. Vinters, M.D.

### Professors Emeriti

Marcel A. Baluda, Ph.D.  
Walter F. Coulson, M.D.  
Robert Y. Foos, M.D.  
Harrison Latta, M.D.  
Sidney C. Madden, M.D.  
Donald E. Paglia, M.D.  
Lawrence D. Petz, M.D.  
George S. Smith, M.D.  
Julien L. Van Lancker, M.D.  
M. Anthony Verity, M.D.  
Roy L. Walford, M.D.

### Associate Professors

Linda G. Baum, M.D., Ph.D.  
David A. Bruckner, Sc.D.

Thomas A. Drake, M.D., *in Residence*  
 Ben J. Glasgow, M.D.  
 Sharon L. Hirschowitz, M.D.  
 Scott D. Nelson, M.D.  
 Nagesh Rao, Ph.D., *in Residence*  
 Elizabeth A. Wagar, M.D.

#### Assistant Professors

Douglas P. Blackall, M.D.  
 Shikha Bose, M.D.  
 Anthony Butch, Ph.D., *Clinical*  
 Galen Cortina, M.D., Ph.D.  
 Pricilla Figueroa, M.D.  
 Kathleen A. Kelly, Ph.D., *in Residence*  
 Charles Lassman, M.D., Ph.D., *in Residence*  
 Xin Liu, M.D., Ph.D.  
 Paul Mischel, M.D.  
 Sathima Natarajan, M.D.  
 Agappan K. Rajasekaran, Ph.D.  
 Jian-Yu Rao, M.D.  
 Kathleen Sakamoto, Ph.D.  
 Michael A. Teitell, M.D., Ph.D.  
 James Tidball, Ph.D.  
 Peter Tontonoz, M.D., Ph.D.  
 Jeffery L. Twiss, M.D.

#### Adjunct Professor

Sunita M. Bhuta, M.D.

#### Adjunct Associate Professor

Nora Rozengurt, Ph.D.

#### Adjunct Assistant Professor

Robert Trelease, Ph.D.

## Scope and Objectives

Pathology is, by definition, the science of disease. Its main purpose is to unravel disease mechanisms. Without it, progress in prevention, diagnosis, and therapy are left to chance. Yet, among medical disciplines, it is one of the youngest because scientific concepts of disease, based on direct observation of diseased organs, developed only in the last 150 years.

Once normal molecules, cells, and organs have been damaged, the result of the injury manifests itself by distortions of behavior at the molecular, cellular, and organ levels. The study of these injuries and reactions to injuries constitutes a body of knowledge well worth mastering for its own sake. Students, however, must also learn to use the existing tools or develop the new tools needed to dissect the events that follow injury. Although education in methodology is not, in principle, different in pathology from that in all other biomedical sciences, it is very different in scope.

A combined education in breadth and depth is indispensable; it is this education, as it is applied to injuries and reaction to injuries, that is the goal of the Ph.D. program in Experimental Pathology.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications

available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Pathology and Laboratory Medicine offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Experimental Pathology.

## Admission

Admission to the program is through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences. Information may be obtained from UCLA ACCESS, 172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu).

## Master's Degree

Students are only accepted into the program for the purpose of receiving a Ph.D. degree. However, the department also awards the M.S. degree in cases where a student is unable to finish the full Ph.D. program, but the work completed is adequate to the standards and minimum requirements for an M.S. degree.

The M.S. degree is offered through the comprehensive examination and thesis plans; the former consists of the written qualifying examination for the Ph.D. Students must complete the core courses and the 6 elective units required of all students in the Ph.D. program. The minimum total number of units required is 36, 35 of which must be at the graduate level.

## Doctoral Degree

Ph.D. students follow the UCLA ACCESS curriculum during the first year. This consists of two required core courses in biological chemistry, an elective (for students obtaining degrees in experimental pathology, this is normally 4 units of basic mechanisms of disease), seminars, and laboratory rotations. In the second year students take research seminars and other required coursework in the molecular and cellular foundations of disease.

Students must serve as teaching assistants for two quarters.

Written and oral qualifying examinations are required. The written examination consists of a written grant proposal related to the general areas of the student's dissertation, yet different from the dissertation. The format of the proposal is based on the first award application from the Public Health Service Grant application, with minor modifications.

Following successful completion of the proposal, students take the University Oral Qualifying Examination.

# Pathology and Laboratory Medicine

## Upper Division Courses

**102. Gross Anatomy of the Human Body. (8)** (Formerly numbered Orthopaedic Surgery 102.) Lecture, three hours; laboratory, nine hours. Designed for dental and graduate students. Systemic and topographical human anatomy, with dissection of human cadaver. Emphasis on head and neck. P/NP grading.

**199. Special Studies. (2 to 6)** Supervised laboratory research, 10 hours minimum. Students select instructor among eligible research faculty and carry out independent laboratory research project under instructor supervision. P/NP or letter grading.

## Graduate Courses

**200A. Dental Pathology. (3)** Lecture, 90 minutes; laboratory, three hours. Fundamental causes of disease processes, using as examples selected lesions or diseases of major organ systems.

**205A-205B. Gross and Developmental Anatomy for Medical Students. (5-5)** (Formerly numbered Orthopaedic Surgery 205A-205B.) Lecture/laboratory, three four-hour sessions (16 weeks beginning in August). Designed for medical students. Open to nonmedical students with consent of instructor. Gross anatomy, embryology, and radiological anatomy of the human body as taught by lectures, demonstrations, and dissections. S/U or letter grading. **205A.** Limbs, Thorax, and Abdomen (first eight weeks); **205B.** Pelvis, Head, and Neck.

**207. Gross and Developmental Anatomy for Graduate Students. (12)** (Formerly numbered Orthopaedic Surgery 207.) Lecture/laboratory, three four-hour sessions (16-week semester). Gross anatomy, embryology, and radiological anatomy of the 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, Microbiology and Immunology 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.

**231A. Pathological Anatomy and Physiology. (6)** Lecture, two hours; discussion, six hours; laboratory, four hours; other, six hours. Preparation: completion of curriculum satisfying basic requirements for study of human pathology. Designed for graduate students. Lectures, demonstrations, and individual study of a student loan collection of microscopic slide preparations and of specimens from recent autopsies. Kodachrome photomicrographs and projection of microslides. Concentration in area of general pathology.

**231B-231C. Pathophysiology of Disease. (6-6)** Preparation: completion of curriculum satisfying basic requirements for study of human pathology. Prerequisite: course 200A. Designed for graduate students. Lectures, demonstrations, and individual study of a student loan collection of microscopic slide preparations and of specimens from recent autopsies. Kodachrome photomicrographs and projection of microslides. Concentration in area of general pathology. In Progress grading.

**M237. Molecular and Cellular Foundations 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.

**255. Mapping the Human Genome. (3)** Lecture, 90 minutes; discussion, 90 minutes. 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.

**M256. Seminar: Viral Oncology. (2)** (Same as Microbiology and Immunology M256.) Advanced research seminar designed to consider current developments in the field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation.

**M257. Introduction to Toxicology. (4)** (Same as Pharmacology M257.) Requisite: Pharmacology 241. 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).

**M294. Molecular Basis of Cancer. (4)** (Same as Microbiology and Immunology M294.) Lecture, three hours. Requisites: Biological Chemistry CM253, CM267, Microbiology and Immunology M229, Neurobiology M209A. Fundamental biological, genetic, and molecular process involved in genesis and growth of cancer cells and diagnosis, characterization, and treatment of cancer.

**M294L. Cancer Histopathology Laboratory. (2)** (Same as Microbiology M294L and Microbiology and Immunology M294L.) Lecture, one hour; laboratory, two hours. Requisites: course M294 (preferred) or M293, Biological Chemistry CM253, CM267, and Microbiology and Immunology M229 or Neurobiology M209A. Histopathological approaches to cellular or tissue alterations commonly observed in tumor progression. Introduction to characteristics that clearly distinguish between benign and malignant neoplasia, precancerous stages, carcinoma in situ, and frankly invasive and metastatic neoplasia.

**298A-298D. Current Research in Disease Mechanisms. (2 each)** (Formerly numbered 298A-298B-298C.) 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 8)** Tutorial, to be arranged. Preparation: completion of qualifying examinations and majority of Ph.D. research. Writing and completion of dissertation. S/U grading.

## PEDIATRICS

*School of Medicine*

UCLA  
12-335 Davies Children's Center  
Box 951752  
Los Angeles, CA 90095-1752

(310) 825-4128  
fax: (310) 206-4584  
<http://www.peds.medsch.ucla.edu/>

### Chairs

Edward R.B. McCabe, M.D., Ph.D., *Executive Chair*  
Stephen A. Feig, M.D., *Executive Vice Chair*  
Sherin Deraskar, M.D., *Vice Chair, Research*  
Robert B. Ettenger, M.D., *Vice Chair, Clinical Affairs,*  
*UCLA Medical Center*

Stuart Slavin, M.D., *Vice Chair, Medical Education*  
Thomas S. Klitzner, M.D., Ph.D., *Vice Chair, Academic*  
*Affairs, UCLA Medical Center*

Adam J. Jonas, M.D., *Chair, Harbor-UCLA*  
Frederick James, M.D., *Chair, King/Drew*

Mohammed Malekzadeh, M.D., *Chair, Olive View-UCLA*

David L. Rimoin, M.D., Ph.D., *Chair, Cedars-Sinai*

## Scope and Objectives

The Department of Pediatrics encompasses five teaching hospitals: Mattel Children's Hospital at UCLA and Olive View-UCLA, Harbor-UCLA, King/Drew, and Cedars-Sinai Medical Centers. The clinical program and teaching activities of the 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 the four programs (Mattel/Olive View-UCLA, Cedars-Sinai, Harbor-UCLA, King/Drew). 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 the *Announcement of the UCLA School of Medicine*.

## Pediatrics

### Lower Division Course

**88. Lower Division Seminar: Special Topics in Pediatrics. (4)** Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in pediatrics approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

### Graduate Course

**M215. Interdepartmental Course: Tropical Medicine. (2)** (Same as Medicine M215, Microbiology and Immunology 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

*College of Letters and Science*

UCLA  
321 Dodd Hall  
Box 951451  
Los Angeles, CA 90095-1451  
(310) 825-4641  
<http://www.humnet.ucla.edu/humnet/phil/>

John Carriero, Ph.D., *Chair*

### Professors

Joseph Almog, D.Phil.  
Tyler Burge, Ph.D.  
John Carriero, Ph.D.  
Brian P. Copenhaver, Ph.D.  
Barbara Herman, Ph.D. (*Gloria and Paul Griffin*  
*Professor of Philosophy*)  
David B. Kaplan, Ph.D. (*Hans Reichenbach Professor*  
*of Scientific Philosophy*)  
D. Anthony Martin  
Calvin G. Normore, Ph.D.  
Terence Parsons, Ph.D.

### Professors Emeriti

Marilyn McCord Adams, Ph.D.  
Robert Merrihew Adams, Ph.D.  
Rogers Albritton, Ph.D.  
Keith S. Donnellan, Ph.D.  
Philippa Foot, M.A.  
Herbert Morris, Ph.D.  
Robert M. Yost, Ph.D.

### Associate Professor

Gavin Lawrence, D.Phil.

### Assistant Professors

Pamela Hieronymi, Ph.D.  
Sean A. Kelsey, Ph.D.  
Abraham S. Roth, Ph.D.  
Seana Shiffrin, D.Phil.  
Michael A. Thau, Ph.D.

### Adjunct Professor

Richard Popkin, Ph.D.

### Adjunct Assistant Professors

Andrew Hsu, Ph.D.  
David C. Wilson, Ph.D.

## Scope and Objectives

In a recent 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, literally 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 undergraduates 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 philosophy course.

#### Transfer Students

To be admitted as Philosophy majors, transfer students with 90 or more units must complete the following introductory courses 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.

#### 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, in the following manner: two courses in each of three of the groups and one course in the remaining group.

Courses listed under Special Studies 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

On recommendation of the department faculty, honors in philosophy are awarded at graduation to a major whose grade-point average in upper division philosophy courses is 3.3 and who has completed two graduate courses in the 200 series (8 units) in philosophy with an average GPA of 3.5.

## 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.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Philosophy offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Philosophy.

### Admission

The department admits only those who plan to earn the Ph.D. degree. The M.A. degree may be earned while completing requirements for the Ph.D. Admission requires approval by the Graduate Division and the department.

The *UCLA Application for Graduate Admission* should be sent directly to the Graduate Division. The departmental application, three letters of recommendation (on the official forms), official scores on the Graduate Record Examination (GRE) General Test (the Subject Test in Philosophy is not required), official scores from the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination for applicants whose first language is other than English, and two official transcripts from each institution attended should be sent to the graduate counselor in the department. Departmental information and application can be obtained by writing to the department in September.

## Master's Degree

The M.A. degree is offered through the comprehensive examination plan, which also serves as the Ph.D. written qualifying examination. Students must complete at least nine upper division or graduate courses, five of which must be at the graduate level. The total course requirement must include a required seminar for first-year students and a course in logic.

There is a language requirement for this degree.

## Doctoral Degree

Ph.D. students must complete three first-year seminars plus 11 additional upper division and graduate courses in philosophy, distributed among courses in logic, the history of philosophy, ethics and value theory, metaphysics and epistemology, special area requirements (including a proposition), and electives.

Students are required to serve as teaching assistants for three quarters.

Written and oral qualifying examinations are required. The M.A. comprehensive examination is required of all doctoral students and serves as the doctoral written qualifying examination.

Following successful completion of the written examination, students take the University Oral Qualifying Examination, the primary purpose of which is to determine whether they are able to complete the dissertation successfully.

There is a language requirement for this degree.

## Philosophy

### Lower Division Courses

**1. Beginnings of Western Philosophy. (4)** 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.

**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.

**4. Philosophical Analysis of Contemporary Moral Issues. (4)** 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.

**5A. Philosophy in Literature. (4)** 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 the Western tradition.

**6. Introduction to Political Philosophy. (4)** 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. (4)** 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.

**8. Introduction to Philosophy of Science. (4)** 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.

**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. (4)** 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, two and one half hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H. 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 Letters and Science 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.

**32. Logic, Second Course. (4)** 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.

**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.

**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.

**M102. Aristotle. (4)** (Same as Classics M147.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected works of Aristotle.

**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 the texts, their literary form, interrelations, and contribution to discussion of basic philosophical issues.

**M103B. Later Ancient Greek Philosophy. (4)** (Same as Classics M145B.) Lecture, three hours. Preparation: one course from 1, 100A, M101B, M102, M103A. Study of some major texts in Greek philosophy of the 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)** 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 a 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.

**C108. Hobbes. (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Hobbes' political philosophy, especially the *Leviathan*, with attention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C208.

**C109. Descartes. (4)** 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.

**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.

**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.

**C112. Locke and Berkeley. (4)** 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)** Preparation: one philosophy course. Selected topics from metaphysical, epistemological, and ethical writings of Hume. Limited to 40 students when concurrently scheduled with course C214.

**115. Kant. (4)** 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.

**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)** Preparation: one philosophy course. Selected topics in one or more philosophies of the early modern period, or study in a single area such as theory of knowledge or metaphysics in several of the philosophies. May be repeated for credit with consent of instructor. Concurrently scheduled with course C219.

## 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)** 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.

**127B. Philosophy of Language. (4)** 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.

**128A. Philosophy of Mathematics. (4)** Requisites: courses 31, 32, 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).

**128B. Philosophy of Mathematics. (4)** Requisite: course 128A. Intuitionism of Brouwer, Heyting, and later Weyl; proof theory of Hilbert.

**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)** 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.

**132. Philosophy of Biology. (4)** 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 a biological species, and biological explanation. P/NP or letter grading.

**133. Topics in Logic and Semantics. (4)** Requisite: course 32. Possible topics include formal theories, definitions, alternative theories of descriptions, many-valued logics, deviant logics.

**M134. Introduction to Set Theory. (4)** (Same as Mathematics M112.) Lecture, three hours; discussion, one hour. Requisite: course 32 or Mathematics 31B. Axiomatic set theory as framework for mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

**135A. Metatheory of Sentential Logic. (4)** Lecture, three hours; discussion, one hour. Requisite: course 32. Introduction to metatheory of classical sentential logic. Emphasis on fundamental metalogical ideas, including proof by induction, rigorous definition of syntactic and semantic concepts, and proof of completeness. Discussion of philosophical significance of these ideas.

**135B. Metatheory of Predicate Logic. (4)** Lecture, three hours; discussion, one hour. Requisite: course 135A. Classical first-order logic, its scope, and limits. Gödel completeness theorem as main positive result. Some consideration to classical negative results on truth, decidability, and completeness, and relationship between first- and second-order logic.

**136. Modal Logic. (4)** Requisite: course 135A. 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.

### 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-151B-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. **151A.** Selected Classics in Ancient Ethical Theories: Plato, Aristotle; **151B.** Selected Classics in Modern Ethical Theories: Hume, Kant, Mill, etc.; **151C.** Selected Classics of Medieval Ethics.

**153A. Topics in Ethical Theory: Normative Ethics. (4)** 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.

**153B. Topics in Ethical Theory: Metaethics. (4)** Requisite: course 22. Study of selected problems 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.

**154. Topics in Value Theory: Rationality and Action. (4)** 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 the will, and decision theory. May be repeated for credit with consent of instructor.

**155. Medical Ethics. (4)** Examination of philosophical issues raised by problems of medical ethics, such as abortion, euthanasia, and medical experimentation.

**C156. Topics in Political Philosophy. (4)** (Formerly numbered 156.) 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)** 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.

### 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)** Preparation: two relevant philosophy or linguistics courses. Theories of meaning and communication; how words refer to things; limits of meaningfulness; analysis of speech acts; relation of everyday language to scientific discoveries.

**175. Topics in Philosophy of Religion. (4)** Lecture, three hours; discussion, one hour. Requisite: 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)** Requisites: courses 31, 32. 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 the "accessibility" relation? Is modal logic a logic or a theory? Is its focus logical or metaphysical necessity? Are the two notions really distinct? How metaphysically involved is (quantified) modal logic? What is its connection to doctrines of (1) "Haeccetism" 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. Oriental Philosophy: Buddhism. (4)** Examination of central concepts and arguments in Buddhist philosophy, with emphasis on school of Mahayana Buddhism. Appropriate parallels to social concepts in the Western tradition.

**182. Elements of Metaphysics. (4)** Lecture, three hours; discussion, one hour. Requisite: course 21. Study of basic metaphysical questions; nature of physical world, of minds, and of universals; and answers provided by alternative systems (e.g., phenomenalism, materialism, dualism).

**183. Theory of Knowledge. (4)** Requisite: course 21. Analysis of concept of empirical knowledge. May be repeated for credit with consent of instructor.

**184. Topics in Metaphysics. (4)** Requisite: 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.

**186. Topics in Theory of Knowledge. (4)** Requisite: 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.

**187. Philosophy of Action. (4)** 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.

**188. Philosophy of Perception. (4)** Preparation: two philosophy courses. Critical study of main philosophical theories of perception and arguments used to establish them.

**189. Major Philosophers of the 20th Century. (4)** 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.

### Special Studies

**M192. Philosophical Analysis of Issues in Feminist Theory. (4)** (Same as Women's Studies M192.) Lecture, three hours. Requisite 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 the new scholarship on women in philosophy. Critical study of concepts and principles which 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.

**193. Christian Ethical Thought. (4)** Lecture, three hours; discussion, one hour. Reading of selected classic and contemporary authors in the Christian ethical tradition, with philosophical analysis and assessment of their views on morality and religious life.

**195. 19th- and 20th-Century Religious Thought. (4)** Lecture, three hours; discussion, one hour. Philosophical approach to Western religious thought of last 200 years, through study of selected works by such authors as Kant, Schleiermacher, Kierkegaard, Buber, Camus, and Tillich.

**196. Undergraduate Seminar: Philosophy. (4)** Seminar, one hour; discussion, three hours. Variable topics; consult *Schedule of Classes* or "Department Announcements" for topic to be offered in a specific term. May be repeated for credit with consent of instructor.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Eight units may be applied toward degree requirements, but course cannot be substituted for a course in one of the four groups on basis of similarity of subject matter.

### Graduate Courses

**200A-200B-200C. Seminar for First-Year Graduate Students. (4-4-4)** Limited to and required of all first-year graduate philosophy students. Selected topics in metaphysics and epistemology, history of philosophy, and ethics.

### Group I. History of Philosophy

**201. Plato. (4)** Study of later dialogues.

**202. Aristotle. (4)** Analysis of major problems in Aristotle's philosophy based on reading, exposition, and critical discussion of relevant texts in English translation.



**203. Seminar: History of Ancient Philosophy. (4)** Selected problems and philosophers. May be repeated for credit with consent of instructor.

**206. Topics in Medieval Philosophy. (4)** Study of philosophy and theology of one or several medieval philosophers such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham or study of a 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.

**207. Seminar: History of Medieval and Renaissance Philosophy. (4)** Selected problems and philosophers. May be repeated for credit with consent of instructor.

**C208. Hobbes. (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Hobbes' political philosophy, especially the *Leviathan*, with attention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C108.

**C209. Descartes. (4)** 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.

**C210. Spinoza. (4)** Selected topics in philosophy of Spinoza. May be concurrently scheduled with course C110, in which case there is a two-hour biweekly discussion meeting, plus additional readings and longer term paper for graduate students.

**C211. Leibniz. (4)** Selected topics in philosophy of Leibniz. May be concurrently scheduled with course C111, in which case there is a two-hour biweekly discussion meeting, plus additional readings and longer term paper for graduate students.

**C212. Locke and Berkeley. (4)** 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)** Selected topics in philosophy of Hume. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C114.

**215. Kant. (4)** Intensive study of selected writings of Immanuel Kant.

**216. 19th-Century Philosophy. (4)** Topics in 19th-century philosophy. May be repeated for credit with consent of instructor.

**C219. Topics in Modern Philosophy. (4)** Selected topics in one or more philosophies of the early modern period, or study in a single area such as theory of knowledge or metaphysics in several of the philosophies. May be repeated for credit with consent of instructor. Concurrently scheduled with course C119.

**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.

## Group II. Logic, Semantics, and Philosophy of Science

**221A. Topics in Set Theory. (4)** Lecture, three hours. Requisite: Mathematics M112. 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)** 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 a reaction to the paradoxes, formal first-order axiomatic set theory as opposed to informal axiomatics, 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.

**222A-222B-222C. Gödel Theory. (4-4-4) 222A.** Preparation: several courses in logic, preferably including course 135B. 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)** 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.

**225. Probability and Inductive Logic. (4)** Lecture, three hours. Requisite: course M134 or Mathematics M112. 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)** Content varies from term to term. May be repeated for credit with consent of instructor.

**227. Philosophy of Social Science. (4)** 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 a social science are encouraged to enroll. May be repeated for credit with consent of instructor.

**230. Seminar: Logic. (4)** May be repeated for credit with consent of instructor.

**231. Seminar: Intensional Logic. (4)** 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.

**232. Philosophy of Science. (4)** Selected topics in philosophy of science. May be repeated for credit with consent of instructor.

**233. Seminar: Philosophy of Physics. (4)** May be repeated for credit with consent of instructor.

## Group III. Ethics and Value Theory

**241. Topics in Political Philosophy. (4)** 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.

**245. Seminar: History of Ethics. (4)** Selected topics. May be repeated for credit with consent of instructor.

**246. Seminar: Ethical Theory. (4)** Selected topics. Content varies from term to term. May be repeated for credit with consent of instructor.

**C247. Topics in Political Philosophy. (4)** (Formerly numbered 247.) 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)** Intensive study of some leading current problems in moral philosophy. May be repeated for credit with consent of instructor.

**255. Seminar: Aesthetic Theory. (4)** Selected topics. May be repeated for credit with consent of instructor.

**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.

## Group IV. Metaphysics and Epistemology

**271. Seminar: Topics in Metaphysics and Epistemology. (4)** Discussion, three hours. May be repeated for credit with consent of instructor.

**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)** Selected topics in 20th-century continental European philosophy. May be repeated for credit with consent of instructor.

**281. Seminar: Philosophy of Mind. (4)** May be repeated for credit with consent of instructor.

**282. Seminar: Metaphysics. (4)** May be repeated for credit with consent of instructor.

**283. Seminar: Theory of Knowledge. (4)** May be repeated for credit with consent of instructor.

**284. Seminar: Philosophy of Perception. (4)** May be repeated for credit with consent of instructor.

**285. Philosophy of Psychoanalysis. (4)** Examination of topics such as nature and validity of psychoanalytic explanations and interpretations, psychoanalysis and language, metapsychological concepts such as the unconscious, the ego, id, superego, defense mechanisms, and psychoanalytic conception of human nature.

**286. Philosophy of Psychology. (4)** 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.

**287. Seminar: Philosophy of Language. (4)** May be repeated for credit with consent of instructor.

**288. Seminar: Wittgenstein. (4)** Seminar, three hours. May be repeated for credit with consent of instructor.

**289. Seminar: Philosophy of Religion. (4)** May be repeated for credit with consent of instructor.

**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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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 8)** Tutorial, to be arranged. Properly qualified graduate students who wish to pursue a problem through reading or advanced study may do so if their proposed project is acceptable to a 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 8)** Tutorial, to be arranged. Preparation: advancement to Ph.D. candidacy. May be repeated for credit. S/U grading.

## PHYSICS AND ASTRONOMY

*College of Letters and Science*

UCLA  
3-174 Knudsen Hall  
Box 951547  
Los Angeles, CA 90095-1547  
(310) 825-3224  
<http://www.physics.ucla.edu/>

Ferdinand V. Coroniti, Ph.D., *Chair*  
Charles D. Buchanan, Ph.D., *Vice Chair, Academic Affairs*  
William E. Slater, Ph.D., *Vice Chair, Resources*  
Jean L. Turner, Ph.D., *Vice Chair, Astronomy*

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Maha Ashour-Abdalla, Ph.D.  
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Mirek Plavec, Ph.D.  
Robert A. Satten, Ph.D.  
David S. Saxon, Ph.D. (*University President Emeritus*)  
Eugene Y. Wong, Ph.D.  
Byron T. Wright, Ph.D.

### Associate Professors

Douglas Durian, Ph.D.  
Huan Huang, Ph.D.

### Assistant Professors

Per J. Kraus, Ph.D.  
Alexander Kusenko, Ph.D.  
James E. Larkin, Ph.D.  
Chetan Nayak, Ph.D.  
David Saltzberg, Ph.D.  
Giovanni Zocchi, Ph.D., *Acting*

### Lecturer S.O.E.

Arthur Huffman, Ph.D.

### Lecturer

William J. Layton, M.Ed.

### Adjunct Professors

Muzaffer Atac, Ph.D.  
Viktor Decyk, Ph.D.  
Phillip Pritchett, 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 which 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 which 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 three undergraduate majors: the B.S. degree program in Astrophysics, the B.S. degree program in Physics, and the B.A. degree program in General Physics. Courses 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.

The Astronomy 2A and 2B two-term sequence covers the material in courses 3, 4, and 6. Students may take one sequence or the other, but not both.

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. Students who had an astronomical introductory course in high school should take either courses 2A and 2B, or 3H.

Astronomy 4, 5, and 6 develop the topics covered in course 3 to somewhat greater depths. They use more mathematics but are still aimed at nonscience majors. Course 4 details the stars and stellar systems; course 5 concentrates on the problem of life in the universe; course 6 discusses endpoints of stellar evolution and the structure and evolution of the universe. These three courses may be taken in any order by students with a grade of C or better in course 3, or whose astronomical knowledge is on a similar level.

Students who have had at least two courses in high school algebra and one course in trigonometry are advised to take, instead of Astronomy 3, the parallel honors course, Astronomy 3H. Declared or potential majors in Astrophysics or in physical sciences should take course 3H if they need an elementary introductory course in astronomy.

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; Chemistry and Biochemistry 20A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Program in Computing 3 or 10A or demonstrated ability to program. Systematic study of astrophysics should begin with Astronomy 81 and 82, taken in the second year.

### Transfer Students

To be admitted as Astrophysics majors, transfer students with 90 or more units must have completed the following introductory courses 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, one programming course, and one general chemistry course for majors.

### The Major

*Required:* Astronomy 115, 117, 127, 140, 180; Physics 105A, 105B, 110A, 110B, 115A, 115B, 115C, 131. *Recommended:* Physics 108, M122, 123, 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.

## Physics B.S.

The Physics 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, 3-160 Knudsen Hall.

### Transfer Students

To be admitted as Physics majors, transfer students 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, and one general chemistry course for majors.

### 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 at least five 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.

## General Physics B.A.

The General Physics major is intended to provide the necessary flexibility for fields in which a strong background of knowledge in physics would be helpful. If students intend to continue work toward the Ph.D. in Physics, they 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, 3-160 Knudsen Hall.

### Transfer Students

To be admitted as General Physics majors, transfer students 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, and one general chemistry course for majors.

### The Major

*Required:* Physics 105A, 110A, 110B, 112, 115A, 115B, 131, one course from the 180 series, two upper division physics electives (excluding C185 and 199), and four upper division courses in no more than two other UCLA departments. A C average in the upper division physics courses is required.

## Single Subject Credentials

Students may earn credentials for secondary science teaching in the following subject areas: biological science, chemistry, physics, and geoscience. Completion of the single subject credential program in the Teacher Education Program is required. Consult the Department of Education, 1009 Moore Hall, (310) 825-8328, for information.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications

available from the schools, departments, and programs and included on their websites.

## 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.

## Admission

### M.S./Ph.D. in Astronomy

The basic requirement for admission to the M.S./Ph.D. program is a bachelor's degree in physics or astronomy. Applicants in closely related fields (such as mathematics or chemistry) may be admitted at the discretion of the department. Applicants should submit at least three letters of recommendation and scores from the Graduate Record Examination (GRE) General Test and Subject Test in Physics.

### M.A.T. in Astronomy

The department is not admitting students to the M.A.T. program at this time.

### M.S./Ph.D. in Physics

Applicants to the M.S./Ph.D. program must have an excellent undergraduate record in addition to meeting the University minimum requirements. Applicants are required to submit three letters of recommendation and scores from the Graduate Record Examination (GRE) General Test and Subject Test in Physics.

International applicants applying for financial support (fellowships, teaching and research assistantships) should have a letter of recommendation (included as one of the three required letters of recommendation) which comments on their verbal ability in English. The Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination is required for all international students whose native language is not English.

### M.A.T. in Physics

For information about the M.A.T. program, contact the Director of the Master of Arts in Teaching Program, Department of Physics and Astronomy, 3-164 Knudsen Hall, UCLA, Box 951547, Los Angeles, CA 90095-1547.

## Master's Degrees

### M.S. in Astronomy

The M.S. degree is offered through the comprehensive examination plan. The comprehensive examination is integrated with the Ph.D. written qualifying examination and consists of satisfactory completion of the second-year research project, culminating in a written report of the methods used and results obtained, and the oral portion of the comprehensive examination at the M.S. level.

Eleven courses are required for the M.S. degree, 10 of which must be at the graduate level. At least one of the courses must consist of a quarter of work on the second-year research project.

### M.A.T. in Astronomy

The M.A.T. degree is offered through the comprehensive examination plan. Nine courses are required for the academic portion of the program and must include at least five graduate courses in astronomy, mathematics, or physics, or 100- or 200-series courses in education required for the instructional credential. Although it does not count for degree credit, Physics 370 is also required.

In order to obtain a secondary credential with the M.A.T. in Astronomy, additional courses in education, including supervised teaching, are required.

### M.S. in Physics

The M.S. degree is offered through the comprehensive examination and thesis plans; the latter is available only by special petition. The comprehensive examination is integrated with the Ph.D. written qualifying examination. Nine courses are required for the M.S. degree, six of which must be at the graduate level.

To satisfy the minimum requirement of six graduate courses in physics specified by the department, it is recommended that five of the minimum requirement of six be the five designated fundamental core courses, since the comprehensive examination is based on the content of these courses. Students must also take one of a designated set of breadth courses. The remaining three courses of the minimum nine courses required for the M.S. degree may be satisfied through upper division or graduate courses in physics or a related field, which are acceptable to the department for credit toward the M.S. degree, with the restriction that no more than two may be chosen from individual study and/or seminar courses.

### M.A.T. in Physics

The M.A.T. degree is offered through the comprehensive examination plan and leads to qualification for instructional credentials at the secondary school or junior college level.

A total of 12.5 courses are required. The program consists of at least five graduate physics courses, four of which are chosen from a designated list, and five professional (300 series) courses. Courses required are (1) the five graduate physics courses and (2) the set of courses necessary for completion of the preliminary State of California Single Subject Instructional Credential, K-12. Supervised teaching at the secondary school and junior college level is required as part of the education courses.

## Doctoral Degrees

### Ph.D. in Astronomy

Students must take nine core courses in astronomy and physics offered during the first

five quarters in residence and achieve a grade-point average of at least B, averaged over all astronomy and physics graduate courses taken during this time.

Students must satisfactorily complete the two-quarter second-year research project, culminating in a written report of the methods and the results of the research performed. Before undertaking the second-year research project, students must identify a faculty adviser who is willing to oversee their work on the project.

Students are required to spend at least three quarters as a teaching assistant at UCLA or have equivalent experience elsewhere.

Written and oral qualifying examinations are required. The written qualifying examination is integrated with the M.S. comprehensive examinations and consists of a written report on the second-year research project.

In the oral portion of the examination, students present the results of their second-year research project and are expected to be able to respond to questions and to solve basic problems from all core areas of astrophysics in which they have had the opportunity to take the course.

Following successful completion of the examinations, students take the University Oral Qualifying Examination, the main purpose of which is to discuss and evaluate their proposed dissertation problem. At the discretion of the committee, questions may be asked with regard to other material in their field of specialization and related matters.

### Ph.D. in Physics

Ph.D. degrees are based on original work, generally in one of the following fields of specialization: accelerator physics; elementary particles; intermediate energy and nuclear physics; low-temperature/acoustics; plasma and astrophysics; condensed matter, including solid-state; and spectroscopy.

Arrangements can also be made for students to receive a Ph.D. in Physics while doing research in interdisciplinary fields such as biophysics, astrophysics, and geophysics.

There are core and breadth requirements. Students are required to acquire a mastery of the core graduate physics material represented in five core courses, which represents the body of knowledge tested on the written comprehensive examination.

Students also are required, in consultation with their adviser, to take a series of courses, seminars, and tutorials to prepare them for original research in a given area of specialization.

Finally, students are required to take a sequence of individual study courses with a faculty member in their chosen field of specialization to prepare for original dissertation research and to obtain a Ph.D. research sponsor. By the second quarter of the course sequence, students are expected to make a substantive oral presentation describing the results of a problem. All students must fulfill a breadth re-

quirement by passing one of three required courses.

Written and oral qualifying examinations are required. The scope of the written examination is defined by the graduate physics material in the core courses.

Following successful completion of the written examination, students take the University Oral Qualifying Examination, the main purpose of which is to discuss and evaluate their proposed dissertation problem. At the discretion of the committee, questions may be asked in regard to other material in their field of specialization and related matters.

## Astronomy

### Lower Division Courses

**2A-2B. Introduction to the Physical Universe. (4-4)** Lecture, three hours; discussion, one hour. Thorough introductory survey of astronomy for students not planning to major in physical sciences. Same topics as course 3 but in greater depth, with emphasis on physical reasoning. P/NP or letter grading. **2A.** Planets and Stars; **2B.** Galaxies and Cosmology. Enforced requisite: course 2A with a grade of C or better.

**3. Astronomy: Nature of the Universe. (4)** Lecture, three hours; discussion, one hour. Not open to students with credit for or currently enrolled in course 3H or 81 or 82. No special mathematical preparation required beyond that necessary for admission to the University in freshman standing. Course for general University students, normally not intending to major in physical sciences, on development of ideas in astronomy and what has been learned of the nature of the universe, including recent discoveries and developments. P/NP or letter grading.

**3H. Introductory Astronomy and Astrophysics. (4)** Lecture, three hours; discussion, one hour. Not open to students with credit for or currently enrolled in course 3. Introduction to astronomy and astrophysics for freshmen who are seriously interested in science. Requires ability to understand mathematical and physical concepts, but high school algebra and trigonometry classes provide sufficient qualification. Particularly recommended for declared or potential majors in Astrophysics or in physical and mathematical sciences. P/NP or letter grading.

**4. Universe of Stars and Stellar Systems. (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 3 or 3H. Essentially nonmathematical course for general University students with previous introduction to astronomy; sequel to course 3, dealing in greater detail with stars and stellar systems. Various observed types of stars in relation to their internal structure and evolutionary state. Interacting binary stars, pulsating stars, explosive stars (novae and supernovae). Mass loss from stars, stellar wind. Galactic and planetary nebulae and their relation to stars. Interstellar medium. Initial stages of stellar evolution (protostars, T Tauri stars) and final stages (degenerate and collapsed stars). Stellar systems from clusters to galaxies. P/NP or letter grading.

**5. Life in the Universe. (4)** Lecture, four hours. Preparation: prior introduction to astronomy. Life on Earth and prospects for life elsewhere in the context of the evolution of the universe from the 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 the Universe. (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 3 or 3H. Exposition of our ideas about the structure and evolution of the 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 the Media. (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Enforced requisite: course 3. Designed to help nonmajors develop skills to continually learn about science through media. Detailed study of research currently in the media, including meteor impacts, greenhouse effect, NASA, cosmology, and extraterrestrial life. Investigation of forces that influence science reporting. P/NP or letter grading.

**8A-8B. Astronomy with Physics: Exploring the Universe. (5-5)** Lecture, three hours; discussion, one hour; laboratory, two hours. Course 8A is enforced requisite to 8B. Not open to students with credit for course 3 or Physics 10. Two-quarter integrated course in conceptual physics and astronomy to introduce broad range of topics in both fields, including visits to UCLA Planetarium and telescope, as well as optional field trips to dark sky sites. Laboratories offer both hands-on and computer experience. 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 the interstellar medium. Extragalactic astronomy, galaxy clustering, active galactic nuclei, and quasars. Introduction to cosmology: Hubble law, thermal history of the Big Bang, and earliest moments of the 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 a 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 the 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 the 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 the universe, microwave background, galaxy formation from primordial fluctuations, and observational constraints on the 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 a 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.

**199. Special Studies. (2 or 4)** Tutorial, to be arranged. Limited to senior Astrophysics and Physics majors (with an outstanding record). Special studies with an individual faculty member. 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. The 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 the 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. Requisite: course 274. Thermal and physical history of the universe. Interaction of matter and cosmic microwave background radiation. Study of inhomogeneities in the universe from inflationary epoch to the 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 a faculty adviser on any suitable research topic in astronomy or astrophysics, culminating in a written report at end of second term. S/U (course 277A) or letter (course 277B) grading.

**278. Special Topics in Astronomy. (2 or 4)** Seminar, to be arranged. Informal course with lecture/seminar format, focusing on one of a 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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, 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 prerequisites: 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, four hours; discussion, one hour. Enforced prerequisites: 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 prerequisites: 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, four hours; discussion, one hour. Enforced prerequisites: 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 prerequisite: course 1A or 1AH. Enforced corequisite: course 1B or 1BH. 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: Statics and Dynamics. (4)** Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced prerequisites: Mathematics 3A, 3B. Enforced corequisite: Mathematics 3C. 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: Sound, Light, and Hydrodynamics. (4)** (Not the same as course 6B prior to Winter Quarter 1999.) Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced prerequisite: course 6A. Sound and electromagnetic waves, interference and diffraction, radioactivity, and hydrodynamics, with applications to biological and biochemical systems. P/NP or letter grading.

**6C. Physics for Life Sciences Majors: Electricity, Magnetism, and Transport. (4)** (Not the same as course 6C prior to Spring Quarter 1999.) Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced prerequisite: course 6B. 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 or 1AH or 6A. 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. Light, Atomic Nature of Matter, and Special Relativity. (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. Electromagnetic waves, geometrical and physical optics, photons, photoelectric effect, blackbody radiation. Atomic spectra, Bohr atom, wave-particle duality, kinetic theory of gases, solids, and liquids. Nature of space and time: special relativity. P/NP or letter grading.

**18L. Modern Physics Laboratory. (3)** Laboratory, six hours. Enforced prerequisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 4AL, 4BL, 17. Experiments on superconductivity, radioactivity, atomic clock; measurement of speed of light, fine structure constant, Boltzmann constant, Planck constant. 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.

**M88. Limits of Biological Design through Physical Principles. (4)** (Same as Molecular, Cell, and Developmental Biology M88H.) 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.

**91A-91B-91C. Physics Workshops for Scientists and Engineers. (1-1-1)** Discussion, four hours. Enforced corequisite for course 91A: course 1A; for 91B: course 1B; for 91C: course 1C. Workshops with focus on developing physical intuition and problem-solving skills in peer-group collaborative learning environment. Students must fulfill total of 30 hours to receive credit. P/NP grading.

**96A-96B-96C. Physics Workshops for Life Sciences Majors. (1-1-1)** Discussion, four hours. Enforced corequisite for course 96A: course 6A; for 96B: course 6B; for 96C: course 6C. Workshops with focus on developing physical intuition and problem-solving skills in peer-group collaborative learning environment. Students must fulfill total of 30 hours to receive credit. P/NP grading.

### Upper Division Courses

**105A. Analytic Mechanics. (4)** Lecture, three hours; discussion, one hour. Prerequisites: 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. Prerequisites: 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. Prerequisites: 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. Prerequisites: 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. Prerequisites: 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. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 33A, 33B. 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 requisites: 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 requisite: 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.

**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), 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)** (Formerly numbered 140.) Lecture, three hours; discussion, one hour. Enforced requisite: course 115C. 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.

**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 the 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.

**C185. Foundations of Physics. (4)** (Formerly numbered 185.) Lecture, three hours. Historical development and philosophical sources of classical and modern physics. Concurrently scheduled with course C285. Letter grading.

**199. Special Studies in Physics. (2 to 4)** Tutorial, to be arranged. May be repeated, but no more than 12 units may be applied toward Physics B.S. degree requirements.

## 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)** Thermodynamics and statistical mechanics with applications.

**215B. Nonequilibrium Statistical Mechanics. (4)** 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.

**215C. Quantum Statistical Mechanics and the Many Body Problem. (4)** 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.

**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. **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  $\gamma$ , 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.

**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.

**231A. Methods of Mathematical Physics. (4)** 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.

**231B. Methods of Mathematical Physics. (4)** Not open for credit to students with credit for Mathematics 266B. Ordinary differential equations, partial differential equations, and integral equations. Calculus of variations.

**231C. Methods of Mathematical Physics. (4)** Not open for credit to students with credit for Mathematics 266C. Perturbation theory. Singular integral equations. Numerical methods.

**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.

**241A. Solid-State Physics. (4)** Requisites: courses 140, 215A, 221A. Symmetry, free electrons, electrons in a periodic potential, experimental measurement of band structure and Fermi surface parameters, cohesive energy, lattice vibrations, thermal properties.

**241B. Solid-State Physics. (4)** Requisite: course 241A. Transport theory with applications, electron/electron interactions.

**241C. Solid-State Physics. (4)** Requisite: course 241B. Semiconductors, magnetism, phase transitions, superconductivity.

**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. P/NP 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.

**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, statistical 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)** (Formerly numbered 370.) (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 former course 370) 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. 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.

**599. Ph.D. Research and Writing. (8 or 12)** Tutorial, to be arranged. May be repeated for a maximum of 18 units. S/U grading.

## PHYSIOLOGICAL SCIENCE

*College of Letters and Science*

UCLA  
2317 Life Sciences  
Box 951606  
Los Angeles, CA 90095-1606

(310) 825-3891, Graduate Office  
e-mail: mcarr@physci.ucla.edu

(310) 825-3892, Undergraduate Office  
e-mail: marci@physci.ucla.edu  
<http://www.physci.ucla.edu/>

Arthur P. Arnold, Ph.D., *Chair*  
James Reggie Edgerton, Ph.D. *Vice Chair*  
V. Reggie G. Tidball, Ph.D., *Vice Chair*

### Professors

Arthur P. Arnold, Ph.D.  
R. James Barnard, Ph.D.  
Scott H. Chandler, Ph.D.  
V. Reggie Edgerton, Ph.D.  
Gordon L. Fain, Ph.D.  
Jack L. Feldman, Ph.D.  
David L. Glanzman, Ph.D.  
Alan D. Grinnell, Ph.D.  
Margaret E. Haberland, Ph.D., *in Residence*  
Peter M. Narins, Ph.D.  
Judith L. Smith, Ph.D.  
James G. Tidball, Ph.D.



Allan J. Tobin, Ph.D.

### Professors Emeriti

Camille Brown, Ed.D.  
Bryant J. Cratty, Ed.D.  
Glen H. Egstrom, Ph.D.  
Gerald W. Gardner, 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.  
Norman P. Miller, Ed.D.

### Associate Professors

Alan Garfinkel, Ph.D.  
Barney A. Schlinger, Ph.D.

### Assistant Professors

Rachelle H. Crosbie, Ph.D.  
Patricia E. Phelps, Ph.D.  
Stephanie A. White, Ph.D.

### Adjunct Professor

Larry Faller, Ph.D.

### Adjunct Associate Professors

Nasser A. Farahbakhsh, Ph.D.  
Fernando Gómez-Pinilla, Ph.D.

### Adjunct Assistant Professor

William C. Whiting, 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.

## 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.

All core curriculum courses must be passed with a grade of C– or better and 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

To be admitted as Physiological Science majors, transfer students 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.

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.

#### The Major

*Required:* Physiological Science 107, 111A (or M180A), 111B, 111C, 111L, Chemistry and Biochemistry 153A, 153L.

A total of four upper division physiological science electives (16 units) is required. Four units of course 190 or 199 may be applied toward the elective requirement. Courses 193, 195A, 195B, 196, and graduate courses at the 300, 400, or 500 level may not be applied toward this requirement. One graduate course at the 200 level may be applied toward the elective requirement by petition.

All required and elective courses 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, 111C) 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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications

available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Physiological Science offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Physiological Science.

## Admission

M.S. degree applicants are expected to have completed a bachelor's degree in biological or physical sciences. Applicants generally are expected to have completed a year of coursework in each of the following: calculus, physics, biology, inorganic chemistry, and biochemistry. A grade-point average of at least 3.0 (B) in all upper division undergraduate coursework is required.

A departmental faculty committee consider applicants on the following: (1) prior scholastic performance, (2) letters of recommendation, (3) scores on the Graduate Record Examination (GRE) or Medical College Admission Test (MCAT), and (4) the statement of purpose, which should include relevant background information concerning preparation for the degree and a description of the applicant's expectations, goals, and degree objective. Applicants also must include a description of their specific area of interest in physiology, their research interests, and the name of one or more departmental faculty whom they wish to consider as a potential research mentor.

Admission to the thesis plan is approved only if a departmental faculty member is identified who is willing to serve as the applicant's research mentor. Information concerning the faculty and their research interests is available at <http://www.physci.ucla.edu/> or on request from the department. Applicants are encouraged to communicate directly with the faculty, including through a personal interview.

Ph.D. applicants are expected to have completed the same admission requirements as outlined for the M.S. degree. In addition, Ph.D. applicants may be admitted to the program through UCLA ACCESS to Programs in the Molecular, Cellular, and Integrative Life Sciences, 172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@mednet.ucla.edu](mailto:uclaaccess@mednet.ucla.edu).

## Master's Degree

The M.S. degree is offered through the thesis plan. Students must complete a master's thesis based on either original research in a specific area of physiology or on nonlaboratory research on a current question in modern physiology that is based on study of the primary research literature. The nonlaboratory thesis also requires an oral presentation.

Students are required to complete nine courses, six at the graduate level. Coursework includes a second-level statistics or research design course approved by the department, re-

quired courses in biological chemistry and physiological science, and electives.

## Doctoral Degree

A minimum of nine courses is required for the Ph.D. degree. Courses are selected by the student and the student's advisory committee and approved by the graduate affairs committee.

Students are required to complete two quarters as a teaching assistant.

Written and oral qualifying examinations are required. The written examination consists of three sections in the context of general physiological problems: (1) molecular biology or neurochemistry, (2) cell biology or cellular neurophysiology, and (3) systems physiology or systems neuroscience.

Following successful completion of the written examination, students prepare a research proposal and take the University Oral Qualifying Examination.

## Physiological Science

### Lower Division Courses

**3. Introduction to Human Physiology. (4)** Lecture, three hours. Not open to Physiological Science majors. Courses 3 and 5 may be taken independently, concurrently, or in either sequence. Presentation of integrative approach to basic anatomy and physiology of major organs and organ systems. P/NP or letter grading.

**5. Issues in Human Physiology: Diet and Exercise. (4)** Lecture, three hours. 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, three 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

**C100. 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. Concurrently scheduled with course CM200. P/NP or letter grading.

**CM102. Human Anatomy for Biomedical Engineers. (4)** (Formerly numbered M102.) (Same as Biomedical Engineering CM102.) Lecture, three hours; laboratory, two hours. Not open for credit to Physiological Science majors. Designed to provide foundation in human gross and microscopic anatomy for graduate biomedical engineering students. Broad overview of structural organization of human body and detailed examination of specific systems pertinent to biomedical research. Concurrently scheduled with course CM204. Letter grading.

**CM103. Human Physiology for Biomedical Engineers. (4)** (Formerly numbered M103.) (Same as Biomedical Engineering CM103.) Lecture, three hours; laboratory, two hours. Not open for credit to Physiological Science majors. Designed to provide foundation in human physiology for graduate biomedical engineering students. Systematic approach to examination of major systems function, with emphasis on regulatory mechanisms controlling normal function. Detailed examination of specific systems pertinent to major areas of biomedical research. Concurrently scheduled with course CM203. Letter grading.

**107. Systems Anatomy. (5)** (Formerly numbered 27.) Lecture, four hours; laboratory, three hours; tutorial, two hours. Requisites: Life Sciences 2, Physics 1A or 6A. 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 cardiorespiratory, reproductive, nervous, and skeletomuscular systems, with introduction to biomechanical principles. Letter grading.

**111A-111B-111C. Foundations in Physiological Science. (6-6-6)** Lecture, four hours; laboratory, two hours. Letter grading. **111A.** Requisites: course 107, Chemistry 14C or 30A, Life Sciences 1, 2, 3, 4, Physics 1B or 6C. Not open for credit to students with credit for course M180A. Students must receive a grade of C- or better to proceed to next course in series. Introduction to principles of neurophysiology: cellular and systems neuroscience, including factors controlling membrane excitability, neuronal circuits, sensorimotor regulation, special senses, cortical functions, and neuronal plasticity. **111B.** Requisites: course 111A or M180A, Chemistry 14D or 30B. Students must receive a grade of C- or better to proceed to next course in series. Principles of muscular, cardiovascular, and pulmonary physiology. **111C.** Requisites: course 111A or M180A, Chemistry 153A. Students must receive a grade of C- or better to proceed to next course in series. Principles of gastrointestinal, renal, endocrine, and reproductive physiology.

**111L. Physiological Science Laboratory. (2)** Laboratory, four hours. Requisites: courses 111A, 111B, 111C (111C may be taken concurrently). Required of physiological science majors. Designed to illustrate physiological principles studied in courses 111A, 111B, 111C.

**C125. Comparative Endocrinology: Molecular to Behavioral. (4)** Lecture, two hours; discussion, two hours. Requisite: course 111C. Important concepts in endocrinology, with focus on current research involving invertebrate and vertebrate animal models in areas of reproduction, neuroendocrine control of behavior, metabolism, and insect metamorphosis. Concurrently scheduled with course CM225.

**126. Biological Clocks. (4)** Lecture, three hours; discussion, one hour. Requisite: course 111A or M180A. Most organisms, including humans, exhibit daily rhythms in physiology and behavior. In many cases these rhythms are generated from within the organisms and are called circadian rhythms. Exploration of molecular, cellular, and system-level organization of these timing systems.

**133. Exercise Physiology. (5)** Lecture, three hours; laboratory, two hours. Requisite: course 111B. Physiological responses and adaptations to acute and chronic exercise. Letter grading.

**C135. 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. Concurrently scheduled with course C235.

**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)** Requisite: course 111B. Regulation of normal and pathological cellular growth in cardiac and vascular tissue. Modification of gene expression in response to diverse physiological stimuli. Emphasis on molecular and cell biology approaches. Concurrently scheduled with course C237.

**138. Neuromuscular Physiology and Adaptation. (4)** Requisites: course 111B, Chemistry 153A. Cellular responses to acute and chronic exercise and environmental states of neuromuscular system.

**142. Sensorimotor Physiology. (5)** Lecture, three hours; laboratory, two hours. Requisite: course 111A or M180A. Neurophysiological principles governing control of limb movements, including regulation by spinal cord circuits, cerebellum, basal ganglia, and sensorimotor cortices.

**C143. Neuromotor Control of Posture and Movement. (5)** Lecture, four hours. Requisite: course 142. Examination of theories for neuromotor control of posture, walking, and voluntary arm movements. Concurrently scheduled with course C243.

**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.

**CM145. Neural Mechanisms Controlling Movement. (5)** (Formerly numbered C145.) (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. Concurrently scheduled with course C245. 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. Molecular and Cellular Physiology of Neurons. (4)** (Same as Neuroscience M148.) Lecture, three hours. Requisite: course 111A or M180A or Neuroscience M101A. Advanced treatment of selected topics in cellular neurophysiology. Letter grading.

**C150. Musculoskeletal Mechanics. (5)** (Formerly numbered 150.) 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, dynamics, and modeling. Concurrently scheduled with course C250B. Letter grading.

**151. Limb Dynamics. (5)** Lecture, three hours; laboratory, two hours. Requisite: course C150. Biomechanical analysis of human movement, with special emphasis on control of limb movement.

**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.

**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 Organismic 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, organellar, and cellular levels. Letter grading.

**M166. Animal Physiology. (6)** (Same as Organismic Biology M166.) Lecture, three hours; laboratory, five hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, 153A, Life Sciences 1, 2, 3, Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C. Not open for credit to students with credit for Organismic Biology 167 or 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)** (Formerly numbered 197B.) 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)** (Formerly numbered 197Z.) (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, the 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.

**M173. Anatomy and Physiology of Sense Organs. (4)** (Same as Organismic Biology M173.) Lecture, three hours; discussion, one hour. Requisites: courses 111A (or Molecular, Cell, and Developmental Biology 171) 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.

**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 or former course 10D or 30 (14C may be taken concurrently), Life Sciences 2, Physics 1B or 6C. 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 M191, Neuroscience M130, Psychiatry M191, 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.

**190A. Honors Thesis. (4)** Requisites: courses 111A, 111B. Limited to physiological science honors program students. Directed independent research for departmental honors with a faculty member, involving definition of research topic and extensive reading and research in the field of proposed honors thesis. In Progress grading (credit to be given only on completion of course 190B).

**190B. Honors Thesis. (4)** Requisite: course 190A. Continued reading and research that culminate in final honors thesis. Only 4 units of course 190 or 199 may be applied toward elective requirements for the major.

**190C. Advanced Studies for Honors Thesis. (4)** Requisite: course 190B. Additional course to provide further research opportunities for departmental honors students.

**192. Intracellular Calcium Regulation. (4)** Lecture, one hour; discussion, two hours. Requisites: courses 111A, 111B, 111C. Lecture on and review of current literature covering broad issues of intracellular calcium metabolism, regulation, and transport.

**193. Field Studies in Physiological Science. (4)** Lecture, one hour; fieldwork, six to eight hours. Limited to seniors. Departmental application required. 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 the major. P/NP grading.

**M194. Undergraduate Seminar: Current Topics in Biomedical Sciences. (2)** (Same as Molecular, Cell, and Developmental Biology M194 and Organismic Biology M194.) Seminar, two 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 a paper selected from current literature. May be repeated for credit. P/NP or letter grading.

**195A. Scientific Research and Ethics. (2)** Lecture, one hour; discussion, one hour. Corequisites: courses 190A and 190B or 199 or participant in Student Research Program. Instruction in principles of scientific method, writing, and ethics; critique of current journal articles and research projects. Students present individual research proposal with background literature. P/NP grading.

**195B. Advances in Biological Research. (2)** Lecture, one hour; discussion, one hour. Requisites or corequisites: courses 190A and 190B or 199. Critical discussion of current research literature in biological sciences, with emphasis on design, analysis, and reporting of scientific investigation. P/NP or letter grading.

**196. Laboratory Practicum in Systems Anatomy. (3)** (Formerly numbered 196A-196B.) Lecture, two hours; laboratory practicum, five hours. Requisite: course 107. Training and supervised practicum for advanced undergraduates in teaching courses related to human anatomy. Students assist in preparation of materials and development of innovative programs under guidance of faculty and teaching 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.

**197A-197Z. Variable Topics in Physiological Science. (4 each)** Limited to juniors/seniors. Variable topics courses which cover specific subjects of special interest. May be repeated for credit with topic change.

**199. Special Studies in Physiological Science. (2 or 4)** Tutorial, to be arranged. Requisites: courses 111A, 111B. Limited to Physiological Science majors with advanced junior standing and 3.0 grade-point average in major, or seniors. Directed independent research with a faculty member. Course application must be submitted to undergraduate affairs chair during first week of classes. Only 4 units of course 199 may be applied toward elective requirements for the major.

## Graduate Courses

**CM200. 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. Concurrently scheduled with course C100. 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, Molecular, Cell, and Developmental Biology 171 or Organismic Biology M166. 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. Human Physiology for Biomedical Engineers. (4)** (Same as Biomedical Engineering CM203.) Lecture, three hours; laboratory, two hours. Not open for credit to Physiological Science majors. Designed to provide foundation in human physiology for graduate biomedical engineering students. Systematic approach to examination of major systems function, with emphasis on regulatory mechanisms controlling normal function. Detailed examination of specific systems pertinent to major areas of biomedical research. Concurrently scheduled with course CM103. Letter grading.

**CM204. Human Anatomy for Biomedical Engineers. (4)** (Same as Biomedical Engineering CM202.) Lecture, three hours; laboratory, two hours. Not open for credit to Physiological Science majors. Designed to provide foundation in human gross and microscopic anatomy for graduate biomedical engineering students. Broad overview of structural organization of human body and detailed examination of specific systems pertinent to biomedical research. Concurrently scheduled with course CM102. Letter grading.

**M205. Behavioral and Systems Neuroscience. (4)** (Same as Neuroscience M205 and Psychology M205Z.) Lecture, three hours. Requisites: Neuroscience M201, M202, M203, M204. Introduction to fundamentals of behavioral and systems neuroscience, with emphasis on role of behavioral analysis in understanding the functioning of nervous system and identifying anatomical circuits, cell physiological processes, and molecular mechanisms that mediate behaviorally defined functions.

**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 or Physiology M209A. 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.

**211. Exercise Cardiovascular Physiology. (4)** Attention to cardiovascular adaptations to acute exercise as well as adaptations associated with regular exercise training.

**M212. Introduction to Cellular Physiology and Biophysics. (6)** (Same as Molecular, Cell, and Developmental Biology M237 and Physiology M212.) Lecture, five hours. Requisite: course 111A or Physiology M209A. Development of fundamental physiological and biophysical concepts associated with all membranes, membrane channels and transporters, membrane potential, membrane excitability, electrical signal transmission and transduction, and muscle contraction and their application to study of basic cellular processes. Emphasis in laboratory on development of skills using computer programming languages, spreadsheets, and graphics for modeling and analysis of cellular processes.

**M213. Principles of Integrative Physiology. (6)** (Same as Physiology M213.) Lecture, four hours; discussion, two hours. Designed for graduate students. Open to juniors/seniors with consent of instructor. Basic principles of biological integration, including regulation, homeostasis, feedback, and natural selection, to be illustrated by applying them to a molecules-through-whole animal view of four sets of problems: information processing, development, and plasticity in central nervous system; endocrine regulation of reproduction; feedback regulation of blood pressure and control of eye movements; and matching of enzyme, transporter, and bone capacities to natural loads.

**215. Molecular and Cellular Foundations of Physiology. (5)** 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.

**CM225. Comparative Endocrinology: Molecular to Behavioral. (4)** (Same as Physiology M225.) Lecture, two hours; discussion, two hours. Designed for graduate students. Important concepts in endocrinology, with focus on current research involving invertebrate and vertebrate animal models in areas of reproduction, neuroendocrine control of behavior, metabolism, and insect metamorphosis. Concurrently scheduled with course C125.

**M227. Cellular, Molecular, and Functional Aspects of Reproductive System. (4)** (Same as Neurobiology M227.) Lecture, three hours; discussion, one hour. Didactic presentations and discussion of developmental, anatomical/histological, physiological, cellular, and molecular aspects of reproductive system and functional integration of neuroendocrine-reproductive axis.

**C235. 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. Concurrently scheduled with course C135.

**C237. Growth and Adaptation in Cardiovascular System. (4)** Requisite: course 111B. Regulation of normal and pathological cellular growth in cardiac and vascular tissue. Modification of gene expression in response to diverse physiological stimuli. Emphasis on molecular and cell biology approaches. Concurrently scheduled with course C137.

**M240. Neural Systems for Motor Control. (4)** (Same as Neuroscience M262.) Requisite: course C143. Advanced topics on neural mechanisms related to control of posture, locomotion, and highly skilled arm and hand movements. Emphasis on role of movement-dependent feedback at spinal segments and within sensorimotor areas of cerebral cortex, with respect to modification of motor output.

**241. Substrates for Neural Repair. (4)** Lecture, four hours. Requisite: Neuroscience M201 or M203 or M204. 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.

**C243. Neuromotor Control of Posture and Movement. (5)** Lecture, four hours. Requisite: course 142. Examination of theories for neuromotor control of posture, walking, and voluntary arm movements. Concurrently scheduled with course C143.

**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.

**C245. 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. Concurrently scheduled with course CM145. Letter grading.

**M247. Neural Control of Cardiopulmonary Function. (4)** (Same as Neuroscience M247.) Lecture, two hours; discussion, two hours. Requisites: courses 111A, 111B or 133 or 142 or M180A, M180B. Cardiorespiratory homeostasis is accomplished via central nervous system (CNS) control of respiratory and circulatory pumping systems. Focus on CNS mechanism underlying (1) generation of respiratory rhythm, sympathetic and parasympathetic tone, (2) determination of patterns of motor outflow, and (3) responses to changes in behavioral state or afferent signals. Emphasis on critical reading of literature.

**250A. Muscle Dynamics. (4)** Lecture, four hours. Requisite: course 151. 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)** (Formerly numbered 250B.) 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, biodynamics, and modeling. Concurrently scheduled with course C150. Letter grading.

For Scott Chandler, 21 years teaching physiological science has been a continuous metamorphosis. “Because one ingredient to becoming an excellent teacher,” he explains, “is realizing that I am still a student constantly learning how to stimulate, motivate, and communicate with my students.”

A cellular neurophysiologist, Chandler studies the neuronal mechanisms controlling jaw movements that occur during feeding, drinking, and swallowing. While most people never even think about what’s behind such bodily behaviors, Chandler is passionate in his endeavor to unlock the underlying mechanisms controlling jaw movements and considers them essential to meaningful human existence. Progress in this area will ultimately lead to an understanding of the organizing principles utilized by the central nervous system with respect to motor production and will determine potential therapeutic interventions for the correction of abnormal jaw movements that occur as a result of injury or disease.

**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 the 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.

**M260. Neuromuscular Factors in Movement Regulation. (4)** (Same as Neuroscience M260.) 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.

But Chandler measures success not just in the laboratory, where he works to uncover neuronal secrets, but also in the classroom where he challenges students to think critically, evaluate complex issues, and formulate logical conclusions. “This is invigorating! If I can instill the joy and importance of learning through my passion for teaching, I feel my efforts have been rewarded. I thoroughly love interacting with students, and find that I am continuously learning from them as well.”

“Most students who major in neuroscience or physiological science are interested in the health profession and medical school,” he notes. “However, there are lots of opportunities in industry as well, especially with the advent of new techniques in molecular neuroscience that will someday lead to an understanding of the basis and cure for many disease processes.” Until then, Chandler continues in his work inspiring students with a desire to learn, to obtain a thirst for knowledge, and to realize that ultimately their quest for knowledge is motivated from within.

**M263. Neuronal Mechanisms Controlling Rhythmic Movements. (4)** (Same as Neuroscience M263.) Requisite: course CM145. 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.

**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.



**Scott Chandler,  
Physiological Science  
Department**

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**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 Organismic 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)** Selected topics on cardiovascular function and adaptation. Students required to present two-hour seminar.

**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.

**M295A-M295B-M295C. Seminars: Cellular Neuroscience. (2 to 4 each)** (Same as Neuroscience M266A-M266B-M266C.) 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)** (Formerly numbered 297A-297B-297C.) Seminar, two hours. Selected topics in muscle cell biology. Students required to present two-hour seminar. May be repeated for credit.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

## PHYSIOLOGY

*School of Medicine*

UCLA  
53-237 Center for the Health Sciences  
Box 951751  
Los Angeles, CA 90095-1751

(310) 825-6717  
<http://www.medsch.ucla.edu/som/physio>

Kenneth D. Philipson, Ph.D., *Chair*  
Diane M. Papazian, Ph.D., *Executive Vice Chair*  
John McD. Tormey, M.D., *Vice Chair Instruction*

### Professors

Francisco J. Bezanilla, Ph.D.  
Mariel Birnbaumer, Ph.D.  
Michael H. Chase, Ph.D., *in Residence*  
Linda Demer, M.D., Ph.D.  
Jared M. Diamond, Ph.D.  
Alan D. Grinnell, Ph.D.  
Earl Homsher, Ph.D.  
H. Ronald Kaback, M.D.  
Emeran A. Mayer, M.D.  
Istvan Mody, Ph.D. (*Tony Coelho Professor of Neurology*)  
Diane M. Papazian, Ph.D.  
Kenneth D. Philipson, Ph.D.  
Eduardo H. Rubinstein, M.D., Ph.D.  
George Sachs, M.D., D.Sc. (*Leon J. Tiber, M.D., and David S. Alpert, M.D., Professor of Medicine*)  
Oscar U. Scremin, M.D., *in Residence*  
Enrico Stefani, M.D., Ph.D.  
John McD. Tormey, M.D.  
Julio L. Vergara, Ph.D.  
James N. Weiss, M.D. (*Chizuko Kawata Professor of Cardiology*)  
Ernest M. Wright, D.Sc. (*Sherman Mellinkoff Distinguished Professor of Medicine*)  
Guido Zampighi, Ph.D.

### Professors Emeriti

Allan J. Brady, Ph.D.  
Jennifer S. Buchwald, Ph.D.  
Sergio Ciani, Ph.D.  
George Eisenman, M.D.  
Joy S. Frank, Ph.D.  
Glenn A. Langer, M.D. (*Castera Professor Emeritus of Cardiology*)  
Michael S. Letinsky, Ph.D.  
Donald B. Lindsley, Ph.D.  
Gordon Ross, M.D.  
Ralph R. Sonnenschein, M.D.  
Bernice M. Wenzel, Ph.D.  
Brian J. Whipp, Ph.D.

### Associate Professors

Gregory Brent, M.D., *in Residence*  
Sally J. Krasne, Ph.D.  
Holly Middlekauff, M.D.  
Thomas J. O'Dell, Ph.D.  
Robert Ross, M.D.  
Nancy L. Wayne, Ph.D.

### Assistant Professors

Robb MacLellan, M.D., *in Residence*  
Jonathan R. Monck, Ph.D.  
Hal Yee, M.D., Ph.D.

### Adjunct Professors

Christopher B. Cooper, M.D.  
Arthur Peskoff, Ph.D.  
Douglas Rees, Ph.D.  
Kenneth P. Roos, Ph.D.

### Adjunct Assistant Professor

Bernard Ribalet, Ph.D.

## 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, neurobiology, communication and information, organ systems and integrative phenomena, and behavioral physiology.

In a recent survey conducted by the Conference Board of the Associated Research Councils, UCLA's Physiology Department was judged fifth best in the nation in terms of the quality of its faculty. In addition to the Ph.D. program, the department offers postdoctoral training in research and welcomes students interested in articulated M.D./Ph.D. programs.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Physiology offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Physiology.

## Admission

The department does not admit candidates for the M.S. degree; however, the degree may be awarded as a terminal degree in special cases.

Applicants to the Ph.D. program may apply directly to the department or through UCLA ACCESS to Programs in the Molecular, Cellular, and Integrative Life Sciences (172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-

1570, 310-206-6051, <http://www.uclaaccess.ucla.edu>, e-mail: [uclaaccess@med-net.ucla.edu](mailto:uclaaccess@med-net.ucla.edu), a standard first-year biomedical curriculum that allows entry into the department in the second year.

Ph.D. applicants must meet the general admission requirements of the Graduate Division and hold a bachelor's degree in a biological or physical science or in the premedical curriculum. In general, applicants should have completed coursework in mathematics through calculus and differential equations, college physics, chemistry (including organic chemistry and biochemistry), and biology. Courses in cell biology and molecular biology are highly recommended.

In certain cases, at the discretion of the department, if applicants lack preparation in one of the courses mentioned above but have a strong background in areas pertinent to physiology, they may be admitted to graduate status provided that deficiencies are made up. It is recommended that the deficiencies be corrected prior to matriculation.

Applicants must submit (1) transcripts of grades for all college-level work; (2) the results of the Graduate Record Examination (GRE); the GRE Subject Test in Biology or in the applicant's undergraduate major is optional. For those applying to a combined M.D./Ph.D. program who are currently in medical school, or for those who hold the M.D. degree, MCAT scores may be accepted in lieu of the GRE; (3) at least three letters of recommendation from professors stressing potential for successful completion of graduate studies and creative independent research; and (4) an essay describing academic background, research experience, motivation for research, and career goals.

Selected applicants are asked to have an interview with members of the graduate admissions committee or a designated interviewer. Final decisions on admission to the graduate program reside with the graduate admissions committee which examines the recommendations for academic excellence, promise in scientific career goals consistent with the scientific expertise of the faculty, and the existence of financial support for the applicant during the first and subsequent years of training.

An application packet is available by writing to the Graduate Student Office, Department of Physiology, UCLA School of Medicine, Box 951751, Los Angeles, CA 90095-1751. Applicants may apply online at <http://www.gd-net.ucla.edu>. Applications should be submitted by December 15.

## Master's Degree

The M.S. degree is offered through the comprehensive examination and thesis plans and is offered only to students who wish to receive a terminal master's degree and leave the doctoral program. Nine courses are required, five of which must be graduate courses.

## Doctoral Degree

The major fields in which graduate students may pursue research include (1) molecular physiology and biophysics, (2) cellular physiology, and (3) integrative physiology. The subdisciplines of these areas include membrane biophysics, membrane transport, cellular signal transduction, channel and transporter structure and function, muscle physiology, fundamental neurophysiology, neuromuscular physiology, and cardiovascular, gastrointestinal, respiratory, and reproductive physiology.

During the first two Ph.D. years there are four required courses and 12 required units in techniques or special topics courses and/or seminars or comparable courses in cell biology, neuroscience, molecular biology, chemistry, or biology as governed by research interest. Three laboratory rotations are required during the first year. A course in scientific ethics is required. Many of the course requirements are fulfilled as part of the first-year UCLA ACCESS curriculum. Students with advanced standing who enter the department directly may be exempt from some of the course requirements.

Students are required to serve as a teaching assistant for two quarters.

Written and oral qualifying examinations are required. The purpose of the written qualifying examination is to assess ability to read and critically evaluate research papers in the chosen division of physiology.

Following successful completion of the written examination, students take the University Oral Qualifying Examination, which is based on a written proposal prepared in the form of a mini-research grant application. Following completion of the examinations, there is a midstream oral presentation in which progress on the research project is reviewed by the dissertation committee.

## Physiology

### Lower Division Course

**88. Lower Division Seminar: Special Topics in Physiology. (4)** Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in physiology approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

### 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. Special Studies. (1 to 8)** Tutorial, to be arranged. Special studies in physiology, including either reading assignments or laboratory work or both, designed for proper training of students.

## Graduate Courses

**201A-201B. Organ System Physiology. (6-6)** Lecture, six hours; laboratory, three and one-half hours. Designed for medical and qualified graduate program students. Recommended corequisites: courses M203A, M203B. Runs throughout School of Medicine's second semester. Lectures, laboratories, and conferences. Properties of biological membranes. Contractility of muscle. Epithelial transport. Cardiovascular, renal, respiratory, and gastrointestinal systems. Fluid and electrolyte balance. To receive credit, both courses must be taken together in same academic year. In Progress grading.

**M203A-M203B. Neuroscience. (4-4)** (Same as Neurobiology M203A-M203B.) Lecture, four hours. Designed for medical and qualified graduate program students. Lectures, conferences, demonstrations, and laboratory procedures necessary to understand functions of nervous system, with emphasis on their applications in the medical sciences. To receive credit, both courses must be taken together in same academic year. In Progress and letter grading.

**M204. Cellular and Molecular Developmental Neurobiology. (4)** (Same as Neurobiology M204, Neuroscience M204, and Psychiatry M204.) Lecture, three hours; discussion, one hour. Requisites: Neuroscience M201, M202, and M203, or Biological Chemistry 201A and 201B. Cellular and molecular processes that regulate development of nervous systems of vertebrates and invertebrates. Topics include regional specification in early neurogenesis, generation of neuronal diversity, cell surface interactions and growth factors, neuronal and glial proliferation and migration, axonal outgrowth and guidance, synaptogenesis, trophic interaction, plasticity, regeneration, and aging.

**M209A. Molecular, Cellular, and Developmental Neurobiology. (6)** (Same as Molecular, Cell, and Developmental Biology CM220 and Neurobiology M200B.) Lecture, two hours; discussion, two hours; laboratory, two hours. Fundamental topics concerning molecular, cellular, and developmental neurobiology, including intracellular signaling, cell-cell communication, neurogenesis and migration, synapse formation and elimination, programmed neuronal death, and neurotropic factors. Letter grading.

**M210. Molecular and Cellular Mechanisms of Neural Integration. (5)** (Same as Neuroscience M230 and Physiological Science M210.) Lecture, four hours; discussion, one hour. Requisite: course M209A or 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.

**M212. Introduction to Cellular Physiology and Biophysics. (6)** (Same as Molecular, Cell, and Developmental Biology M237 and Physiological Science M212.) Lecture, five hours. Requisite: course M209A or Physiological Science 111A. Development of fundamental physiological and biophysical concepts associated with all membranes, membrane channels and transporters, membrane potential, membrane excitability, electrical signal transmission and transduction, and muscle contraction and their application to study of basic cellular processes. Emphasis in laboratory on development of skills using computer programming languages, spreadsheets, and graphics for modeling and analysis of cellular processes.

**M213. Principles of Integrative Physiology. (6)** (Same as Physiological Science M213.) Lecture, four hours; discussion, two hours. Designed for graduate students. Open to juniors/seniors with consent of instructor. Basic principles of biological integration, including regulation, homeostasis, feedback, and natural selection, to be illustrated by applying them to a molecules-through-whole animal view of four sets of problems: information processing, development, and plasticity in central nervous system; endocrine regulation of reproduction; feedback regulation of blood pressure and control of eye movements; and matching of enzyme, transporter, and bone capacities to natural loads.

**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.

**M225. Comparative Endocrinology: Molecular to Behavioral. (4)** (Same as Physiological Science CM225.) Lecture, two hours; discussion, two hours. Designed for graduate students. Important concepts in endocrinology, with focus on current research involving invertebrate and vertebrate animal models in areas of reproduction, neuroendocrine control of behavior, metabolism, and insect metamorphosis.

**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.

**597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12)** Tutorial, to be arranged.

**598. Thesis Research for M.S. Candidates. (2 to 12)** Tutorial, to be arranged.

**599. Dissertation Research for Ph.D. Candidates. (2 to 12)** Tutorial, to be arranged.

## POLICY STUDIES

*School of Public Policy and Social Research*

UCLA  
3250 Public Policy Building  
Box 951656  
Los Angeles, CA 90095-1656  
(310) 825-7667  
fax faculty : (310) 206-0337  
fax administration/admissions: (310) 206-2381  
<http://www.spspr.ucla.edu/ps/>

Arleen Leibowitz, Ph.D., *Chair*

### Professors

Joel D. Aberbach, Ph.D.  
Rosina M. Becerra, Ph.D.  
Trudy Cameron, Ph.D.  
Albert Carnesale, Ph.D.  
Michael R. Darby, Ph.D.  
Franklin D. Gilliam Jr., Ph.D.  
Jeffrey T. Grogger, Ph.D.  
Joel F. Handler, J.D.  
V. Joseph Hotz, Ph.D.  
Michael D. Intriligator, Ph.D.  
Sanford M. Jacoby, Ph.D.  
Thomas J. Kane, Ph.D.  
Mark A.R. Kleiman, Ph.D.

Archie Kleingartner, Ph.D.  
Arleen Leibowitz, Ph.D.  
Daniel J.B. Mitchell, Ph.D.  
Eric H. Monkkonen, Ph.D.  
Barbara J. Nelson, Ph.D.  
Mark A. Peterson, Ph.D.  
Richard Rosecrance, Ph.D.  
Allen J. Scott, Ph.D.  
Fernando Torres-Gil, Ph.D.  
Wellford W. Wilms, Ph.D.  
Charles E. Young, Ph.D.  
Lynne G. Zucker, Ph.D.

### Assistant Professor

J.R. DeShazo, Ph.D.  
Eric M. Patashnik, Ph.D.  
Meredith Phillips, Ph.D.  
Andrew Sabl, Ph.D.  
Michael A. Stoll, Ph.D.  
Any B. Zegart, Ph.D.

### Visiting Professor

Michael S. Dukakis, J.D.

## Scope and Objectives

The Department of Policy Studies is an interdisciplinary unit composed of faculty members from around the campus, as well as faculty unique to the department. 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 social insurance and welfare programs, unemployment and training, drug policy and crime, economic development, environmental quality, education, and health care. The department plays a major role in two schoolwide programs: the Master of Public Policy (M.P.P.) degree and the undergraduate minor in Public Policy.

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, and political processes.

The undergraduate minor in Public Policy familiarizes students with key issues in public policy. Both programs have a heavy applied orientation. For further information on the minor, see Public Policy and Social Research Schoolwide Programs later in this section of the catalog.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degree

The Department of Policy Studies offers the Master of Public Policy (M.P.P.) degree.

## Admission

### Master of Public Policy

Applicants to the M.P.P. program are evaluated on their overall record. The final decision is based on a subjective assessment of the applicant's potential to meet the scholarship requirements of the program and to succeed as a policy professional.

A grade-point average of 3.0 or better in the junior and senior years is required, and preference is given to applicants with a 3.5 or above. Additional consideration is given to the strength of the applicant's undergraduate program and its standards. The quantitative nature of the core curriculum requires that attention be given to quantitative and analytical abilities. An elementary statistics course is strongly recommended.

Scores on the Graduate Record Examination (GRE) General Test are used in combination with the grade-point average to help predict academic performance in the M.P.P. program. Scores above 650 in each area are usually essential for admission to the program, although possible reasons for lower scores are considered. Especially high GRE scores may help alleviate concerns about a troublesome academic record, but a high GRE score alone is insufficient reason for admission.

A score of at least 600 (paper and pencil test) or 250 (computer-based test) on the Test of English as a Foreign Language (TOEFL) or an overall band score of 7.0 on the International English Language Testing System (IELTS) examination is required for applicants whose native language is not English.

The statement of purpose is evaluated to determine the applicant's genuine academic interest in and commitment to a career in public policy, as well as the applicant's general ability to write coherent and convincing prose. The statement can also help determine the match between the applicant's interests and the school's offerings and to assess written communication skills.

Applicants with at least two years of work experience in policy-making or implementation are preferred. Internships and volunteer work in a policy setting are also viewed positively.

Three letters of recommendation are required from supervisors in policy-related work or instructors in undergraduate courses. Recommendations should be from individuals who know the applicant well and who can comment specifically on the potential for a career as a policy professional rather than someone of high status in a firm or school who has minimal knowledge of the applicant.

Applications and program information can be obtained on written request to the School of Public Policy and Social Research.

### Policy Studies M.P.P./Law J.D.

The Department of Policy Studies and the School of Law offer a concurrent degree pro-

gram whereby students may pursue the M.P.P. and the J.D. at the same time. Applicants are required to satisfy the regular admission requirements for both programs. During the first year students follow the required law curriculum, taking 33 units. The second year is spent in the M.P.P. program taking 36 units toward the M.P.P. degree. During the third and fourth years students take the remaining 24 units of the M.P.P. curriculum and 40 units of law courses to complete the J.D. degree. Applicants interested in the concurrent program should contact the School of Law and the graduate adviser in the Policy Studies Department.

## Master's Degree

There are several areas of study. In the second year students select either two two-course concentrations or one four-course concentration from the following: drug and crime policy, education and human capital, employment and labor policy, environmental and natural resources policy, health policy, international policy and economics development, regional development policy, social welfare policy, transportation policy, and urban poverty.

Students also have the option, with their faculty adviser's approval, of designing their own concentrations from other courses offered in the School of Public Policy and Social Research or in other UCLA schools or departments.

The M.P.P. degree is offered through the comprehensive examination plan. The examination is in the format of an applied policy project completed during the three-quarter policy seminar. A total of 72 units of coursework is required, including nine core courses, four concentration courses, two electives, and a three-quarter seminar in applied policy analysis.

Students pursuing the concurrent degree program with the School of Law complete the nine core courses, concentration courses, and the three-quarter seminar in applied policy analysis for total of 60 units. The remaining 12 units of course requirements are fulfilled through law courses taken for the J.D. program.

A required field internship consists of approximately 400 hours of work for an agency, firm, or organization that is on an approved list of fieldwork placements.

## Policy Studies

### 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.

**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)** (Formerly numbered 101.) Lecture, three hours; outside study, nine hours. Introduction to and development of main ideas and themes that enter into analysis and execution of policies directed at control of substance abuse and its side effects; illustration and instantiation of main techniques and concepts of policy and management analysis. Concurrently scheduled with course C235. Letter grading.

**102. Rational Policies, Irrational People. (4)** Lecture, three hours; outside study, nine hours. Development of some central concepts of rational-choice model and examination of theories and evidence about systematic ways in which actual behavior deviates from that model. Exploration of various reasons groups of rationally self-seeking individuals might fail to act as rationally self-seeking groups and discussion of policy implications of individual and collective departures from rational action. 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.

**CM110. Information Superhighway. (4)** (Same as Communication Studies M155.) Lecture, three hours. Information Superhighway seen from a non-American viewpoint, considering its meanings, potentials, structures, applications, policy implications, economic, social, and cultural impacts, and public perceptions in a number of countries. Special emphasis on Western Europe, Canada, and Australia, with a look at Japan and China also. Opportunities for Africa and Latin America suggested, especially education, health, and other public services. Concurrently scheduled with course C270. Letter grading.

**M111. Culture, Identity, and Media. (4)** (Same as Communication Studies M157.) Discussion, three hours. Interplay of national culture and identity with electronic media, both "old" and "new." Examination of how national mythologies, constructive or pernicious, are reinforced through the media in several countries: U.K., France, Germany, Canada; analysis of how media manipulation, especially of radio and television, increasingly paves the way to war: Bosnia, Rwanda, Somalia. Letter grading.

**C112. 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. Concurrently scheduled with course C225. 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 addressed by environmental economists which bear on public policies. Concurrently scheduled with course CM250. Letter grading.

**M116. Nuclear Weapons: Critical Decisions. (4)** (Same as Environment M165 and Honors Collegium M119.) 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.

**C117. Crisis Decision Making in U.S. Foreign Policy. (4)** Lecture, three hours; outside study, nine hours. Recommended requisites: Political Science 120, 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.

**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)** (Formerly numbered 120.) (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.

**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)** (Formerly numbered 142.) Lecture, three hours; outside study, nine hours. Requisite: course 10A. Survey of major topics in economic analysis of labor markets and public policies toward the 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.

**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.



**190. Special Topics in Public Policy. (4)** Discussion, 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. Must be taken for credit if applied toward Public Policy minor. May be repeated for credit with topic change. P/NP or letter grading.

**197. Research Seminar: Policy Studies. (4)** Seminar, three hours; outside study, nine hours. Prerequisites: courses 10A, 10B. Required of students in Public Policy minor. Production of research paper that examines in depth a 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.

**199. Special Studies in Policy Studies. (2 or 4)**

Tutorial, to be arranged. Preparation: 3.0 grade-point average. Limited to juniors/seniors. Intensive directed research in policy studies. 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. Prerequisite: 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. Prerequisite: 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.

**M210. Foundations of Social Welfare Policy. (4)** (Same as Social Welfare M221A 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 the welfare system; theory and research about welfare policies and organizational forms. S/U or letter grading.

**M211. Aging Policy, Elderly and Families. (4)** (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.

**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 an 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 the mentally ill, with emphasis on political, economic, ideological, and sociological factors that affect views of the mentally ill and services they are provided. S/U or letter grading.

**M214. Poverty, the 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 the poor in the U.S. S/U or letter grading.

**M215. Health Policy. (4)** (Same as Social Welfare M290M.) Lecture, three hours. Introduction to contemporary issues in health care 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 the community, with emphasis on impact of policy across federal, state, and local levels. S/U or letter grading.

**217. Methods of Evaluating Social Programs. (4)** Lecture, three hours; outside study, nine hours. Prerequisites: courses 203, 208. Examination of design of and statistical methods for evaluating impacts of social programs. Introduction to use of experimental and nonexperimental designs and to various methods for estimating impacts of social programs. Discussion of designs for process analyses. Letter grading.

**218. Research Design and Methods for Social Policy. (4)** 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 the 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. Prerequisites: courses 201 and 203, or Urban Planning 207 and 220B. Descriptions of travel patterns in metropolitan areas, recent trends and projections into the 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; 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; the automobile in the 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 of the packaged statistics programs. 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 a planning problem. Letter grading.

**M224B. Advanced Geographic Information Systems. (4)** (Same as Urban Planning M206B.) Lecture, four hours; laboratory, four hours. Prerequisite: 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.

**C225. 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. Concurrently scheduled with course C112. 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. Designed for graduate students. 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 the U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between the U.S. and other countries. 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)** (Formerly numbered M230.) (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 the 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; discussion, 90 minutes; outside study, nine hours. Introduction to and development of main ideas and themes that enter into analysis and execution of policies directed at control of substance abuse and its side effects; illustration and instantiation of main techniques and concepts of policy and management analysis. Concurrently scheduled with course C101. Letter grading.

**M240. Theories of Regional Economic Development I.**

**(4)** (Same as Urban Planning M236A.) Lecture, three hours; laboratory, 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: Evolution of Regional Planning Doctrines.**

**(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.

**M242. Regional Development, Urbanization, and Industrial Policy.**

**(4)** (Same as Urban Planning M231.) 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 the 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.

**CM250. Environmental and Resource Economics and Policy.**

**(4)** (Formerly numbered C250.) (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 which bear on public policies. Concurrently scheduled with course C115. 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 a 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 the health care system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading.

**M269. Health Care Policy and Finance.**

**(4)** (Formerly numbered 269.) (Same as Health Services M269.) Seminar, three hours; outside study, nine hours. Requisites: Biostatistics 100A, 100B, Health Services 200A, 200B, M236. Exploration of demand for health insurance, policies for public insurance (Medicaid and Medicare), the uninsured, and health insurance reform. Examination of effects of managed care on health and costs, consumer protection movement, and rise of competitive health care markets. Letter grading.

**C270. Information Superhighway.**

**(4)** Lecture, three hours. Information Superhighway seen from a non-American viewpoint, considering its meanings, potentials, structures, applications, policy implications, economic, social, and cultural impacts, and public perceptions in a number of countries. Special emphasis on Western Europe, Canada, and Australia, with a look at Japan and China also. Opportunities for Africa and Latin America suggested, especially education, health, and other public services. Concurrently scheduled with course CM110. 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 hours; outside study, nine hours. 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 C117. Letter grading.

**M280A. Research and Development Policy.**

**(4)** (Formerly numbered 280.) (Same as Management M292A.) Lecture, three hours. Examination of research and development as a process and as an element of a 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)** (Formerly numbered M281.) (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.

**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.

**291. Methods of Policy Analysis.**

**(4)** Lecture, three hours; outside study, nine hours. Designed for graduate students. Techniques of policy analysis with applications: benefit and cost; optimization and constraint; risk, risk aversion, risk spreading; tax incidence, incentive effects, and deadweight loss; strategic interactions (games and negotiations). Emphasis on concepts rather than computation. Letter grading.

**292. Quantitative Policy Analysis.**

**(4)** Lecture, three hours. Requisites: courses 203, 208. Exploration of additional statistical and econometric tools (e.g., discrete choice analysis, methods to deal with endogeneity bias, and analysis of longitudinal data) as follow-up to requisite courses. Application of statistical tools in conduct of analysis and evaluations of public policy initiatives and policy-relevant issues. Letter grading.

**M293. Privatization, Regulation, and Public Finance.**

**(4)** (Formerly numbered 293.) (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 service-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 the 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 the U.S., with emphasis on interaction of moral attitudes toward the poor and structure and implementation of the law, policy, and administration. Current reform consensus and major reforms. Letter grading.

**298A-298B. Seminars: Applied Policy Analysis. (4-4)** Seminar, three hours; outside study, nine hours. Preparation: completion of M.P.P. core curriculum, two policy cluster courses, and internship (unless waived). Two-term seminar in which students prepare major public policy projects and papers which 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.

**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.

## POLITICAL SCIENCE

*College of Letters and Science*

UCLA  
4289 Bunche Hall  
Box 951472  
Los Angeles, CA 90095-1472  
(310) 825-4331  
<http://www.polisci.ucla.edu/>

Michael F. Lofchie, Ph.D., *Chair*

### Professors

Joel D. Aberbach, Ph.D.  
Richard D. Baum, Ph.D.  
Leonard Binder, Ph.D.  
James DeNardo, Ph.D.  
Barbara Geddes, Ph.D.  
Franklin D. Gilliam, Jr., Ph.D.  
Miriam A. Golden, Ph.D.  
Edmond Keller, Ph.D.  
Deborah W. Larson, Ph.D.  
Michael F. Lofchie, Ph.D.  
Susanne Lohmann, Ph.D.  
John B. Londregan, Ph.D.  
Karen J. Orren, Ph.D.  
Carole Pateman, D.Phil.  
Ronald L. Rogowski, Ph.D.  
Richard N. Rosecrance, Ph.D.  
Thomas Schwartz, Ph.D.  
David O. Sears, Ph.D.  
Barbara L. Sinclair, Ph.D. (*Marvin Hoffenberg  
Professor of American Politics and Public Policy*)  
Steven L. Spiegel, Ph.D.  
Arthur A. Stein, Ph.D.  
George Tsebelis, Ph.D.  
David O. Wilkinson, Ph.D.  
E. Victor Wolfenstein, Ph.D.  
John Zaller, Ph.D.

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Mattei Dogan, Docteur ès Lettres  
Leonard Freedman, Ph.D.  
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Robert Gerstein, Ph.D.  
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Douglas S. Hobbs, Ph.D.  
Marvin Hoffenberg, M.A.  
Arnold L. Horelick, Ph.D.  
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Leo M. Snowiss, Ph.D.  
David A. Wilson, Ph.D.  
James Q. Wilson, Ph.D.  
Charles E. Young, Ph.D.

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Kathleen Bawn, Ph.D.  
Martin I. Gilens, Ph.D., *Acting*  
Kirstie McClure, Ph.D.  
Raymond A. Rocco, Ph.D.  
Kenneth Schultz, Ph.D.  
James Tong, Ph.D.  
Daniel S. Treisman, Ph.D.

### Assistant Professors

Matthew A. Baum, Ph.D.  
Alberto Diaz-Cayeros, Ph.D.  
Scott C. James, Ph.D.  
Barbara Koremenos, M.P.P.  
Jeffrey B. Lewis, Ph.D.  
Daniel N. Posner, Ph.D.  
Michael Ross, Ph.D.  
Mark Q. Sawyer, Ph.D.  
Michael F. Thies, Ph.D.  
Lynn Vovreck, Ph.D.  
Brian D. Walker, 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.

#### Prepolitical Science Major

All students intending to major in Political Science must enroll as Prepolitical Science majors. After completion of preparation for the major courses, they need to petition to enter the major in the Undergraduate Office, 4256 Bunche Hall.

#### Preparation for the Major

*Required:* Four lower division courses from Political Science 10, 20, 30, 40, 50. These lower division courses are prerequisites to upper division courses and 10, 20, 40, and 50 are required in those fields designated as the concentration or distribution field. Students must also take Political Science 6 or one of the following statistics courses: Anthropology M80, Economics M40, Geography M40, Sociology M18, Statistics 10.

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

To be admitted as Political Science majors, transfer students 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, political economy, American politics, or comparative politics.

### The Major

*Required:* Ten upper division courses (40 units) selected from Political Science 102 through 199 taken for a letter grade. Students are also required to complete four upper division courses (16 units) in one or two of the following social sciences: anthropology, communication studies (only Communication Studies 160), economics, geography, history, management (only Management 150, 190), psychology (except Psychology 115, 116), sociology. These courses must be 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 four fields: (I) political theory, (II) international relations, (III) American politics, and (IV) comparative politics.

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 upper division courses in Field II
- III. *American Politics:* Course 40 and any four courses in Field III
- IV. *Comparative Politics:* Courses 50, 168, and any three additional courses in Field IV. Course 118 may also be applied toward concentration in this field

Courses 119, 139, 149, and 169 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 195A, 195B, 195C, 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 (56 units) do not meet the upper division requirement of 60 units (effective Fall Quarter 1997) 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 C197A through C197D) in each field. The requisites are two upper 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 C197 series before they enter the honors program or course 195A.

Students wishing to qualify for graduation with departmental honors must complete the following: (1) courses 195A, 195B, 195C, in which a senior thesis is written; (2) eight upper division courses (excluding courses 119, 139, 149, and 169) 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.

### 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, 4256 Bunche Hall.

*Required Lower Division Courses (8 units):* Any two lower division political science courses.

*Required Upper Division Courses (20 units):* Any five upper division political science courses.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

### Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Political Science offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Political Science.

### Admission

The department admits only students whose degree objective is the Ph.D. degree. An M.A. degree may be earned while completing requirements for the Ph.D.

In addition to University minimum requirements, the department requires three letters of recommendation, scores from the General Test of the Graduate Record Examination (GRE), and a sample of applicants' analytical writing skills (e.g., senior or master's degree thesis, term paper). Applicants are selected on the basis of perceived promise.

Applicants may write for departmental brochures to the Graduate Studies Office. The department does not have an application form in addition to the *UCLA Application for Graduate Admission*. The deadline for receipt of all application materials is December 15 of the year preceding the Fall Quarter in which students wish to matriculate.

### Master's Degree

The M.A. degree is offered through the comprehensive examination plan, which consists of the submission of one doctoral qualifying paper that is deemed acceptable by the faculty. Students must successfully complete 12 of the 16 courses required for the Ph.D.

### Doctoral Degree

Five fields of study are offered: political theory, international relations, American politics, comparative politics, and formal theory and quantitative methods.

Ph.D. students must take 16 required courses, including two required courses in statistics, four courses in each of two major fields, one course in each of two minor fields, and four additional graded courses, including no more than two independent study courses. Fields determine which courses meet major and minor field requirements.

Written and oral qualifying examinations are required. The written examination is in the form of two research papers. Following successful

completion of the written examinations, students prepare a dissertation proposal and take the University Oral Qualifying Examination.

There is a language/research methodology requirement for this degree.

## Political Science

### Lower Division Courses

**6. Introduction to Quantitative Research. (4)** Lecture, three hours; discussion, one hour. 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 an aid in analyzing data from various fields of political science, among them comparative politics, international relations, American politics, and public administration.

**10. Introduction to Political Theory. (4)** Lecture, three hours; discussion, one hour. Exposition and analysis of selected political theorists and concepts from Plato to the present.

**20. World Politics. (4)** Lecture, three hours; discussion, one hour. Required of all students concentrating in Field II. Introduction to problems of world politics.

**30. Introduction to Political Economy. (4)** Lecture, three hours; discussion, one hour. Introduction to political economy, especially application of economic reasoning to political and social phenomena. P/NP or letter grading.

**40. Introduction to American Politics. (4)** 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. (4)** Lecture, three hours; discussion, one hour. Comparative study of constitutional principles, governmental institutions, and political processes in selected countries. 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

**102. Statistical Analysis of Political Data. (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 6. Designed for juniors/seniors. Introduction to statistical inference. Topics include measures of central tendency, elementary probability theory, common probability distributions, least-squares and maximum likelihood estimation, confidence intervals and statistical tests, comparison of means, analysis of variance, and multiple regression and correlation. Statistical techniques and topics illustrated with applications to a variety of political data.

**104A-104B. Introduction to Survey Research. (4-4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: 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.** Requisite: 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 requisite: 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.

**M106. Economic Models of Political Conflict and Conflict Resolution. (4)** (Same as Economics M136.) Seminar, three hours; discussion, one hour. Enforced requisite: 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)** (Formerly numbered 107.) (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

**111A-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. **111A.** Ancient and Medieval Political Theory from Plato to Machiavelli; **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.

**113. 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 the 20th century.

**114A-114B. American Political Thought. (4-4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. **114A.** Exposition and critical analysis of American political thinkers from the Puritan period to 1865. **114B.** Requisite: course 114A. Exposition and critical analysis of American political thinkers from 1865 to the present.

**116. 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.

**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 the revolutionary process: demonstrations, mass uprisings, coup d'etat, assassination, and terrorism. May be applied toward either Field II or IV.

**119A-119Z. Special Studies in Political Theory. (4 each)** Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one course in Field I. Requisite: 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, and 169 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward the major.

## Field II: International Relations

**120. Foreign Relations of the 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.

**121. 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 a specific term.

**122A. World Order. (4)** (Formerly numbered 122.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Study of problems of the international system seen as a 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.

**124. International Political Economy. (4)** 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.

**125. Arms Control and International Security. (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Arms control in context of international security in the nuclear age. Nuclear arms race; relationship between deterrence doctrines and nuclear war; roles of technology and ideology; nuclear proliferation; outer space.

**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. Comparative Foreign Economic Policy. (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of foreign trade, monetary, and investment policies of the U.S., Japan, France, and Federal Republic of Germany since 1945.

**130. Politics of Latin American Economic Development. (4)** 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.

**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-132B. International Relations of the Middle East. (4-4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. **132A.** Requisite: course 20. Contemporary regional issues and conflicts, with particular attention to inter-Arab politics, Arab-Israeli problem, and Persian Gulf area. **132B.** Role of the great powers in the 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 120. 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.

**139A-139Z. Special Studies in International Relations. (4 each)** 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, and 169 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward the major.

**M139A. Political and Economic Issues in Proliferation of Nuclear Weapons. (4)** (Same as Economics M188A.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Interdisciplinary approach to problem of nuclear proliferation. Economic aspects of acquisition of nuclear weapons and economic aspects of nuclear energy treating technological, bargaining, and stability issues. 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-M141D. Electoral Politics. (4 each)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors:

**M141A.** Political Psychology. (Same as Psychology M138.) Requisite: course 40. Examination of political behavior, political socialization, personality and politics, racial conflict, and psychological analysis of public opinion on these issues.

**141B.** Public Opinion and Voting Behavior. Requisite: course 40. Study of character and formation of political attitudes and public opinion. Role of public opinion in elections, relationship of political attitudes to the vote decision, and influence of public opinion on public policy formulation.

**141C.** Political Behavior Analysis. Requisites: courses 6, 40, 141B. 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.

**M141D.** Mass Media and Elections. (Same as Communication Studies M161.) Requisite: course 40. 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.

**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.

**142D. Understanding Public Issue Life Cycle. (4)** 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. Subnational Government. (4-4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. **143A.** American State Government. 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. 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.

**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) (Formerly numbered M144A.) 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 M144A is not requisite to M144B. Designed for juniors/seniors. Emphasis on dynamics of minority group politics in the U.S., touching on conditions facing racial and ethnic groups, with black Americans being the primary case for analysis. Three primary objectives: (1) to provide descriptive information about social, political, and economic conditions of the black community, (2) to analyze important political issues facing black Americans, (3) to sharpen students' analytical skills.

**145A-145D. Public Law and Judicial Process. (4 each)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors:

**145A.** Anglo-American Legal System. 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 the U.S. and remain relevant today.

**145B.** Constitutional Law — Separation of Powers. Constitutional questions concerning separation of powers, federalism, and relationship between government and property.

**145C.** Constitutional Law — Civil Liberties. Protection of civil and political rights and liberties under the constitution.

**145D.** Judicial Oversight of the Bureaucracy. 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.

**146A-146F. Organization Theory, Public Policy, and Administration. (4 each)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors:

**146A.** Public Administration and Policy. Requisite: course 40. 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. Preparation: familiarity with American government. Requisite: course 40. 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. Requisite: course 40. 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).

**146D.** Theories of Organization and Decision Making. Requisite: course 40. 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. Requisite: course 40. 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.

**146F.** Politics, Ethics, and Business. Requisite: course 40. 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.

**149. Special Topics in American Government and Politics. (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: 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, and 169 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward the major.

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). Requisite: 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. **154A.** States of Middle America; **154B.** States of South America.

**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.

**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). Requisite: 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 requisite: 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). Requisite: 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). Requisite: 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.

**168. Comparative Political Analysis.** (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: two courses in Field IV, or course 50 and one course in Field IV. Designed for juniors/seniors. Required of all students concentrating in Field IV. Major approaches to study of comparative politics. Concepts and methodology of comparative analysis.

**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, and 169 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward the major.

## Special Studies

**194. Selected Topics in Political Science.** (2 to 4) Seminar, three hours. Designed for juniors/seniors. Seminar on selected current topics of interest in political science. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit; may be applied toward major but not to concentration or distribution requirement. P/NP or letter grading.

**195A-195B-195C. Honors Seminars and Thesis.** (4-4-4) Preparation: one course in C197 series, 3.5 grade-point average in upper division political science courses, eligibility for Letters and Science honors. Course 195A is requisite to 195B, which is requisite to 195C. Designed for juniors/seniors. One-year honors seminar and thesis-writing sequence. Students entering course 195A are expected to have some experience in writing research papers and to have in mind a research topic suitable for treatment at length and in depth:

**195A.** Students define their research topic, select a suitable research method, determine appropriate sources of information, prepare research proposal, find a 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. Students also meet privately with instructor to discuss research progress.

**195B-195C.** Writing of honors thesis under direction of a faculty member. Thesis is read by appropriate field committee and graded highest honors, honors, or no honors. In Progress grading.

**C197A-C197D. 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 a specific term. May be applied toward distribution or concentration requirement. May be concurrently scheduled with various graduate courses. **C197A.** Political Theory; **C197B.** International Relations; **C197C.** Politics; **C197D.** Comparative Government.

**M197G. Introduction to Development Studies: Political Economy of Development.** (4) (Same as International Development Studies M100B and Sociology M180.) Seminar, three hours. Designed for juniors/seniors. Analysis of determinants of underdevelopment, with focus on impact of colonialism, foreign investment, and trade, and on political economy.

**M197W. CAPPW Washington Research Seminar.** (8) (Formerly numbered 197W.) (Same as Sociology M197W.) Seminar, three hours; laboratory, 24 hours. Limited to CAPPW Program students. Seminar for undergraduates 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.

**199. Readings in Political Science.** (2 to 4) Tutorial, to be arranged. Preparation: 3.0 overall grade-point average. Limited to juniors/seniors. Individual studies. May not be applied toward concentration or distribution requirement. May be repeated for a maximum of 16 units. P/NP or letter grading.

**199. Independent Studies for Internships.** (2 to 4) Tutorial, to be arranged. Preparation: 3.0 overall grade-point average. Limited to juniors/seniors. Independent studies course to be supervised jointly by Center for Experiential Education and Service Learning and faculty adviser. Further supervision to be provided by organization for which student is doing internship. No more than 8 units may be applied toward the major; units applied must be taken for a letter grade. Maximum of 4 units may be applied toward concentration or distribution requirement only when adjunct to an upper division political science course or seminar. May be repeated for a maximum of 16 units. 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.

**200AL. Statistical Methods Laboratory I.** (4) Laboratory, three hours. Corequisite: course 200A.

**200B. Statistical Methods II.** (4) Lecture, three hours. Recommended preparation: knowledge of elementary calculus. Requisites: courses 200A, 200AL. Applications of multiple regression in political science.

**200C. Statistical Methods III.** (4) Lecture, three hours. Preparation: knowledge of elementary calculus. Requisites: courses 200A, 200AL, 200B. Statistical modeling of political processes. Topics include simultaneous equations models, discrete choice models, time-series models.

**200D. Quantitative Methods in Politics.** (4) Seminar, three hours. Preparation: knowledge of calculus and matrix algebra. Recommended requisite: 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 understanding structure of the models rather than on gaining added experience using them to analyze data. Applied data analysis. Letter grading.

**M200E. Advanced Regression Analysis.** (4) (Same as Psychology M256.) Seminar, three hours. Diagnostics, robust regression, cross validation, resampling, outliers, missing data, geometry of regression, validity of assumptions, categorical dependent variables, transformation of variables. Access to Macintosh computer very helpful.

**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 non-market 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.

**M208A. Game Theory. (4)** (Same as Economics M214B and Mathematics M261.) Lecture, three hours. Designed for graduate economics, mathematics, and political science students. Bargaining theory, the core, the value, other solution concepts. Applications to oligopoly, general exchange and production economies, and allocation of joint costs. S/U or letter grading.

**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.) 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.

**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. S/U or letter grading.

**209. Special Topics in Formal Theory and Quantitative Methods. (4)** Seminar, three hours.

## 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.

**M211. Morality of Capitalism. (4)** (Same as Management M293B.) Lecture, three hours. Examination of major philosophical writings that defend or criticize capitalism on basis of principles of right conduct and just social arrangements (i.e., on moral grounds).

**212. Seminar: Political Theory. (4)** Seminar, three hours.

**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.

**C217. Selected Texts in Political Theory. (4)** Discussion, 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 the system for present-day political analysis. May be concurrently scheduled with course C197A.

**C218. Selected Topics in Political Theory. (4)** Discussion, three hours. Critical examination of a major problem in political theory. May be concurrently scheduled with course C197A.

**219. Workshop: Political Theory. (4)** Discussion, three hours.

## International Relations

**220. International Relations Theory. (4)** Discussion, three hours. Approaches to and central problems of international relations theory.

**C221. Advanced International Relations Theory. (4)** Discussion, three hours. Introduction to contemporary problems in international relations theory. May be concurrently scheduled with course C197B.

**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.

**C223. Politics and Strategies of Modern War. (4)** Seminar, three hours. Analysis of various national security problems in both their military/technical and political dimensions. May be concurrently scheduled with course C197B.

**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.

**C226. The 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. May be concurrently scheduled with course C197B.

**C227. Foreign Policy Process. (4)** Discussion, three hours. Requisites: courses 120, 220. Political science and policy science approaches to national foreign policy process, with primary focus on formulation and implementation of American foreign policy. May be concurrently scheduled with course C197B.

**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 grading.

**C239. Selected Topics in International Relations. (4)** Discussion, three hours. May be concurrently scheduled with course C197B.

## Comparative Politics

**240A-240B. Seminars: Comparative Politics. (4-4)** Seminar, three hours. Course 240A is not requisite to 240B. Letter grading. **240A.** (Formerly numbered 240.) Survey of ideas and approaches that have been historically important in field of comparative politics, with a selection of theories and methodologies that have comprised the 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.

**C241. African Politics. (4)** Seminar, three hours; discussion, one hour (when scheduled). May be concurrently scheduled with course C197D.

**C242. Chinese and East Asian Politics. (4)** Seminar, three hours; discussion, one hour (when scheduled). May be concurrently scheduled with course C197D.

**C243. Japanese and Western Pacific Politics. (4)** Seminar, three hours; discussion, one hour (when scheduled). May be concurrently scheduled with course C197D.

**C244. Latin American Politics. (4)** Seminar, three hours; discussion, one hour (when scheduled). May be concurrently scheduled with course C197D.

**C245. Middle Eastern Politics. (4)** Seminar, three hours; discussion, one hour (when scheduled). May be concurrently scheduled with course C197D.

**C246A. Western European Politics. (4)** Seminar, three hours; discussion, one hour (when scheduled). May be concurrently scheduled with course C197D.

**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.

**C247. Politics of the Soviet Union and Post-Soviet Region. (4)** Seminar, three hours; discussion, one hour (when scheduled). May be concurrently scheduled with course C197D.

**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.

**C247B. Domestic Context of Russian Foreign Policy. (4)** Seminar, three hours; discussion, one hour (when scheduled). Examination of domestic social, political, bureaucratic, and organizational sources of Russian foreign and strategic policy. May be concurrently scheduled with course C197B.

**C248. South Asian Politics. (4)** Seminar, three hours; discussion, one hour (when scheduled). May be concurrently scheduled with course C197D.

**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. 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.** 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 Change. (4)** Seminar, three hours. Interdisciplinary seminar directed toward comparative analysis of political development and modernization.

**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.

**257. Labor and Working-Class Politics. (4)** Discussion, three hours. Questions and topics on comparative labor and working-class politics.

**259. Selected Topics in Comparative Politics. (4)** Discussion, three hours. Critical examination of a major problem in comparative politics.

## American Politics

**260A. Survey Course in American Politics: Political Parties and the Electoral Process. (4)** Discussion, three hours.

**260B. Survey Course in American Politics: American Political Institutions. (4)** Discussion, three hours.

**M261A. Proseminar: Political Psychology. (4)** (Same as History M236A and Psychology M228A.) Discussion, three hours. Introduction to political psychology; psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

**C261B. Mass Attitudes and Political Behavior. (4)** Discussion, three hours. Requisite: course 141B or 260A. Analysis of development and change of political attitudes in mass publics and their relationship to voting, protest, and violence. May be concurrently scheduled with course C197C.

**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. Requisite: course M261A or Psychology 220A. Examination of political behavior, political socialization, racial conflict, mass political movements, and public opinion.

**M261E. Critical Problems in Political Psychology. (4)** (Same as Psychology M228C.) Discussion, three hours.

**C262. Political Parties. (4)** Discussion, three hours. Critical examination of literature on party systems and organization. Special attention to political functions, electoral campaigns, and party cadres. May be concurrently scheduled with course C197C.

**C264. Politics and Society. (4)** Discussion, three hours. Application of selected classical and contemporary sociological theories to politics. May be concurrently scheduled with course C197C.

**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 the market system, banking and finance, corporate enterprise, and organized labor.

**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.

**268. Seminar: Political and Electoral Problems. (4)** Seminar, three hours. Preparation: two graduate courses in politics.

**269. Seminar: Political Behavior. (4)** Seminar, three hours.

**C270. Legislative Behavior. (4)** Discussion, 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. May be concurrently scheduled with course C197C.

**C271. Executive Politics and the Presidency. (4)** Discussion, three hours. Analysis of executive organization and leadership, with emphasis on the American Presidency. Special attention to theories of organization and personality and relationship between the executive and other institutions and groups. May be concurrently scheduled with course C197C.

**272. Political Environment of the Federal Executive. (4)** Discussion, three hours. Examination of political environment of the federal executive in the U.S. Special attention to executive/legislative relations.

**273. American Political Development. (4)** Discussion, three hours. National political institutions in historical perspective, theories of state building, state societal relations, political culture.

**275. Seminar: American Political Institutions. (4)** Seminar, three hours.

**C279. Seminar: Public Law. (4)** Seminar, three hours. May be concurrently scheduled with course C197C.

**C281. Public Policy Studies. (4)** Discussion, 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 the policy process. Substantive focus primarily on American public policy and analysis. May be concurrently scheduled with course C197C.

**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 the executive.

## Special Studies

**290. Modern Political Economy. (4)** Discussion, three hours. Discussion of implications for understanding politics of the thinking of politicians, bureaucrats, producers, consumers, and nations as utility maximizers. Topics include microfoundations for macromodels, forms of political participation, the state, government regulation, growth of government, bureaucracy elections, public policy, inflation.

**M291A-M291B. Social Theory and Comparative History. (4-4)** (Same as History M203A-M203B and Sociology M296A-M296B.) Colloquium, three and one-half hours every other week. Introduction to historically rooted social theory and theoretically sensitive history, following the program of the Center for Social Theory and Comparative History. Each course may be taken independently for credit.

**292A-292B. Introduction to Political Inquiry. (4-4)** Seminar, three hours; discussion, one hour (when scheduled). **292A.** Problems of Scientific Inquiry and Normative Discourse; **292B.** Research Design. Requisite: course 292A. Major conceptual frameworks and approaches to political science.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

**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

School of Medicine

UCLA  
C8-202 NPI&H  
Box 951759  
Los Angeles, CA 90095-1759

(310) 825-0770

<http://www.mentalhealth.ucla.edu/psychiatry/>

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Fawzy I. Fawzy, M.D., *Executive Vice Chair*  
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Robert B. Edgerton, Ph.D., *Associate Chair, Academic Affairs*

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M. Douglas Anglin, Ph.D., *in Residence*  
Joan R. Asarnow, Ph.D., *in Residence*  
Robert F. Asarnow, Ph.D., *in Residence (Della Martin Professor of Psychiatry)*  
Sally Blower, Ph.D., *in Residence*  
Carole H. Browner, Ph.D., *in Residence*  
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Frank A. DeLeon-Jones, M.D., *in Residence*  
Jean S. de Vellis, Ph.D., *in Residence*  
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 M. Belinda Tucker, Ph.D., *in Residence*  
 Alexander J. Tymchuk, Ph.D., *in Residence*  
 Jaime R. Villablanca, M.D., *in Residence*  
 Dora B. Weiner, Ph.D., *in Residence*  
 Thomas S. Weisner, Ph.D., *in Residence*  
 John Weisz, Ph.D.  
 David K. Wellisch, Ph.D., *in Residence*  
 Kenneth B. Wells, M.D., *in Residence*  
 Peter C. Whybrow, M.D. (Judson Braun Professor in Biological Psychiatry)  
 Charles D. Woody, M.D., *in Residence*  
 Gail E. Wyatt, Ph.D., *in Residence*  
 Lonnie K. Zeltzer, M.D.

#### Associate Professors

Thomas R. Belin, Ph.D.  
 Susan Y. Bookheimer, Ph.D., *in Residence*  
 Kyle B. Boone, Ph.D., *in Residence*  
 James R. Boulter, Ph.D., *in Residence*  
 Joel T. Braslow, M.D., Ph.D., *in Residence*  
 Mark S. Cohen, Ph.D., *in Residence*  
 Itzhak Fried, M.D., Ph.D., *in Residence*  
 Charles H. Hinkin, Ph.D., *in Residence*  
 Sherrel G. Howard, Ph.D.  
 Nigel T. Maidment, Ph.D., *in Residence*  
 Stanley F. Nelson, M.D., *in Residence*  
 Thomas F. Newton, M.D., *in Residence*  
 John C. Piacentini, Ph.D., *in Residence*  
 Uma Rao, M.D., *in Residence*  
 Esther Sinclair, Ph.D., *in Residence*  
 Susan L. Smalley, Ph.D., *in Residence*  
 Tony L. Strickland, Ph.D., *in Residence*  
 David L. Sultzer, M.D., *in Residence*  
 M. Albert Thomas, Ph.D., *in Residence*  
 Jürgen Unützer, M.D., *in Residence*  
 James A. Waschek, Ph.D., *in Residence*  
 Joseph B. Watson, Ph.D., *in Residence*  
 Ma-Li Wong, M.D., *Acting*  
 Roger P. Woods, M.D., *in Residence*  
 Cindy M. Yee-Bradbury, Ph.D.  
 Bonnie T. Zima, M.D., *in Residence*

#### Assistant Professors

Mark G. Barad, M.D., Ph.D., *in Residence*  
 Mark Bodner, Ph.D., *in Residence*  
 Ellen M. Carpenter, Ph.D., *in Residence*  
 Susana Cohen-Cory, Ph.D., *in Residence*  
 Christopher S. Colwell, Ph.D., *in Residence*  
 Ian A. Cook, M.D., *in Residence*  
 Mirella Dapretto, Ph.D., *in Residence*  
 Pablo Davanzo, M.D., *in Residence*  
 Mark A. Frye, M.D., *in Residence*  
 Victoria C. Hendrick, M.D., *in Residence*  
 Marco Iacoboni, M.D., Ph.D., *in Residence*  
 Alex J. Kopelowicz, M.D., *in Residence*  
 David E. Krantz, M.D., Ph.D., *in Residence*  
 Helen Lavretsky, M.D., *in Residence*  
 Jennifer G. Levitt, M.D., *in Residence*  
 Faustino Lopez, M.D., Ph.D., *in Residence*  
 Kelsey C. Martin, M.D., Ph.D., *in Residence*  
 Christina G.S. Palmer, Ph.D., *in Residence*  
 Sanjaya Saxena, M.D., *in Residence*  
 Benjamin V. Siegel, M.D., *in Residence*  
 Donna Ames Wirshing, M.D., *in Residence*

Cui-Wei Xie, M.D., Ph.D., *in Residence*  
 Alexander S. Young, M.D., *in Residence*

#### Professors of Clinical Psychiatry

Michael Gitlin, M.D., *Clinical*  
 Barry H. Guze, M.D., *in Residence*  
 Charles S. Grob, M.D.  
 Andrew T. Russell, M.D.  
 Neena Sachinvala, M.D., *Clinical*  
 James E. Spar, M.D.  
 William C. Wirshing, M.D.

#### Associate Professor of Clinical Psychiatry

Vivien K. Burt, M.D., Ph.D.  
 James J. McGough, 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. Additional information is available from the department office.

## Developmental Disabilities Immersion Program

The Developmental Disabilities Immersion Program (DDIP), cosponsored by the Department of Psychology, the Department of Psychiatry and Biobehavioral Sciences, and the Office of Instructional Development — Center for Experiential Education and Service Learning (CEESL), provides a community learning environment for undergraduate students who devote two quarters to the intensive study of developmental disabilities. Each year a group of 30 students is selected for the program which runs during Winter and Spring Quarters. Students participate in courses, fieldwork, and research at selected University and community facilities serving persons with developmental disabilities.

Required courses include Psychology/Psychiatry M180A, M180B, M181A, M181B. Courses are designed to foster discussions integrating students' field and research experiences. Lectures and discussions explore biological, psychological, and social questions concerning causes and treatment of developmental disabilities. Also covered is an analysis of programs for the care and training of individuals with development disabilities. The fieldwork component gives students the opportunity to apply theories and concepts learned in their coursework to actual settings involving individuals with developmental disabilities. Students also undertake a two-quarter research project under the guidance of a UCLA faculty member.

Students interested in the program should contact the DDIP coordinator at the Center for Ex-

periential Education and Service Learning, 160 Powell Library, (310) 825-7867, for information regarding admission and an application.

## Clinical Psychology Internship

The department offers a 12-month Clinical Psychology Internship, which is a Graduate Division certificate program. Students enrolled in clinical psychology programs at APA-approved universities are eligible to apply. Applications are accepted through December 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 the Associate Registrar, C8-852 NPI&H, (310) 825-0548, e-mail: slipschultz@mednet.ucla.edu.

Information on clinical practicums which are offered in conjunction with other educational institutions and UCLA departments may be obtained from the department office.

## Psychiatry and Biobehavioral Sciences

### Lower Division Course

**88. Lower Division Seminar: Special Topics in Psychiatry and Biobehavioral Sciences. (4)** Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in psychiatry and biobehavioral sciences approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

### Upper Division Courses

**M112. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4)** (Same as Anthropology M136Q.) 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 of the uses of observations and their implications for research in social sciences.

**M180A. Contemporary Problems in Mental Retardation. (4)** (Same as Psychology M180A.) Lecture, three hours. Requisites: Psychology 10, 100A, and 127 or 130 or 133A through 133L. Corequisite: course M181A. Limited to Immersion Program students. Presentation of concepts, issues, and research techniques in the area of mental retardation. Biological, psychological, and community questions concerning causes and treatment of developmental disabilities, as well as systems for care and training of retarded individuals. Lectures, directed reading, and discussion. P/NP or letter grading.

**M180B. Contemporary Issues in Mental Retardation. (4)** (Same as Psychology M180B.) Lecture, three hours. Requisite: course M180A. Corequisite: course M181B. Limited to Immersion Program students. Psycho-educational issues in mental retardation relating literature to ongoing field experiences through lectures, discussions, media, and six student papers. P/NP or letter grading.

**M181A-M181B. Research in Contemporary Problems in Mental Retardation. (4-4)** (Same as Psychology M181A-M181B.) Corequisites: courses M180A, M180B. Research experience. In Progress and P/NP or letter grading.

**185. Social Psychology of Urban Student Education. (6)** Lecture, 90 minutes; discussion, 90 minutes; fieldwork, six to eight hours. Designed for juniors/seniors. Students interested in study of urban youth and their education acquire comprehensive and first-hand knowledge of factors affecting these students' achievement. Field study component requires students to intern with youth in schools and after-school programs. P/NP or letter grading.

**M191. Biological Bases of Psychiatric Disorders. (4)** (Same as Molecular, Cell, and Developmental Biology M191, 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.

**192A. Health Outreach Issues and Interventions for At-Risk Populations: Prefield Course. (4)** (Formerly numbered M192A.) Lecture, two hours; discussion, two hours; possible field observations. Preparation: application and interview. First in series of courses to explore prevention of disease in at-risk populations, clinical services for disadvantaged, medical and psychological issues of homelessness, and effects of low socioeconomic status on parenting. Lectures from expert faculty and practitioners in the field, with visits to shelters and facilities where homeless are provided with health care. P/NP or letter grading.

**192B. Field Studies Seminar: Health Outreach Issues and Interventions. (2 or 4)** (Formerly numbered M192B.) Discussion, two hours; fieldwork, three to four hours (2-unit course) or six to eight hours (4-unit course). Requisite: course 192A. Dynamics of multidisciplinary approaches to preventive health education for at-risk populations by student delivery of needed services to homeless families, under supervision of professional staff. P/NP or letter grading.

**199. Special Studies in Psychiatry. (2 to 4)** 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 are available in Office of Education, C8-202 NPI&H.

## Graduate Courses

**M203. Molecular Neurobiology. (4)** (Same as Neuroscience M203.) Lecture, three hours; discussion, one hour. Preparation: basic biochemistry. Requisites: Biological Chemistry 201A, 201B. Introduction to neurochemistry for neuroscience students. Topics include protein structure and function, lipid structure and metabolism, nucleic acids/molecular biology.

**M204. Cellular and Molecular Developmental Neurobiology. (4)** (Same as Neurobiology M204, Neuroscience M204, and Physiology M204.) Lecture, three hours; discussion, one hour. Requisites: Neuroscience M201, M202, and M203, or Biological Chemistry 201A and 201B. Cellular and molecular processes that regulate development of nervous systems of vertebrates and invertebrates. Topics include regional specification in early neurogenesis, generation of neuronal diversity, cell surface interactions and growth factors, neuronal and glial proliferation and migration, axonal outgrowth and guidance, synaptogenesis, trophic interaction, plasticity, regeneration, and aging.

**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)** (Formerly numbered 208A-208B-208C.) 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. Seminar: Psychocultural Studies and Medical Anthropology. (4)** (Same as Anthropology M234.) 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.

**M213. The Individual in Culture. (4)** (Same as Anthropology M235.) Seminar, three hours. Designed for graduate students.

**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.

**M221. Cellular and Molecular Neurochemistry. (4)** (Same as Biological Chemistry M221, Neurobiology M221, Neuroscience M240, and Pharmacology M221.) Lecture, three hours; discussion, one hour. Preparation: biochemistry. Contemporary neurochemistry topics — metabolic specialization and compartments, metabolism and function of ion channels, structure and function of neurotransmitters. Inborn errors and molecular genetics, molecular imaging, aging, and regeneration. Receptor/effector coupling. S/U or letter grading.

**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.

**M231. Hispanic Mental Health Issues and Treatment. (2)** (Formerly numbered 231.) (Same as Social Welfare M203E.) Mental health issues and needs of Hispanics through seminars and videotapes dealing with historical comparison of psychiatry in Mexico and the U.S., analysis of various theoretical perspectives regarding biopsychosocial behavior; distinguishing psychodynamic from cultural factors in treatment of Spanish-speaking patients; treatment of Hispanic families, couples, undocumented persons, and criminal justice system clientele.

**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 M280.) 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.

**M235. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4)** (Same as Anthropology M236Q, Education M222A, and Psychology M295.) Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Discussion of some uses of observations and their implications for research in social sciences. Students expected to integrate observational work into their current research interests.

**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 an African American child and family.

**242. Parent and Child Psychotherapy Seminar. (1)** Preparation: current experience in psychoanalytically oriented child psychotherapy. Seminar meets throughout year. During Summer Quarter emphasis on initial clinical and research evaluation as well as early treatment of the child and family. During Fall, Winter, and Spring Quarters instructors use videotaped sessions and notes from their own clinical work to discuss such topics as diagnostic criteria, family system treatment formulations stressing work with parents and children, and such theoretical and technical issues as transference, resistance, overdetermined nature of symptoms, and termination. Student presentations encouraged in order to amplify clinical and theoretical issues and to become familiar with ongoing cases which are part of a systematic outcome study.

**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, health care 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).

**M249. Neurobiology of Sleep. (3)** (Same as Neuroscience M259 and Psychology M296.) Lecture, one hour; discussion, two hours. Critical review of primary research publications concerning neural basis of sleep. Discussion of neural and biochemical control of REM and NREM sleep after reviewing sleep behavior and phenomenology, including developmental and comparative aspects. Presentation of relevant clinical phenomena. S/U or letter grading.

**M251. Mental Health Services. (4)** (Same as Health Services M249J.) Lecture, three hours. Requisites: Health Services 200A, 200B, 200C. Designed for doctoral students. Survey of contemporary American delivery of health services to emotionally and mentally ill and retarded. Analysis of characteristics of such services, with historical background of their evolution and projections of their future prospects. 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.

**M254. Supporting Families of Children with Special Needs. (2)** (Formerly numbered 254.) (Same as Social Welfare M203D.) Techniques and issues in counseling families through evaluation, feedback, and treatment. Social and psychological stresses on family unit, professional's reactions, community resources, and issues of genetic counseling, placement, and developmental crises. S/U grading.

**M255. Functional Organization of Behavior. (2)** (Same as Neuroscience M255.) 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.

**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.

**257A-257B-257C. Communication Disorders Associated with Developmental Disabilities and Psychiatric Disorders. (3-3-3)** Laboratory, 90 minutes; didactic, 90 minutes. Didactic and practical training in communication and its dysfunction as these relate to language disabilities seen in interdisciplinary medical setting. Provides background for graduate and postdoctoral students who plan to engage in clinical work and/or clinical research in which language disturbances of childhood and adulthood are relevant.

**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.

**262A-262B-262C. Clinical Fieldwork in Developmental Disabilities and Chronic Illness. (1 to 4 each)** Requisites or corequisites: courses 243A, 243B, 243C. Placement and supervision of clinical and consultation activities of interdisciplinary trainees in various community agencies, hospitals, or other related settings serving developmentally disabled or chronically medically ill children, youth, or adults. Supervision done jointly by community personnel on site, in collaboration with interdisciplinary faculty. S/U 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. (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.

**275A-275B. Sociobiology Seminars. (2-2)** Review of sociological theory as it applies to adult bonding behavior: kin-selection theory, reciprocal altruism theory, mate selection theory, and bond strategy theory. Bonds viewed primarily from biological rather than psychological perspective. In Progress and S/U or letter 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.

**M280. Politics of Reproduction. (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.

**281. Behavioral Therapy in an Educational Setting. (4)** Lecture, one hour; laboratory, six to 10 hours. Supervised experience in classroom working with exceptional children. Theoretical background furnished through one-hour weekly lecture.

**M282. Anthropology of Human Body. (4)** (Same as Anthropology M234T.) Seminar, three hours. Exploration of how sociocultural and political dynamics shape perceptions of and understandings about the human body, and how, reciprocally, those perceptions and understandings influence social processes. Includes materials from both non-Western and Western societies.

**M283. Anthropology of Genetic Knowledge. (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 the self and society. Letter grading.

**M285. Functional Neuroimaging: Techniques and Applications. (4)** (Same as Biomedical Physics M285.) In-depth examination of activation imaging, including PET and MRI 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 a 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. Requisite: 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. Requisites: 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 a 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. Seminar: Behavioral Biology — Rage. (4)** (Formerly numbered 291A-291B.) Seminar, three hours. Graduate and professional seminar focusing on proximate causation, development, and evolution of human behavior and vertebrate social organization. Emphasis on deviant and rage behavior. S/U or letter grading.

**295A-295B-295C. Advanced Seminars: Substantive Issues in Substance Abuse I, II, III. (2-2-2)** S/U grading:

**295A.** Neurobiology and psychopharmacology of drug abuse, as well as epidemiology and prevention. Discussion of pros and cons of various treatment modalities for drug dependence.

**295B.** Drug use patterns and treatment issues in specific populations such as women, adolescents, the homeless, the multiply diagnosed, as well as different ethnic populations. Exploration of relationship between drug abuse, sexuality, and HIV/AIDS.

**295C.** 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.

**298. Current Topics in Biobehavioral Sciences. (1 to 4)** Current issues in biobehavioral sciences offered on selective basis depending on instructor interest and topical relevancy of problems. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit.

**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, C8-202 NPI&H. 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.

**M424. Functional Magnetic Resonance Imaging Journal Club. (1)** (Same as Biomedical Physics M424.) Discussion, 90 minutes. Directed reading and discussion of current topics and developments in functional magnetic resonance imaging. S/U grading.

**425. Teaching Case Conference. (1)** Review of diagnosis and treatment of full spectrum of disorders, with expert off-unit consultants.

**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.

**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.

**471. Grand Rounds. (No credit)** Designed for second-year residents in Child Service and child psychiatry fellows. Each month one second-year child psychiatry fellow presents a major clinical problem. Senior faculty discussants preside. Presenting trainees expected to cover pertinent literature and to assemble critical elements of information on case or problem at hand. Most sessions eligible for Continuing Medical Education credit.

**478. Clinical Genetics Rounds. (No credit)** Designed for medical graduates. Weekly clinical rounds on patients seen in the wards during preceding week. House staff and others involved in clinical work may attend. Usually in-depth discussion of medical and genetic aspects of one or more disorders presented.

**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.

**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, C8-202 NPI&H. Directed individual research and study in psychiatry at graduate level.

## PSYCHOLOGY

*College of Letters and Science*

UCLA  
1285 Franz Hall  
Box 951563  
Los Angeles, CA 90095-1563  
(310) 825-2961  
<http://www.psych.ucla.edu/>

Peter M. Bentler, Ph.D., *Chair*  
Jackson Beatty, Ph.D., *Vice Chair,*  
*Undergraduate Programs*  
J. Arthur Woodward, Ph.D., *Vice Chair,*  
*Graduate Programs*  
Bernard Weiner, Ph.D., *Academic Personnel*  
*Affairs Vice Chair*

### Professors

Paul R. Abramson, Ph.D.  
Howard S. Adelman, Ph.D.  
Robert F. Asarnow, Ph.D., *in Residence*  
Terry K. Au, Ph.D.  
Bruce L. Baker, Ph.D.  
Jackson Beatty, Ph.D.  
Peter M. Bentler, Ph.D.  
Elizabeth L. Bjork, Ph.D.  
Robert A. Bjork, Ph.D.  
Thomas N. Bradbury, Ph.D.  
Larry L. Butcher, Ph.D.  
Tyrone D. Cannon, Ph.D.  
Patricia Cheng, Ph.D.  
Andrew Christensen, Ph.D.  
Barry E. Collins, Ph.D.  
Michelle G. Craske, Ph.D.  
Christine A. Dunkel-Schetter, Ph.D.  
Michael S. Fenselow, Ph.D.  
R. Edward Geiselman, Ph.D.  
Patricia M. Greenfield, Ph.D.  
Carlos V. Grijalva, Ph.D.  
Constance L. Hammen, Ph.D.  
Barbara A. Henker, Ph.D.  
Keith Holyoak, Ph.D.  
Philip Kellman, Ph.D.  
Margaret Kemeny, Ph.D.  
Franklin B. Krasne, Ph.D.  
Steven R. Lopez, Ph.D.  
Donald G. MacKay, Ph.D.  
Neil M. Malamuth, Ph.D.  
Vickie M. Mays, Ph.D.  
Hector F. Myers, Ph.D.  
Keith H. Nuechterlein, Ph.D. *in Residence*  
L. Anne Peplau, Ph.D.  
Tara Scanlan, Ph.D.  
David O. Sears, Ph.D.  
James H. Sidanius, Ph.D.  
Marion Sigman, Ph.D., *in Residence*  
Alcino J. Silva, Ph.D.  
James W. Stigler, Ph.D.

Shelley E. Taylor, Ph.D.  
Bernard Weiner, Ph.D.  
John R. Weisz, Ph.D.  
Thomas D. Wickens, Ph.D.  
J. Arthur Woodward, Ph.D.  
Eran Zaidel, Ph.D.

### Professors Emeriti

Richard P. Barthol, Ph.D.  
William E. Broen, Jr., Ph.D.  
James C. Coleman, Ph.D.  
Andrew L. Comrey, Ph.D.  
Gaylord D. Ellison, Ph.D.  
Seymour Feshbach, Ph.D.  
Morton P. Friedman, Ph.D.  
John Garcia, Ph.D.  
Joseph A. Gengerelli, Ph.D.  
Harold B. Gerard, Ph.D.  
Gerald M. Goodman, Ph.D.  
Milton E. Hahn, Ph.D.  
Nancy M. Henley, Ph.D.  
Eric W. Holman, Ph.D.  
John P. Houston, Ph.D.  
Marion Jacobs, Ph.D.  
Wendell E. Jeffrey, Ph.D.  
Harry J. Jerison, Ph.D.  
F. Nowell Jones, Ph.D.  
Harold H. Kelley, Ph.D.  
George F.J. Lehner, Ph.D.  
Donald B. Lindsley, Ph.D., Sc.D.  
O. Ivar Lovaas, Ph.D., Litt.D.  
John H. Lyman, Ph.D.  
Irving Maltzman, Ph.D.  
Albert Mehrabian, Ph.D.  
George Mount, Ph.D.  
Charles Y. Nakamura, Ph.D.  
Donald Novin, Ph.D.  
Allen Parducci, Ph.D.  
Bertram H. Raven, Ph.D.  
Eliot H. Rodnick, Ph.D.  
Richard Schmidt, Ph.D.  
David Shapiro, Ph.D.  
Edwin S. Shneidman, Ph.D.  
Gerald H. Shure, Ph.D.  
James P. Thomas, Ph.D.

### Associate Professors

John Hummel, Ph.D.  
Thomas Minor, Ph.D.  
Steven P. Reise, Ph.D.  
Rena L. Repetti, Ph.D.  
Stanley J. Schein, Ph.D., M.D.  
Cindy Yee-Bradbury, Ph.D.

### Assistant Professors

Bernard W. Balleine, Ph.D.  
Dean V. Buonomano, Ph.D.  
Stephen A. Engel, Ph.D.  
Shelly L. Gable, Ph.D.  
Curtis D. Hardin, Ph.D.  
Martie G. Haselton, Ph.D.  
Yuen J. Huo, Ph.D.  
Barbara Knowlton, Ph.D.  
Matthew D. Lieberman, Ph.D.  
Traci L. Mann, Ph.D.  
Dario L. Ringach, Ph.D.

### Adjunct Professors

Dennis J. McGinty, Ph.D.  
James G. Miller, Ph.D.  
Jill M. Waterman, Ph.D.  
Dahlia Zaidel, Ph.D.

### Adjunct Associate Professors

Jacqueline D. Goodchilds, Ph.D.  
Jaana H. Juvonen, Ph.D.  
William J. McCarthy, Ph.D.  
Nancy J. Woolf, Ph.D.

### Adjunct Assistant Professors

Iris Firstenberg, Ph.D.  
Lisa Travis, 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 of its kind in the country.

The structure of the undergraduate curriculum has been designed to reflect the extensive breadth of psychology — in terms of 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 psychobiology, 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 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 can give them 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 areas such as behavioral neuroscience, clinical, cognitive, developmental, learning and behavior, measurement, and social psychology. The 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.

### Preparation for the Major

Students need to file a petition in the Undergraduate Advising Office to declare the Prepsychology major. They are then identified as Prepsychology majors until they (1) satisfy the preparation for the major requirements and (2) file a petition to declare the Psychology major. The following required courses must be taken for a letter grade (a C– or better in each course and a 2.3 overall grade-point average in the preparation courses) before students reach 110 total units (transfer students must complete all remaining preparation courses by the end of the first year of enrollment): Anthropology 7 or 10 or 12; Life Sciences 1 or 15 or Physiological Science 3; Chemistry and Biochemistry 2 or 14A or 20A (if students have completed one year of high school chemistry with a C or better, this requirement is waived); one course from Computer Science 2, Mathematics 2, Program in Computing 10A, Statistics 10, or one term of calculus; Physics 10 or 1A or 6A; one course from Philosophy 1, 4, 6, 7, 8, 9, 21, 22; 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 Prepsychology major 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.

Repetition of more than two preparation courses in which a grade of D or F was received or of any preparation course more than once results in automatic denial of admission to the major.

#### Transfer Students

To be admitted as Psychology majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one human evolution course,

one biology course, one general chemistry course (or one year of high school chemistry with a C or better), one general physics course, one philosophy course, one introduction to psychology course, one psychological statistics course, one psychology research methods course, and one course from statistics (recommended), finite mathematics, calculus, computer science theory, or computer programming in C++.

### 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) Five core courses selected from Psychology 110, 115 (or M117A, M117B, and M117C), 120A, 120B, 127, 130 (or one course from 133A through 133I), 135; (2) one laboratory/fieldwork course from 111, 113, 116, 121, 126, 131, 136A, 136B, 136C, 171A, 174, 186A, 186B, 186C; (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 upper division courses 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.

### Preparation for the Major

Students need to file a petition in the Undergraduate Advising Office to declare the Precognitive Science major. They are then identified as Precognitive Science majors 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.

The following required courses must be taken for a letter grade (a C or better in each course and a 2.5 overall grade-point average in the preparation courses) before students reach 130 total units: Life Sciences 1 or 15 or Physiological Science 3; Chemistry and Biochemistry 2 or 14A or 20A (if students have completed one year of high school chemistry with a C or better, this requirement is waived); Mathematics 31A, 31B; Philosophy 7 or 8 or 9; Physics 10 or 1A or 6A; Program in Computing 10A, 10B, and one course from 15 or 20 or 40; 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 Precognitive Science major 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.

Repetition of more than two preparation courses in which a grade of D or F was received or of any preparation course more than once results in automatic denial of admission to the major.

#### Transfer Students

To be admitted as Cognitive Science majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one biology course, one general chemistry course (or one year of high school chemistry with a C or better), 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.

### 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 124G; (2) one course from 186A or 186B or 186C and one course from 121, 186A, 186B, 186C, or Computer Science 161; (3) three upper division elective courses (12 units) from Psychology 110, 112A through M119N, 123, 124A through 124G (if taken for the major, may not be applied as an elective), 130, 133B, 135, 142H, 150, 151, 187A, 189, 190B or 190C (if content is approved by the Undergraduate Advising Office and courses have not been applied toward the Psychology 188A or 188B requirement), 197 (content must be approved by the Undergraduate Advising Office before elective credit may be granted), Communication Studies 156, Computer Science 111 through M196B, Ethno-

musicology 172A, Linguistics 103 through C185B, Mathematics 110A through 171, Philosophy 124 through 136, Statistics 100A, 100B, 100C, M120A, M120B; (4) two terms of Psychology 188A or 188B (may be fulfilled by taking any two courses from 188A, 188B, or 190C, 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.

Students must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements. With the exception of Psychology 188A and 188B, 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.

### Preparation for the Major

Students need to file a petition in the Undergraduate Advising Office to declare the Prepsychobiology major. They are then identified as Prepsychobiology majors until they (1) satisfy the preparation for the major requirements and (2) file a petition to declare the Psychobiology 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 Prepsychobiology major 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.

All core curriculum courses must be taken for a letter grade (a C– or better in each course and a 2.0 overall grade-point average in the core curriculum) before students reach 150 total units. Psychology 100A and 100B must be completed before students reach 130 total units. 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

To be admitted as Psychobiology majors, transfer students 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.

### 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) Organismic Biology, Ecology, and Evolution 129 or Psychology 118 or Anthropology 128A and 128B, and Psychology 110, 115 (or M117A, M117B, and M117C), 116, 120A or 120B; (2) one course from Psychology 127, 130, 133A through 133I, 135; (3) 16 units of graded elective courses from the following list: Organismic Biology, Ecology, and Evolution 112, 113A, 114 (no more than one from this group), Psychology M117A, M117B, M117C, M117J, M117K, 119A through M119O, 190C (only if content is approved by the Undergraduate Advising Office), 197 (content must be approved by the Undergraduate Advising Office before elective credit may be granted), Chemistry and Biochemistry 153A, 153L, Molecular and Medical Pharmacology 110A, 110B, Molecular, Cell, and Developmental Biology 104, 138, C139, CM156, 171, M185A, Neuroscience 151, M174, Organismic Biology, Ecology, and Evolution 102, C104, 105, 106, 110, 111, C115, 117, C119, 120, 121, 122, 124 (only 4 units may be applied toward the major), 131 (only 4 units may be applied toward the major), C135, 146, M158, 164, M166, 167, 179, Physiological Science 142, C144, 147, M173.

Students who complete Psychology M117A, M117B, M117C receive equivalent credit for course 115 and 10 units of upper division psychobiology electives.

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.

## 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 undergraduates closer to understanding research and its applications in the everyday world. At least one of the following courses is recommended for students planning postgraduate study: Psychology 188A, 188B, 192, 193, 194A, 194B, 199, or the Student Research Program (SRP) through the College of Letters and Science. Information about these courses and programs is available from the Undergraduate Advising Office, 1531 Franz Hall.

## 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 190A, 190B, 190C) 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.

## 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, stu-

dents 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.

## Developmental Disabilities Immersion Program and Concentration

The Developmental Disabilities Immersion Program (DDIP), cosponsored by the Department of Psychology, the Department of Psychiatry and Biobehavioral Sciences, and the Office of Instructional Development — Center for Experiential Education and Service Learning (CEESL), provides a community learning environment for undergraduate students who devote two quarters to the intensive study of developmental disabilities. Each year a group of 30 students is selected for the program which runs during Winter and Spring Quarters. Students participate in courses, fieldwork, and research at selected University and community facilities serving persons with developmental disabilities.

Required courses include Psychology/Psychiatry M180A, M180B, M181A, M181B. Courses are designed to foster discussions integrating students' field and research experiences. Lectures and discussions explore biological, psychological, and social questions concerning causes and treatment of developmental disabilities. Also covered is an analysis of programs for the care and training of individuals with developmental disabilities. The fieldwork component gives students the opportunity to apply theories and concepts learned in their coursework to actual settings involving individuals with developmental disabilities. Students also undertake a two-quarter research project under the guidance of a UCLA faculty member.

To earn a concentration, majors in Psychology, Cognitive Science, and Psychobiology must be accepted into the Developmental Disabilities Immersion Program. Information and applications are available from the Center for Experiential Education and Service Learning, 160 Powell Library. Applications are due the Spring Quarter prior to the academic year in which students wish to participate in DDIP.

The following courses are required for the concentration: Psychology 127 (may also be applied as one of the three upper division electives required for the Psychology major), 130 or one course from 133A through 133I (also satisfies a core requirement for the Psychology major), M180A, M180B, M181A, M181B, 193 (two terms). With the exception of course 193, each course must be taken for a letter grade. If a psychology major earns the DDIP concentration, upper division elective credit for Psychology M180A, M180B, M181A, M181B does not apply toward the major. Students in the department who complete the requirements receive a

departmental certificate of completion at graduation; they must notify the department during the term they plan to graduate to receive the certificate. The concentration does not appear on the diploma or transcript.

Interested students should contact the DDIP coordinator at the Center for Experiential Education and Service Learning, 160 Powell Library, (310) 825-7867, for information regarding admission and an application.

## 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, 20, 30, 40, or 60, and (3) completing at least three courses from Psychology 85, 121, 142H, 150, 186A, 186B, 186C (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 undergraduates 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, 1611 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 133X and 133Y (to be taken concurrently with the two-term internship described below) and four additional courses, of which at least three must be upper division, from Education 125A, Linguistics C130, C135, Psychology 129F, 130, 131, 132, 133A through 133I, M176, 197 (content must be approved by the Undergraduate Advising Office), 199 (content must be approved by the Undergraduate

Advising Office), Sociology 136, M174. One of the four additional courses must include either Psychology 130, one course in the 133 series, or 197 (content must be approved by the Undergraduate Advising Office).

*Internship Requirement:* Students work as interns for two academic terms at an approved daycare center/school and enroll concurrently in Psychology 133X and 133Y. The internship provides hands-on experience working with young children as teacher's aids and opportunities for observing children. By completing an additional one-term internship (see the director of the Infant Development Program, 1611 Franz Hall, for details), students may meet many of the "Teacher Qualifications and Duties" outlined in Section 101316.2 under Title 22, Division 12, California Department of Social Services.

No more than two courses may be applied toward both the students' majors and this minor. All minor courses, except for the internship courses, must be taken for a letter grade, with 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, Psychology 115, 116, M117C (or Molecular, Cell, and Developmental Biology M175C or Neuroscience M101C or Physiological Science M180C), M117K, 119B, 119F, M119L, M119N; (2) *computation and modeling cluster*— three courses from Biomathematics 108, Computer Science 161, 163, Psychology 150, 151, 186A, 186B, 186C (at least one course must be from Computer Science 161, Psychology 186A, 186B, 186C); (3) *human cognition cluster*— Psychology 121 and two courses from 112C, 120A or 120B, 124A through 124F, 133B, 133BH, 133C, 133E; (4) *mind and language cluster*— three courses from Linguistics 120A, 120B, 125, C130, C132, C135, C185A, Philosophy 124, 125, 126, 127A, 127B, 129, 170, 172, Psychology 122, 123, 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 the students' majors and this minor. All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Infant Development Program

The Infant Development Program 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, and their parents. In addition, the program provides an opportunity for students in developmental psychology and other areas to acquire firsthand experience working with infants and toddlers through a two- or three-term sequence of Psychology 133X, 133Y, and 193. The program is located in Franz Hall and provides child care for about 15 infants ranging in age from three months to three years.

## Clinic for the Behavioral Treatment of Children

The Clinic for the Behavioral Treatment of Children carries out diagnosis, treatment, and research on children with severe psychological problems, such as children with autism and those with severe developmental disorders. The treatment philosophy is largely behavioral/educational, with emphasis on language acquisition, peer and school integration, and parent training. Students are taught behavioral treatment procedures and work in an apprenticeship relation to senior staff. Prior research has focused on variables controlling self-destructive behavior, perceptual deficits, language acquisition, and emotional/social attachments. The clinic serves as a teaching and research environment for both graduate and undergraduate students.

## UCLA Psychology Clinic

The UCLA Psychology Clinic in the Department of Psychology is a major training center for clinical psychology students in the Ph.D. program. 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 are encouraged to relate their case material to academic learning and current research. Students and faculty members are also involved in a variety of research projects through the clinic.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Psychology offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Psychology.

### Admission

The department does not admit candidates for the M.A. degree only, although students may be awarded the M.A. en route to the Ph.D. A departmental brochure describing the graduate program in psychology in detail is available from the department.

Admission to the Ph.D. program normally requires an undergraduate degree in psychology. However, students from other areas (particularly the mathematical, physical, biological, and social sciences) may be admitted. Admission is for Fall Quarter only and on a full-time basis only.

Applicants should mail the following documents directly to the department (by December 15 for clinical area applicants and December 30 for applicants to other areas) to be considered for admission the following Fall Quarter: (1) *UCLA Application for Graduate Admission*, available in 3453 Franz Hall, (2) three letters of recommendation, (3) two official transcripts from each college attended, (4) scores from the Graduate Record Examination (GRE) General Test and the Subject Test in Psychology (taken within the last five years), (5) scores from the Test of English as a Foreign Language (TOEFL) or International English Language Testing system (IELTS) examina-

tion, required of all international applicants whose native language is not English.

Interviews (in person or by phone) are required for clinical area finalists.

Students entering the graduate program must demonstrate adequate breadth of preparation in psychology and related disciplines. Students are expected to have taken courses equivalent to the following: (1) Psychology 100A, (2) two courses from Psychology 110, 115, and either 120A or 120B, and (3) two courses from Psychology 127, 130, 135. In addition, it is recommended that students have the following college-level coursework: one course in biology or zoology, one course in mathematics (such as calculus), and two courses in the physical sciences (physics and/or chemistry). A course in anthropology, philosophy, or sociology may be substituted for one of the physical sciences courses. The recommended courses may be waived by the student's adviser.

Students who have completed any of the undergraduate majors offered by the UCLA Department of Psychology have satisfied the undergraduate preparation requirements. Students who have not had training in the areas cited above may either take the missing courses or have their area evaluate their preparation and, in consultation with the area, plan a program of study that provides the appropriate breadth.

The individual program may include undergraduate coursework, graduate coursework, readings followed by an examination, or some combination of these. Emphasis is on breadth and preparation, both within and outside the department. The plan of study should include a firm date of completion and requires approval of the graduate affairs committee. Continuation in the Ph.D. program is contingent on satisfactorily clearing undergraduate deficiencies by the end of the fourth quarter in residence.

## Master's Degree

The M.A. degree is awarded through the comprehensive examination plan. Requirements are nine graduate courses, including required courses in statistics and in research methods (research project must be completed) and at least three of the four required Ph.D. core courses.

## Doctoral Degree

Ph.D. students are required to obtain a thorough background in research methodology and psychological theory. Major specialized training is available in the following areas of psychology: behavioral neuroscience, clinical, cognitive, cognitive neuroscience, developmental, learning and behavior, measurement and psychometrics, or social psychology. Students admitted in either the behavioral neuroscience or cognitive area may take the program in cognitive neuroscience. The course requirements serve as a combined major and minor. Students who select this option remain

in their area of admission for administrative purposes.

Students are required to complete core and major and minor area course requirements for the Ph.D. Details are included in *Program Requirements for UCLA Graduate Degrees*. In addition to major area course requirements, students in clinical psychology must complete supervised preinternship practicum and supervised internship requirements. All students are required to complete a teaching practicum.

Written and oral qualifying examinations are required. The first is an examination administered by the major area that examines in breadth the student's knowledge of the major field. The second is an individualized examination in the area of specialization and is required by the behavioral neuroscience, clinical, measurement, and social areas.

Following successful completion of these examinations, students take the University Oral Qualifying Examination.

## 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. P/NP or letter grading.

**15. Introductory Psychobiology. (4)** Lecture, three hours. Designed for nonmajors. Survey of genetic, evolutionary, physiological, pharmacological, and experiential factors affecting behavior. Using comparative approach where appropriate, emphasis on relevance of biological mechanisms to understanding of humans and their interaction with their environment.

**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 requisite: 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)** Lecture, three hours. Enforced requisite: course 10. Study of selected topics in psychology at introductory level; lecture format designed for freshmen/sophomores. P/NP or letter grading.

### Upper Division Courses

**100A. Psychological Statistics. (4)** (Formerly numbered 41.) Lecture, three hours; laboratory, two hours. Requisites: course 10, and one course from Computer Science 2, Mathematics 2, Program in Computing 10A, Statistics 10, or one term of calculus. Designed for pre-majors. Basic statistical procedures and their application to research and practice in various areas of psychology. P/NP or letter grading.

**100B. Research Methods in Psychology. (6)** (Formerly numbered 42.) Lecture, two hours; laboratory, four hours. Enforced requisites: courses 10, 100A with grades of C- or better for prepsychology and prepsychobiology, C or better for precognitive science. Introduction to research methods and critical analysis in psychology. Lecture and laboratory topics include experimental and non-experimental research methods, statistical design and analysis as applied to a broad range of basic and applied research issues. P/NP or 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 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. Principles of Skill Acquisition. (4)** Lecture, three hours. Requisite: course 110 or 120A or 120B (recommended). Designed for Psychology majors. Investigation into principles of human skill learning, with focus on general principles of skill learning derived from laboratory settings. These principles have relevance to various industrial or occupational settings, musical performances, vehicle control, sport, and other activities in which complex perceptual-motor skills must be acquired with practice. Major topics include laboratory measurement procedures, effective structure of practice settings, feedback and knowledge of results, learning of automaticity, individual differences, and evaluation of various theories of skill learning. P/NP or letter grading.

**113. Behavior and Alcohol Laboratory. (4)** Discussion, two hours; laboratory, four hours. Requisites: courses 10, 100A, 100B. Students conduct an experiment studying effects of alcohol on learning and complex processes using paid volunteers. Examination of set and setting and role of individual differences in relation to current theories of alcohol use and abuse. P/NP or letter grading.

**113H. Behavior and Alcohol Laboratory (Honors). (4)** Discussion, two hours; laboratory, four hours. Requisites: courses 10, 100A, 100B. Honors course parallel to course 113. P/NP or letter grading.

**114. Alcoholism. (4)** Designed for juniors/seniors. Theories and research on impact, causes, characteristics, and treatment of alcoholism considered from a biobehavioral point of view.

**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 100A, 100B, 115 (may be taken concurrently). 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 or former course 10D or 30 (14C may be taken concurrently), Life Sciences 2, Physics 1B or 6C. 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 M191, Neuroscience M130, Physiological Science M181, and Psychiatry M191.) 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.

**M117K. Introduction to Functional Anatomy of Central Nervous System. (4)** (Same as Neuroscience M102.) Lecture, two hours; laboratory, two hours. Requisite: Life Sciences 2. 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.

**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 the brain.

**119AH. Neuropsychopharmacology (Honors). (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 119A.

**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.

**119D. Behavioral Pharmacology. (4)** Requisite: course 115. Designed for juniors/seniors. Experimental and theoretical treatment of drug-behavior relationships. Particular emphasis on behavior and pharmacological mechanisms of drug action and interaction with neuronal function.

**119DH. Behavioral Pharmacology (Honors). (4)** Lecture, three hours; discussion, one hour. Experimental and theoretical treatment of drug-behavior relationships; pharmacological approaches to mood, aggression, learning, motivation; experimental studies of addiction.

**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. Neuron Circuitry and Behavior. (4)** Requisites: course 115, Molecular, Cell, and Developmental Biology 171. 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.

**119G. Psychobiology of Pain and Pain Inhibition. (4)** Lecture, three hours. Requisite: course 115. Designed for seniors. Lectures and discussions on neural mechanisms of pain and problem of chronic pain disease.

**119I. Psychophysiology of Motivation. (4)** Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Basic psychophysiology, including brain and endocrine mechanisms, involved in control of motivation. Discussion of homeostatic drives such as hunger and thirst and nonhomeostatic drives such as reproduction behavior.

**119J. Ethology: Behavior and Learning. (4)** (Formerly numbered M119J.) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Basic course for undergraduate students which integrates systematic overview of common forms of behavioral plasticity and standard training procedures in laboratory animals (in behavioral, neurophysiological, and pharmacological studies) with broad biological, evolutionary perspective. P/NP or letter grading.

**M119L. Human Neuropsychology. (4)** (Same as Neuroscience M119L.) Lecture, three hours. 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. The Visual System. (4)** (Same as Neuroscience M119N.) Lecture, three hours. Requisite: course 115 or Molecular, Cell, and Developmental Biology 171 or Neuroscience M101A or Physiological Science 111A. The ability to image and analyze the visual world is a truly remarkable feat. Coverage of anatomy and physiology of visual processing from the retina to visual cortex through lectures, extensive reading, and discussions.

**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.

**120A. Cognitive Psychology. (4)** (Formerly numbered 120.) 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 (may be taken concurrently). 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.

**122. Language and Communication. (4)** Lecture, three hours. Requisite: course 10. Introduction to psychology of language and communication; verbal and nonverbal channels; interlinguistic and intralinguistic variation; animal communication; biological bases of language; production and comprehension of speech and writing; relation to perception, memory, and thought; conversational interaction; language development.

**123. Psycholinguistics. (4)** Designed for juniors/seniors. Current theory and research in psycholinguistics: survey of language acquisition, language perception, and language production; language physiology and pathology; problems of representation, sequencing, and timing in language and other cognitive skills; errors in speech production and perception.

**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.

**124AH. Sensation and Perception (Honors). (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 124A.

**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.

**124FH. Thinking (Honors). (4)** Lecture, three hours. Honors course parallel to course 124F. 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.

**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 disorders, childhood disorders, psychophysiological methods, observational methods with couples and families. Letter grading.

**127. Abnormal Psychology. (4)** Lecture, three hours. Requisite: course 10. Study of dynamics and prevention of abnormal behavior, including neuroses, psychoses, character disorders, psychosomatic reactions, and other abnormal personality patterns.

**127H. Abnormal Psychology (Honors). (4)** Lecture, three hours. Overview of characteristics of major forms of psychopathology, theories and research on causes of disorder, types of treatment, social and legal issues in mental illness.

**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.

**132. Learning Disabilities in Perspective. (4)** Lecture, three hours. Designed for juniors/seniors. 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 vs. goal focus in learning.

**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.

**133BH. Seminar: Cognitive Development (Honors). (4)** Seminar, three hours. Honors course parallel to course 133B.

**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. 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.

**133X. Applied Developmental Psychology. (4)** Lecture, 90 minutes; discussion, 90 minutes. Requisite: course 10. Designed for Applied Developmental Psychology minors. Issues on improving well-being of children and their families, relating research literature to ongoing fieldwork experiences through lectures and discussion, conducting and writing up assessment and observation of children, and designing daycare curricula. P/NP or letter grading.

**133Y. Advanced Applied Developmental Psychology. (4)** Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 133X. Designed for Applied Developmental Psychology minors. Advanced issues on improving well-being of children and their families, relating research literature to ongoing fieldwork experiences through lectures and discussion, conducting and writing up assessment and observation of children, and designing daycare curricula. 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 100A, 100B, 135 (may be taken concurrently). 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 100A, 100B. 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 100A, 100B. 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.

**137AH. Sport Psychology (Honors). (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 137A.

**137B. Attitude Formation and Change. (4)** Lecture, three hours. Requisites: courses 10, 100A, 135. Structure and functions of attitudes, their measurement, how they develop, and methods for changing them. P/NP or letter grading.

**137C. Close Relationships. (4)** Lecture, three hours. Requisites: courses 10, 100A, 135. Examination of research and theory about friendship, dating, and marriage, with emphasis on how these relationships are affected by gender and changing sex roles. P/NP or letter grading.

**137D. Introduction to Health Psychology. (4)** Requisite: course 10. 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 the medical area.

**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.

**M137J. Psychology of Language and Gender. (4)** (Same as Communication Studies M124 and Women's Studies M137J.) Lecture, three hours. Requisite: course 10. Designed for juniors/seniors. 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. P/NP or letter grading.

**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)** (Formerly numbered 142.) 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.

**144. Psychological Tests and Evaluation. (4)** Lecture, three hours. Requisite: course 100A. Further study of principles of measurement, stressing basic concepts. Application to problems of test construction, administration, and interpretation. P/NP or letter grading.

**150. Mathematical Models in Psychology. (4)** Lecture, two hours; discussion, two hours. Requisites: Mathematics 3C or 31B, Computer Science 10C or 10F. Review of theoretical models and experimental evidence for these models in various areas of psychology. Topics include mathematical computer models of learning, perception, cognition, and personality.

**151. Computer Applications in Psychology. (4)** Lecture, two hours; discussion, two hours. Requisite: Computer Science 10C or 10F. Topics include hardware and software computer problems in design, control, and analysis of experiments; programming problems arising in evaluation of models of psychological processes of various content areas such as learning, perception, social, personality, and clinical.

**M163. Death, Suicide, and Trauma. (4)** (Same as Sociology M138.) Lecture, three hours. Designed for juniors/seniors. Definition and taxonomy of death; new permissiveness and taboos related to death; romanticization of death; role of the individual in his own demise; modes of death; development of ideas of death through life span; ways in which ideas of death influence conduct of lives; impact of dying on social structure surrounding the individual; preventive, interventive, and postventive practices in relation to death and suicide; developmental perspective on witnessing traumatic death, including posttraumatic and grief reactions; partial death; megadeath; lethality; psychological autopsy; death of institutions and cultures. P/NP or letter grading (letter grading required if course to be applied toward Psychology or Sociology major).

**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.

**168. Environmental Psychology. (4)** Lecture, three hours. Requisites: courses 10, 100A. Research-oriented course which surveys theoretical and methodological issues which comprise the area of environmental psychology. Discussion of basic dimensions of emotional response to physical and social environments, measurement of information of rate of situations, and personality variables that are relevant to environmental theory. Residential, therapeutic, work, and recreational environments within a unified framework. P/NP or letter grading.

**170A. Behavior Modification. (4)** Lecture, three hours. Designed for juniors/seniors. Applied behavior theory; study of application of principles derived from learning theory, as in classical and instrumental (operant) conditioning, to treatment of developmentally disabled, autistic, and schizophrenic children, adult schizophrenics, affective disorders, anxiety states, drug abuse, marital discord, etc. Lectures, discussions, and demonstrations.

**170B. Fieldwork in Behavior Modification. (4)** Discussion, two hours; fieldwork, six hours. Requisite: course 110 with a grade of A or 170A. Fieldwork in applied behavior theory, especially to problems of retarded and autistic children.

**170C. Advanced Fieldwork in Behavior Modification for Nonpsychology Majors. (4)** Lecture, two hours; fieldwork, six hours. Requisite: course 170B. Not open to students with credit for course 171A. Does not fulfill laboratory requirement for majors. Advanced fieldwork in applied behavior theory, especially related to problems of retarded and autistic children. Review of current research in the field. May not be applied as an elective toward any Psychology Department major.

**171A. Advanced Fieldwork in Behavior Modification for Psychology Majors. (4)** Discussion, two hours; fieldwork, six hours; to be arranged, 20 hours. Requisite: course 170B. Designed for Psychology majors. Advanced fieldwork in applied behavior theory, especially related to problems of retarded and autistic children. Students design and carry out individualized experimental study to evaluate behavioral interventions with developmentally disabled clients.

**171B. Practicum: Design and Implementation of Behavioral Interventions. (4)** Discussion, two hours; fieldwork, six hours; to be arranged, 20 hours. Requisite: course 171A. Design and implementation of behavioral interventions with developmentally disabled children. Topics include goal selection, ethical considerations, behavioral contracting, client right and human use procedures, home and community management, parent and staff training, working with schools, clinical issues.

**M172. The Afro-American Woman in the 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 a 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.

**174. Interpersonal Process Analysis. (4)** Lecture, two hours; laboratory, three hours. Requisites: courses 100A, 100B, 127. Designed for Psychology majors. Introduction to conceptual tools for analyzing interpersonal structures and functions in goal-oriented human interaction such as psychotherapy, persuasion, courtship, etc. Small group exercises integrated with lecture and discussion (additional laboratory work to be arranged). 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.

**175H. Community Psychology (Honors). (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 175.

**M176. Communication and Conflict in Couples and Families. (4)** (Same as Communication Studies M116.) Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 100A, 127. 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.

**177. Counseling Relationships. (4)** Lecture, three 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.

**178H. Human Motivation (Honors). (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 178.

**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 137D or 179A or Health Services 100. Designed for juniors/seniors. Basics of epidemiology of the disease, 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.

**M180A. Contemporary Problems in Mental Retardation. (4)** (Same as Psychiatry M180A.) Lecture, three hours. Requisites: courses 10, 100A, and 127 or 130 or 133A through 133I. Corequisite: course M181A. Limited to Immersion Program students. Presentation of concepts, issues, and research techniques in the area of mental retardation. Biological, psychological, and community questions concerning causes and treatment of developmental disabilities, as well as systems for care and training of retarded individuals. Lectures, directed reading, and discussion. P/NP or letter grading.

**M180B. Contemporary Issues in Mental Retardation. (4)** (Same as Psychiatry M180B.) Lecture, three hours. Requisite: course M180A. Corequisite: course M181B. Limited to Immersion Program students. Psycho-educational issues in mental retardation relating literature to ongoing field experiences through lectures, discussions, media, and six student papers. P/NP or letter grading.

**M181A-M181B. Research in Contemporary Problems in Mental Retardation. (4-4)** (Same as Psychiatry M181A-M181B.) Corequisites: courses M180A, M180B. Research experience. In Progress and P/NP or letter grading.

**186A. Cognitive Science Laboratory: Introduction to Theory and Simulation. (4)** Lecture, two and one-half hours; discussion, 30 minutes; laboratory, three hours. Requisites: course 85, Program in Computing 15. Designed for junior/senior departmental majors. Models in several psychological domains (e.g., visual perception, categorization, reasoning, and problem solving). Types of models include semantic networks, search, production systems, connectionist networks, and mathematical models. Lectures and discussions interwoven with computer simulations written in common LISP.

**186B. Cognitive Science Laboratory: Neural Networks. (4)** Lecture, two and one-half hours; discussion, 30 minutes; laboratory, three hours. Recommended preparation: knowledge of calculus. Requisites: course 85, Program in Computing 10A, 10B (or PASCAL). Designed for junior/senior departmental majors. Lectures and laboratory work 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.

**186C. Cognitive Science Laboratory: Psychophysical Theories and Methods. (4)** Lecture, two hours; laboratory, two hours. Requisites: courses 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.

**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.

**187AH. Psychology and Law (Honors). (4)** Lecture, two hours; discussion, two hours. Honors course parallel to course 187A.

**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.

**188A. Research in Cognitive Science. (4)** Seminar, two hours; laboratory, six hours. Designed for Cognitive Science majors. Practical applications of cognitive science through research. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. May be repeated once for credit. P/NP grading.

**188B. Fieldwork in Cognitive Science. (4)** Seminar, two hours; fieldwork, six hours. Designed for Cognitive Science majors. Practical applications of cognitive science through fieldwork. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. May be repeated once for credit. P/NP grading.

**189. Ergonomics and Human Factors. (4)** Lecture, three hours. Requisites: courses 10, and 120A or 120B. Designed for juniors/seniors. Examination of human capabilities and limitations in design of human/machine systems such as vehicles, workspaces, and computer software for goals of safety and efficiency. Topics include sources of error, information processing, manual control, training, and personnel selection. P/NP or letter grading.

**189H. Ergonomics and Human Factors (Honors). (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 189. P/NP or letter grading.

**190A-190B-190C. Honors Course. (4-4-4)** Seminar, two hours. Limited to psychology honors program students. Opportunity for development and analysis of creative ideas through individual research projects with a 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, course 190C may be applied toward elective course requirement for any Psychology Department major.

**192. Practicum in Teaching Psychology. (4)** Laboratory, to be arranged. Limited to junior/senior Psychology, Cognitive Science, and Psychobiology majors. Training and supervised practicum for advanced undergraduates in teaching courses related to psychology. Students assist in preparation of materials and development of innovative programs under guidance of faculty and teaching assistants. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. Only 12 units from courses 192, 193, and 194 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. P/NP grading.

**193. Fieldwork in Psychology. (4)** Seminar, two hours; fieldwork (approved community setting), six hours. Limited to sophomore/junior/senior Prepsychology, Precognitive Science, Prepsychobiology, Psychology, Cognitive Science, and Psychobiology majors. Fieldwork in applications of psychology. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. Only 12 units from courses 192, 193, and 194 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. P/NP grading.

**194A. Research in Psychology. (4)** Seminar, one hour; internship (approved research setting), seven hours. Limited to sophomore/junior/senior Prepsychology, Precognitive Science, Prepsychobiology, Psychology, Cognitive Science, and Psychobiology majors. Practical applications of psychology through research. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. Only 12 units from courses 192, 193, and 194 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. P/NP grading.

**194B-194C. Ongoing Research in Psychology. (4-4)** Seminar, one hour; internship (approved research setting), seven hours. Limited to sophomore/junior/senior Prepsychology, Precognitive Science, Prepsychobiology, Psychology, Cognitive Science, and Psychobiology majors. Minimum of two terms required. Practical applications of psychology through research. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. Only 12 units from courses 192, 193, and 194 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. In Progress and P/NP grading.

**197. Current Issues in Psychology. (4)** Lecture, three hours. Designed for junior/senior majors. Study of selected current topics of psychological interest. Consult *Schedule of Classes* for topics and instructors. Only one graded 197 course may be applied as an elective toward Psychology major. If content is approved in advance by Undergraduate Advising Office, Psychobiology and Cognitive Science majors can petition to use course to satisfy an elective requirement. May be repeated for credit with consent of department.

**199. Directed Individual Research and Studies. (4)** Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to junior/senior Psychology, Psychobiology, and Cognitive Science majors (juniors must have at least 3.0 grade-point average in major). Consult Undergraduate Advising Office, 1531 Franz Hall, for further information and approval forms. Only one 4-unit 199 course may be taken per term and only one for a letter grade (additional 199 courses may be taken on a P/NP basis). If approved in advance by Undergraduate Advising Office, 4 units of course 199 may be applied toward elective course requirement for Psychology major and toward Psychology 188 requirement for Cognitive Science major.

## 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 non-human animals. S/U or letter grading.

**200C. Representational Processes. (4)** (Formerly numbered 204F) 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)** (Formerly numbered 204E.) Lecture, three hours. Designed for graduate students. Analysis, using a 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. Behavioral Neuroendocrinology. (2)** Lecture, three hours. Designed for graduate students. Mechanisms of hormone action on the brain that influence behavior, including permanent actions in development and transient actions in adulthood. Using a comparative approach, topics include sexual differentiation, long-term effects of stress, seasonal and other changes in adulthood, and aging.

**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.

**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.

**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.

**205E. Psychobiology of Emotion and Stress. (2)** Lecture, three hours. Designed for graduate students. Overview of literature on role of the 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.

**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.

**205G. Pain. (2)** Lecture, three hours. Designed for graduate students. Consideration of pain from both basic science and clinical perspectives. Discussion of nociceptors, spinal cord, brain mechanisms, pain inhibition, and role of endogenous opioids. Effects of pain and stress on immunity.

**205I. Motor Coordination. (2)** Lecture, three hours. Designed for graduate students. Elementary and complex units of behavior: reflexes, servomechanisms, oscillators, and central pattern generators. Principles of coordination: efference copy, oscillator coupling, potentiation, and depotentiation. Relation between levels of integration and anatomical levels: transections, lesions, focal stimulation, and single unit recording.

**205J. Homeostatic Drive, Hunger, and Thirst. (2)** Lecture, three hours. Designed for graduate students. Homeostasis used as framework within which ingestive behavior is discussed. Analysis of thirst on basis of depletions of body fluid compartments. Consideration of hunger, focusing on two theories — "Glucostatic" and "Energostatic."

**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.

**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.

**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. S/U or 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.

**M205Z. Behavioral and Systems Neuroscience. (4)** (Same as Neuroscience M205 and Physiological Science M205.) Lecture, three hours. Requisites: Neuroscience M201, M202, M203, M204. Introduction to fundamentals of behavioral and systems neuroscience, with emphasis on role of behavioral analysis in understanding the functioning of nervous system and identifying anatomical circuits, cell physiological processes, and molecular mechanisms that mediate behaviorally defined functions.

**207A-207B-207C. Seminars: Physiological Psychology. (4-4-4)** Requisite: course 115.

**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.

**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)** Discussion, 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.

**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/subordinate, health care professional/patient, doctor/nurse, parent/child, wife/husband, teacher/student, political figures, etc.

**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)** Discussion, three hours. Requisites: courses 220A, 220B. May be repeated for credit with consent of instructor.

**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.

**227. Health Psychology. (4)** Lecture, two hours; discussion, one hour. 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 health care and self-care.

**M228A. Proseminar: Political Psychology. (4)** (Same as History M236A and Political Science M261A.) Discussion, 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.

**M228C. Critical Problems in Political Psychology. (4)** (Same as Political Science M261E.) Discussion, three hours.

**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.

**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.) 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.

**240A-240B. Developmental Psychology. (4-4)** Lecture, three hours. Preparation: one undergraduate developmental psychology course. Designed for graduate students. Consideration of variables influencing cognitive social and emotional development of the human organism from conception through adolescence. Emphasis on research methodology and research base for current theories of development.

**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.

**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. S/U or letter grading.

**242B. Cognitive Development. (4)** Seminar, three hours. Requisites: courses 240A, 240B. S/U or letter grading.

**242C. Socialization. (4)** Seminar, three hours. Requisites: courses 240A, 240B. 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 the child; 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. 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 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.) 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.

**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).

**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.

**251A-251B-251C. Research Methods. (4-4-4)** 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 grading (course 251A only).

**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.

**253. Factor Analysis. (4)** Theory and practice of factor analysis in psychological research. Methods of factor extraction and rotation. Applications of computers to computations in factor analysis.

**254A. Psychological Scaling. (4)** Lecture, three hours. Designed for graduate students. Theory of measurement, law of comparative judgment, methods of unidimensional scaling, multidimensional scaling, and related topics of current interest.

**254B. Cluster Analysis. (4)** Lecture, three hours. Designed for graduate students. Quantitative methods for classification. Theories and assumptions underlying major clustering methods. Use of methods in exploratory data analysis.

**255. Quantitative Aspects of Assessment. (4)** Fundamental assumptions and equations of test theory. Current problems in assessment.

**M256. Advanced Regression Analysis. (4)** (Same as Political Science M200E.) Seminar, three hours. Diagnostics, robust regression, cross validation, resampling, outliers, missing data, geometry of regression, validity of assumptions, categorical dependent variables, transformation of variables. Access to Macintosh computer very helpful.

**M257. Multivariate Analysis with Latent Variables. (4)** (Same as Political Science M208D.) 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.

**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 non-statistical mathematical methods and techniques commonly used in cognitive psychology. Topics include Markov chains, other stochastic processes, queuing 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. Considers 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 nonverbal learning and memory processes, structure and organization of short- and long-term memory.
- 263. Psycholinguistics. (4)** Lecture, three hours. Contemporary theory and research in psycholinguistics: coding and decoding, psycholinguistic parameters of language learning, speech recognition and perception.
- 265. Thinking. (4)** Lecture, three hours. Contemporary theory and research in thinking, problem solving, inference, semantic memory, internal representation of knowledge, imagery, concepts.
- 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.
- 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.
- 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)** Seminar, three hours. Requisite or corequisite: course 401 or 451. Each course may be taken independently for credit:
- 272A.** Behavior Modification with Children. 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.
- 272C.** Clinical Interventions for Psychological Problems of Children.
- 272D.** Family Therapy and Family Dynamics.
- 272E.** Special Problems.
- 272F.** Behavior Modification with Adults. 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.
- 272G.** Marital Therapies. 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.
- 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.
- 275. Family Process: Psychological and Social Perspectives on the Family. (4)** Various theoretical perspectives applicable to analysis of family structure and dynamics. Critical issues in application of family constructs to clinical problems.
- 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.
- 277. Advanced Clinical Assessment. (4)** (Formerly numbered 277A-277B.) 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.
- 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.
- 283. Psychopathology. (4)** 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.
- 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.
- 286. Issues and Concepts of Clinical Psychology. (4)** 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.
- 287. Critical Problems in Clinical Research Methodology. (4)** Requisites: courses 250A, 250B. Special problems of measurement and design in clinical research.
- 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 and S/U grading.
- 290. History of Psychology. (4)** Philosophical and historical context of contemporary psychology. Major trends from the 19th century to contemporary issues.
- 291. Principles of Behavioral Pharmacology. (4)** 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.
- 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.
- 293. Behavioral and Psychophysiological Problems of Alcoholism. (4)** Behavioral and psychophysiological characteristics of alcoholism, along with theories concerning their etiology and treatment. Experimental approaches.
- 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 the 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.
- M295. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4)** (Same as Anthropology M236Q, Education M222A, and Psychiatry M235.) Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Discussion of some uses of observations and their implications for research in social sciences. Students expected to integrate observational work into their current research interests.
- M296. Neurobiology of Sleep. (3)** (Same as Neuroscience M259 and Psychiatry M249.) Lecture, one hour; discussion, two hours. Critical review of primary research publications concerning neural basis of sleep. Discussion of neural and biochemical control of REM and NREM sleep after reviewing sleep behavior and phenomenology, including developmental and comparative aspects. Presentation of relevant clinical phenomena. S/U or letter grading.
- 297. Issues in Social Development of the Minority Child. (4)** Seminar, three hours. Designed for graduate students. Critical evaluation and integration of existing research on social psychological development of the minority child. Emphasis on socialization of cognitive and personality style, with goal of empirically clarifying issues raised in this area of developmental study.
- 298. Special Problems in Psychology. (4)** Content depends on interests of particular instructor. May be repeated for credit.
- 299. Developmental Methodology. (4)** 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.
- 375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.
- 401. Fieldwork in Clinical Psychology. (1 to 12)** Requisites: courses 271A, 271B, 271C. Students on practicum assignments are required to register for this course each term (except by consent of clinical program committee).
- 402. Clinical Research Practicum. (2)** 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)** Under faculty supervision, group of students meets each week for a quarter in a self-led study group to pursue a 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)** 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.

**410D-410E-410F. Clinical Assessment Supervision. (4-4-4)** Discussion, 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.

**420A-420B. Health Psychology Practicum. (2-2)** 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 enlarged and extended in the medical area. Through practical field placement, students apply knowledge acquired in class to research observation and/or clinical work in the field.

**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.

**425. Health Psychology Lecture Series. (2)** Clinicians and researchers in health psychology from Los Angeles area present their research, programs, and/or clinical work as part of a training program in health psychology. May be repeated for credit. S/U grading.

**451. Internship in Clinical Psychology. (6 to 12)** 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)** 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 a 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.

## PUBLIC HEALTH SCHOOLWIDE PROGRAMS

*School of Public Health*

UCLA  
16-071 Center for the Health Sciences  
Box 951772  
Los Angeles, CA 90095-1772

(310) 825-5524  
<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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The School of Public Health offers the Master of Public Health (M.P.H.) and Doctor of Public Health (Dr.P.H.) degrees.

Certain degrees within the School of Public Health are not offered by the individual departments but are administered on a schoolwide level: the Master of Public Health; the Doctor of Public Health; three concurrent degree programs: M.B.A./M.P.H. with the John E. Anderson Graduate School of Management and M.A./M.P.H. with Asian American Studies and with Islamic Studies; and three articulated degree programs: M.D./M.P.H. with the School of

Medicine and M.A./M.P.H. with African Studies and with Latin American Studies.

For information on the M.S. and Ph.D. degrees in Biostatistics, Environmental Health Sciences, Epidemiology, or Health Services, or the M.S. and Ph.D. degrees in Public Health within the Department of Community Health Sciences, see the listings for those departments. For information on the interdepartmental D.Env. degree program housed in the Department of Environmental Health Sciences, see the listing for Environmental Science and Engineering. See the listing for Molecular Toxicology for information on the interdepartmental Ph.D. program in Molecular Toxicology.

The M.S. program in Preventive Medicine and Public Health is not admitting new students at this time.

### Admission

#### Master of Public Health

The M.P.H. is a professional degree in the field of public health. Students are expected to focus on public health practice and to acquire a broad knowledge related to professional skills.

For admission to the M.P.H. program, both the supplemental School of Public Health Application for Admission to Graduate Status and the *UCLA Application for Graduate Admission* must be completed. Three letters of recommendation, two from former professors and one from an employer (if no employer, three former professors), test scores, and transcripts are required before an application is considered complete. Application forms and the *Announcement of the UCLA School of Public Health* may be obtained by visiting <http://www.ph.ucla.edu/sao/> or by writing to the Student Services Office, School of Public Health, 16-071 CHS, UCLA, Box 951772, Los Angeles, CA 90095-1772. It is the applicant's responsibility to ensure that the application file is complete.

The preferred date for receipt of applications for the following Fall Quarter is December 15. Applications received after this date have reduced opportunities for admission and financial aid.

Applicants must meet the University minimum requirement of an acceptable bachelor's degree with a B average in upper division coursework and/or prior graduate study. Exceptionally qualified applicants may be considered on an individual basis. Prior field experience is not required as a condition of admission, although a background of public health experience may be considered. In addition, applicants must be accepted by and accommodated in the department of the School of Public Health in which they wish to study. Applicants who need help in deciding on a department should speak either to the department administrators or to the staff in the Student Services Office.

Applicants to the School of Public Health must perform satisfactorily on the verbal and quantitative sections (analytical section is not re-

quired) of a recent Graduate Record Examination (GRE), Medical College Admission Test (MCAT), or Dental Admission Test (DAT). MCAT or DAT scores are accepted only for applicants already holding M.D. or D.D.S. degrees. Graduate Management Admission Test (GMAT) scores are accepted only for applicants to the joint M.B.A./M.P.H. program.

The Biostatistics Department has different criteria for evaluating performance on aptitude tests for its M.S. and Ph.D. degrees. Those applying to the biostatistics program should contact that department. No screening examination is required for admission; however, specified courses are required by the Departments of Biostatistics and Environmental Health Sciences. Applicants whose undergraduate coursework has been deficient in breadth of fundamental training have to take specified undergraduate courses after admission.

At the discretion of the associate dean for Student Affairs, the GRE requirement may be waived for applicants who hold a doctoral degree from a U.S. university and have five years of relevant postdoctoral experience.

The prior program of study for applicants to the M.P.H. degree should include adequate preparation in mathematics, physical sciences, biological sciences, and social sciences and typically includes two courses each in mathematics, biological sciences, social sciences; one course in physical sciences; and other courses that constitute an adequate preparation for the proposed area of specialization.

Applicants whose prior work in the biological, physical, mathematical, and social sciences does not constitute adequate preparation for the proposed area of specialization must include courses in those sciences in their graduate programs; these may not be applied toward the minimum requirements for the degree.

*Interdivisional International Health.* The school offers several options for international or domestic students interested in international health. Faculty in all departments of the school are actively involved in health-related programs in foreign settings, and many departments on campus have international, health-related interests and courses relevant to health occupations and cross-cultural settings.

Applicants must specify the department most relevant to their skills area on their application, clearly indicating their international interests. Once admitted, students are given an appropriate adviser and directed to the international health committee, which is interdepartmental and promotes internationally oriented training and research. Its members consult with interested students and attempt to optimize the learning experience.

Applicants with particular interest in primary health care, including maternal and child health, family planning, applied nutrition, family health program planning, administration and evaluation, and refugee health, are advised to

apply to the Community Health Sciences Department.

#### **Biostatistics**

Students concentrating in biostatistics should have completed at least one year of calculus. Students whose mathematical preparation does not include sufficient calculus must take courses in the Mathematics Department while in the M.P.H. program. Majors in mathematics, statistics, computer science, or a field of application in biostatistics are preferred.

#### **Environmental Health Sciences**

Students concentrating in environmental health sciences should have a bachelor's (or master's) degree in chemistry, physics, biology, engineering, or other appropriate field. Preparation should include at least three quarters of general chemistry (including quantitative analysis) and two quarters of organic chemistry and/or biochemistry, mathematics through calculus, three quarters of biological sciences, and three quarters of physics. Substitutions for the requirements are considered for applicants with an otherwise superior academic background.

#### **Health Services**

Applicants interested in the joint M.P.H./M.B.A. program in the Health Services Department must take the GMAT, not the GRE.

Applicants to the one-year health services organization program must have a prior doctoral degree (M.D., D.D.S., J.D., Ph.D., or equivalent). Applicants with doctoral degrees from other countries should plan to take the two-year program. Satisfactory performance on the GRE is required, and a personal interview is recommended.

#### **Public Health M.P.H./African Studies M.A.**

The School of Public Health and the African Studies Program have an articulated degree program whereby students can work sequentially for the M.A. in African Studies and the M.P.H. By planning the major field emphasis in public health while working toward the M.A. in African Studies, it may be possible to shorten the amount of time it would normally take to complete both degrees.

Students interested in this articulated program should write to the Assistant Graduate Adviser, African Studies Program, UCLA African Studies Center, and/or the Student Services Office, UCLA School of Public Health.

#### **Public Health M.P.H./Asian American Studies M.A.**

The Asian American Studies Program and the Department of Community Health Sciences offer a concurrent degree program whereby students can work for the M.A. in Asian American Studies and the M.P.H. Students must complete the program requirements for both degrees. However, a maximum of 12 units of coursework in public health may be applied toward both degrees. When applying, the same statement of purpose may be submitted to

each program. Applicants interested in this concurrent program should contact the Asian American Studies Program and the Student Services Office, UCLA School of Public Health.

#### **Public Health M.P.H./Islamic Studies M.A.**

The School of Public Health and the Islamic Studies Program have a concurrent degree program whereby students can work for the M.A. in Islamic Studies and the M.P.H. A maximum of 12 units of coursework in public health may be applied toward both degrees. Applicants interested in this concurrent program should write to the Islamic Studies Program and the Student Services Office, UCLA School of Public Health.

#### **Public Health M.P.H./Latin American Studies M.A.**

The School of Public Health and the Latin American Studies Program have arranged an articulated degree program, organized to permit specializations within the M.A. in Latin American Studies and the M.P.H., with the award of both degrees after approximately three years of graduate study. Qualified students apply to the graduate adviser of the Latin American Studies M.A. program and to a relevant area of public health, such as (1) environmental and nutritional sciences, (2) epidemiology, (3) health education, (4) population and family health.

Potential applicants should contact the Graduate Adviser, Latin American Studies, UCLA Latin American Center, and/or the Public Health/Latin American Studies Articulated Degree Program Adviser, UCLA School of Public Health.

#### **Public Health M.P.H./Management M.B.A.**

The Department of Health Services and the John E. Anderson Graduate School of Management have a three-year concurrent degree program designed for students who desire a management career in health care and related fields. The program reflects the combined interest of employers, faculty, and students who recognize the increasing challenges facing managers in the health care industry and the need for highly skilled and sensitive individuals who can creatively take on these challenges. GMAT scores are required for admission. Application materials should be requested separately from both schools.

#### **Public Health M.P.H./Medicine M.D.**

The School of Public Health and the School of Medicine have an articulated degree program designed to enable a student to complete both the M.P.H. and the M.D. programs in five years. The program includes four years of medical school and one year plus one additional quarter in the School of Public Health. Additionally, up to 10 weeks of field training (may be an internship) are required for the M.P.H. The field

training is generally completed in the summer after the year of public health coursework.

UCLA medical students apply for admission to the School of Public Health M.P.H. program in Fall Quarter of their junior (third) year. In addition to the regular School of Public Health application requirements, medical students must submit a letter from the associate dean of the School of Medicine as one of the three required letters of recommendation. MCAT results are accepted in lieu of the GRE. Other materials to be submitted include copies of the student's AMCAS application, letters of recommendation for medical school, the medical school transcript, and evaluations from the first two years. Prior to formal matriculation into the M.P.H. program, applicants must also submit the USMLE Step 1 results and successfully complete the first three years of medical school.

After completion of all requirements for both the M.P.H. and the M.D., students receive both degrees. If students decide to complete only the M.P.H. or the M.D. while in the program, all of the requirements must be completed for the degree-granting program.

### M.P.H. Program for Health Professionals

Health and allied professionals who are unable to pursue a degree program during their regular working hours may earn the M.P.H. degree by completing coursework in intensive summer sessions and in extended weekend sessions during the academic year. Courses are taught by the faculty of the School of Public Health, and currently two departments offer a specialization in their area.

Applicants are expected to fulfill the minimum overall requirements for admission to the M.P.H. program. In addition, they must have at least three years of professional experience or its full-time equivalent in a health care setting.

The first year of study is devoted to the specific core requirements in the area of specialization and to the required M.P.H. core courses in biostatistics, community health sciences, epidemiology, health services, and environmental health sciences. The second year of study entails completing required and elective courses in the specialty area, a master's project, and a report on that project. The master's project, which includes an internship carried out under faculty supervision, addresses a significant public health problem. The master's report, based on that project, focuses on the integration and application of theoretical and methodological approaches within public health to a specific problem.

Two departments currently accept students into this program: Community Health Sciences offers a concentration in health education/promotion and Health Services offers a concentration in health care management. For further information, contact the department of interest, or the Student Services Office, UCLA School of Public Health.

### 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. It is designed to prepare physicians for leadership roles in preventive medicine and public health practice, research, and teaching. Residents participating in the academic phase must enroll in one of the departments within the School of Public Health and fulfill and the requirements for the M.P.H. degree. During the practicum phase, residents obtain practical experience in preventive medicine supervised by onsite preceptors and the residency program director. Application is made both to the department and the residency program simultaneously.

Qualified physicians interested in learning more about the program should contact the School of Public Health Student Services Office, or visit <http://www.ph.ucla.edu/pmr/home/htm>.

### Doctor of Public Health

In addition to the University minimum requirements, for admission to the Dr.P.H. program, the school requires:

1. Satisfactory performance on the Graduate Record Examination (GRE). Applicants to the Department of Community Health Sciences, at the discretion of the department, may substitute equivalent performance on the Medical College Admission Test (MCAT) or the Law School Admission Test (LSAT)
2. Completion of the M.P.H. or a master's degree in an appropriately related field. If the master's degree is in a field other than public health, applicants must have taken the equivalent of the core mandatory M.P.H. courses or include them in the course of study after admission
3. At least a 3.0 junior/senior grade-point average, at least a 3.5 GPA in graduate studies or demonstrated superiority in graduate work, and at least a B in each of the mandatory core courses
4. A positive recommendation by a department in the School of Public Health. Applicants to the Department of Community Health Sciences must have acceptance by an initial doctoral adviser in the department
5. Approval by the doctoral admissions committee and the associate dean for Student Affairs. Screening examinations may be required by each department
6. A writing sample is required by the Department of Community Health Sciences
7. The Department of Community Health Sciences requires at least 600 (paper and pencil test) or 250 (computer-based test) on the Test of English as a Foreign Language (TOEFL) or overall band score of

7.0 on the International English Language Testing System (IELTS) examination for students whose native language is not English

8. The Department of Community Health Sciences also requires a statement of purpose that includes a description of research experience, discussion of current substantive interests, a brief description of potential research project that might serve as a dissertation, and a statement of career goals.

It is recommended that applicants to the Department of Community Health Sciences contact one or more members of the faculty whom they are considering as advisers in order to ensure acceptance by a faculty mentor as the initial adviser. The applicant should have favorable recommendations from teachers and employers concerning past performance and potential as a doctoral student in public health. The statement of purpose must be clear, outlining goals and career objectives as they relate to the focus of the doctoral program.

### Master's Degree

Areas of specialization are offered through the departments: Biostatistics, Community Health Sciences, Environmental Health Sciences, Epidemiology, and Health Services.

The M.P.H. degree is offered through the comprehensive examination plan. To meet schoolwide requirements for the degree students must complete a minimum of 11 full courses (44 units), at least six of which must be graduate courses and at least two of which must be 400-series courses. Each area of specialization requires additional coursework. There are required school core courses. Students should consult *Program Requirements for UCLA Graduate Degrees* and the school's *Announcement* for details. In addition to the core courses, at least three courses (2 or 4 units) outside the student's area of specialization are strongly recommended.

Field training in an approved public health program is required of candidates who have not had prior relevant field experience.

### Doctoral Degree

Areas of specialization are offered through the departments: Biostatistics, Community Health Sciences, Environmental Health Sciences, Epidemiology, and Health Services. There may be additional areas of specialization or examination within each department. This and other information on course plans and other requirements are outlined in *Program Requirements for UCLA Graduate Degrees* and the school's *Announcement*.

Course requirements for the Dr.P.H. in the major field depend on the department/program and the field chosen, and students should consult *Program Requirements for UCLA Graduate Degrees* and the school's *Announcement* for details. Students must take a minimum of six full courses (four must be at the 200 or 400

level) in at least two School of Public Health departments outside the major department.

The major department requires an additional area of concentration which may be either inside or outside the school. In departments allowing it, an equivalent field experience completed while a doctoral student and approved by the guidance committee may be substituted for the additional area of concentration.

A field experience is required for students in epidemiology.

Written and oral qualifying examinations are required. Students specializing in community health sciences must take two written examinations and an oral qualifying examination in the major field.

Following successful completion of the written examinations, students take the University Oral Qualifying Examination.

## PUBLIC POLICY AND SOCIAL RESEARCH SCHOOLWIDE PROGRAMS

*School of Public Policy and Social Research*

UCLA  
3250 Public Policy Building  
Box 951656  
Los Angeles, CA 90095-1656

(310) 206-4613  
[http://www.sppsr.ucla.edu/acad/mpp/psm\\_ap.htm](http://www.sppsr.ucla.edu/acad/mpp/psm_ap.htm)

### Scope and Objectives

The School of Public Policy and Social Research offers an undergraduate minor in Public Policy.

### Undergraduate Study

#### Public Policy Minor

The Public Policy minor provides undergraduates with a systematic overview of public policy questions, deals with these questions in theoretical and conceptual ways, and exposes students to practical issues of public policy through the examination of specific policy issues and real-world policy questions.

To enter the minor, students must have an overall grade-point average of 2.0 or better, enroll in Policy Studies 10A, and file a petition at the School of Public Policy and Social Research Office of Academic Services, 3357 Public Policy Building. For further information, contact Professor Eric H. Monkkonen at (310) 206-4613.

*Required Core Courses (8 units):* Policy Studies 10A and one course from 10B, M116, or

Honors Collegium 82. Highly recommended: one statistics course.

*Required Upper Division Courses (20 units):*

(1) Three courses from one of the following clusters: *gender and multiculturalism cluster*— Policy Studies M120, Social Welfare 101, 104A, 104B, M104C, 104F, M108, Urban Planning M194, 197; *labor and work cluster*— Policy Studies 141, C142, C144, 145, 148; *policy studies cluster*— three upper division policy studies courses (190 may be repeated for credit with topic change); *social welfare cluster*— three upper division social welfare courses; *urban policy and planning cluster*— three upper division urban planning courses (193 may be repeated for credit with topic change); (2) one elective course offered by the School of Public Policy and Social Research not used to satisfy the core or cluster requirement; (3) capstone project to be completed during the senior year which may be satisfied by one of the following: (a) Policy Studies 197, (b) one upper division or graduate course and one 199 course requiring a comprehensive policy paper to be taken concurrently with the same instructor in the School of Public Policy and Social Research, (c) Political Science M197W, or (d) one 199 course taken in conjunction with a policy, planning, or social work internship, and a comprehensive policy paper written under the guidance of a School of Public Policy and Social Research faculty member.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## RADIATION ONCOLOGY

*School of Medicine*

UCLA  
B265 UCLA Medical Plaza 200  
Box 956951  
Los Angeles, CA 90095-6951  
(310) 794-1252  
<http://www.radonc.ucla.edu/rowww/rohme.html>

### Chairs

H. Rodney Withers, M.D., D.Sc., *Chair*  
Guy J.F. Juillard, M.D., *Vice Chair, Clinical Affairs*  
William McBride, D.Sc., *Vice Chair, Division of Experimental Radiation Oncology*  
James B. Smathers, Ph.D., *Vice Chair, Physics*

### Scope and Objectives

The Department of Radiation Oncology includes clinical divisions at the UCLA Medical Plaza and Medical Center, West Los Angeles VA Medical Center, and divisions of experimental radiation biology and medical radiation physics. Research and teaching facilities are available at the UCLA Medical Plaza, UCLA Medical Center, and West Los Angeles VA Medical Center.

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 the *Announcement of the UCLA School of Medicine*.

## RADIOLOGICAL SCIENCES

*School of Medicine*

UCLA  
BL-428 Center for the Health Sciences  
Box 951721  
Los Angeles, CA 90095-1721  
(310) 825-6800  
fax: (310) 794-6613  
<http://www.radsci.ucla.edu/>

### Chairs

Dieter R. Enzmann, M.D. (*Leo G. Rigler Professor of Radiological Sciences*), *Chair*  
Richard H. Gold, M.D., *Executive Vice Chair*  
Barbara M. Kadell-Wootton, M.D., *Vice Chair*  
Osman Ratib, M.D., Ph.D., *Vice Chair*

### 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, nuclear medicine, 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 at the end of the year.

Greater depth of experience is provided by the four weeks of elective clerkship offered to fourth-year medical students which emphasizes training in the subspecialties selected by students from the list above.

For further details on the Department of Radiological Sciences and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

## RELIGION, STUDY OF

*Interdepartmental Program  
College of Letters and Science*

UCLA  
329 Dodd Hall  
Box 951451  
Los Angeles, CA 90095-1451  
(310) 206-1356, 825-4641  
<http://www.humnet.ucla.edu/humnet/religion/IDP.HTM>

S. Scott Bartchy, Ph.D., *Chair*

### Faculty Advisory Committee

S. Scott Bartchy, Ph.D., *Chair*  
Irene A. Bierman, Ph.D.  
William M. Bodiford, Ph.D.  
Robert L. Brown, Ph.D.  
Donald J. Cosentino, Ph.D.  
Andrew Dych, Ph.D.  
John H. Evans, Ph.D.  
Eric L. Gans, Ph.D.  
Margaret C. Jacob, Ph.D.  
Herbert E. Plutschow, Ph.D.  
David C. Rapoport, Ph.D., *Emeritus*  
Claudia Rapp, D.Phil.  
William Schniedewind, Ph.D.

### Affiliated Faculty

#### Professors

Robert L. Brown, Ph.D. (*Art History*)  
Donald J. Cosentino, Ph.D. (*English*)  
Andrew Dych, Ph.D. (*Classics*)  
Eric L. Gans, Ph.D. (*French*)  
Margaret C. Jacob, Ph.D. (*History*)  
Herbert E. Plutschow, Ph.D. (*East Asian Languages and Cultures*)

#### Professor Emeritus

David C. Rapoport, Ph.D. (*Political Science*)

#### Associate Professors

Irene A. Bierman, Ph.D. (*Art History*)  
William M. Bodiford, Ph.D. (*East Asian Languages and Cultures*)  
William M. Schniedewind, Ph.D. (*Near Eastern Languages and Cultures*)

#### Assistant Professors

John H. Evans, Ph.D. (*Sociology*)  
Claudia Rapp, D.Phil. (*History*)

#### Senior Lecturer S.O.E.

S. Scott Bartchy, Ph.D. (*History*)

## Scope and Objectives

The UCLA major in the Study of Religion is designed to give students a broad humanistic

perspective. It introduces students to several religious traditions and thus to an appreciation of the very nucleus of civilization in various periods of history and various parts of the world, as well as to an understanding of fundamental human orientations. The program also provides opportunity to study one or more particular religious traditions in greater depth. Cohesion and integrity in the program are furthered by courses dealing with philosophical problems in religion, sociological analysis, and general anthropological theories and reflections.

## Undergraduate Study

### Study of Religion B.A.

#### Preparation for the Major

*Required:* History 4; Philosophy 2; two courses from Anthropology 9, East Asian Languages and Cultures 60, History 1A, 1B, 1C, 9A, 9C, 9D, 10A, 10B, 11A, 11B.

#### Transfer Students

To be admitted as Study of Religion majors, transfer students 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.

#### 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 197) 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 (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.

## 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 guid-

ance 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.

In order 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 Professor S. Scott Bartchy at the program address.

## Study of Religion

### Upper Division Courses

**100. Undergraduate Seminar: Study of Religion.** (4) Limited to 20 students. 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.

**110. Religion and Violence.** (4) Seminar, three hours; discussion, one hour. Exploration of capacity of religion to mobilize and legitimize 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 healing off such clashes and misunderstandings. Letter grading.

**199. Special Studies.** (2 to 4) Tutorial, to be arranged. Designed for juniors/seniors. Intensive directed research program. Twelve units may be applied toward the major. Letter grading.

## Course List

Courses marked with an asterisk have readings in foreign languages. See departmental course listings for requisites.

### Group I: Methods

#### Anthropology

130. Study of Culture  
156. Comparative Religion

#### History

194C. Jesus of Nazareth in Historical Research

#### Philosophy

175. Topics in Philosophy of Religion

#### Study of Religion

100. Undergraduate Seminar: Study of Religion  
110. Religion and Violence  
120. Abrahamic Religions: Traditions in Tension

#### Theater

101A. History of World Theater and Drama: Ritual and Religious Drama

### Group II: Nonliterate and Ancient Religious Traditions

#### Ancient Near East (Near Eastern Languages)

130. Ancient Egyptian Religion

**Anthropology**

- 114P. Ancient Civilizations of Western Middle America (Nahuatl Sphere)  
 114Q. Ancient Civilizations of Eastern Middle America (Maya Sphere)  
 171. Sub-Saharan Africa  
 174P. Ethnography of South American Indians  
 177. Cultures of the Pacific

**Classics**

- 166A. Greek Religion  
 166B. Roman Religion  
 167. Greek and Roman Magic  
 168. Comparative Mythology

**Folklore and Mythology**

- M122. Celtic Mythology  
 M126. Baltic and Slavic Folklore and Mythology  
 130. North American Indian Folklore and Mythology Studies  
 131. Folklore of India  
 M155. Oral Traditions in Africa

**History**

- 193D. Religions of the Ancient Near East

**Iranian (Near Eastern Languages)**

170. Religion in Ancient Iran

**World Arts and Cultures**

- C109B. Dance in Native American Cultures  
 111B. Dance in South Asia  
 112B. Dance in Southeast Asia

**Group III: Western and Near Eastern Religious Traditions****Christianity****Art History**

- 105A. Early Christian Art

**Classics**

- M170. Power and Imagination in Byzantium

**Greek (Classics)**

- \*130. Readings in the New Testament

**History**

- 119M. The Christian Church, 100 to 1517  
 120M. The Christian Religion, 100 to 1350  
 125B. History of Modern Europe: Baroque Culture and Absolutist Politics, 1600 to 1715  
 150C. History of Religion in the U.S.  
 194A. History of Early Christians  
 194B. Religious Environment of Early Christians  
 194C. Jesus of Nazareth in Historical Research

**Philosophy**

- 100B. Medieval and Early Modern Philosophy  
 107. Topics in Medieval Philosophy  
 118. Kierkegaard

**Slavic (Slavic Languages)**

201. Introduction to Old Church Slavonic

**Islam****Arabic (Near Eastern Languages)**

- \*120. Islamic Texts

**Art History**

- C104C. Problems in Islamic Art

**History**

- 107A-107B. Islamic Civilization  
 109A. History of North Africa from the Moslem Conquest: To 1578  
 110A. Iranian History: Islamic Iran to 1800

**Islamic (Near Eastern Languages)**

110. Introduction to Islam

**Judaism****Ancient Near East (Near Eastern Languages)**

162. Archaeology and Religion of the Holy Land  
 170. Introduction to Biblical Studies

**Comparative Literature**

- M101. Hebrew Literature in English — Literary Traditions in Ancient Israel: Bible and Apocrypha

**Hebrew (Near Eastern Languages)**

- \*120. Biblical Texts  
 125. Hebrew Bible with Medieval Commentaries  
 \*130. Rabbinic Texts

**History**

- 111C. History of Jews in the Ottoman Empire and the Turkish Republic, 1300 to 1923  
 M191A-M191B. Survey of Jewish History  
 191G. European Jewry from 1881 to the Present  
 M192A-M192B. Jewish Intellectual History

**Jewish Studies (Near Eastern Languages)**

130. Modern Jewish Religious Movements and Their Ideologies  
 M150A-150B. Hebrew Literature in English

**Sociology**

159. Comparative Studies of Jewish Communities in the U.S. and Abroad

**Group IV: South Asian and East Asian Traditions****Art History**

- 114A. Early Art of India  
 114C. Japanese Art  
 114D. Later Art of India  
 114E. Arts of Korea  
 114F. Arts of Southeast Asia

**Chinese (East Asian Languages)**

160. Chinese Buddhism  
 \*165. Introduction to Chinese Buddhist Texts  
 175. Introduction to Chinese Thought  
 265A-265B. Seminars: Chinese Buddhist Texts

**East Asian Languages and Cultures**

161. Buddhist Literature in Translation  
 162. Buddhist Meditation Traditions

**History**

186. Shinto, Buddhism, and Japanese Folk Religion  
 188A. Early History of India  
 193B, 193C. Religions of South and Southeast Asia

**Indic (East Asian Languages)**

175. Introduction to Indic Philosophy

**Japanese (East Asian Languages)**

- C160. Japanese Buddhism  
 161. Religious Life in Modern Japan  
 175. Introduction to Japanese Thought  
 265A. Seminar: Japanese Buddhist Texts

**Korean (East Asian Languages)**

- C160. Korean Buddhism  
 \*165. Introduction to Korean Buddhist Texts  
 175. Introduction to Traditional Korean Thought

**ROMANCE LINGUISTICS AND LITERATURE**

*Interdepartmental Program  
 College of Letters and Science*

**UCLA**

212 Royce Hall  
 Box 951535  
 Los Angeles, CA 90095-1535

(310) 825-0237

fax: (310) 825-9754

e-mail: rllmail@humnet.ucla.edu

http://www.humnet.ucla.edu/humnet/romancell/

Edward F. Tuttle, Ph.D., *Chair*

**Professors**

- Luigi Ballerini, Dottore in Lettere (*Italian*)  
 Franco Betti, Ph.D. (*Italian*)  
 Jean-Claude Carron, Docteur ès Lettres (*French and Francophone Studies*)  
 Patrick J. Coleman, Ph.D. (*French and Francophone Studies*)  
 Eric L. Gans, Ph.D. (*French and Francophone Studies*)  
 Peter Haidu, Ph.D. (*French and Francophone Studies*)  
 Bruce P. Hayes, Ph.D. (*Linguistics*)  
 Carroll B. Johnson, Ph.D. (*Spanish and Portuguese*)  
 J. Randal Johnson, Ph.D. (*Spanish and Portuguese*)  
 Hilda J. Koopman, Ph.D. (*Linguistics*)  
 Efrain Kristal, Ph.D. (*Spanish and Portuguese*)  
 Gerardo Luzuriaga, Ph.D. (*Spanish and Portuguese*)  
 José Monleón, Ph.D. (*Spanish and Portuguese*)  
 C. Brian Morris, Litt.D. (*Spanish and Portuguese*)  
 Claudia Parodi-Lewin, Ph.D. (*Spanish and Portuguese*)  
 Susan J. Plann, Ph.D. (*Spanish and Portuguese*)  
 A. Carlos Quicoli, Ph.D. (*Spanish and Portuguese*)  
 Lucia Re, Ph.D., Dottore in Lettere (*Italian*)  
 Enrique Rodríguez-Cepeda, Ph.D. (*Spanish and Portuguese*)  
 Dominique L. Sportiche, Ph.D. (*Linguistics*)  
 Donca Steriade, Ph.D. (*Linguistics*)  
 Timothy A. Stowell, Ph.D. (*Linguistics*)  
 Edward F. Tuttle, Ph.D. (*Italian*)

**Professors Emeriti**

- Shirley L. Arora, Ph.D. (*Spanish and Portuguese*)  
 Rubén A. Benítez, Ph.D. (*Spanish and Portuguese*)  
 Marc Bensimon, Ph.D. (*French and Francophone Studies*)  
 Marga Cottino-Jones, Ph.D., Dottere in Lettere (*Italian*)  
 E. Mayone Dias, Ph.D. (*Portuguese*)  
 Hassan el Nouty, Docteur ès Lettres (*French and Francophone Studies*)  
 Joaquín Gimeno, Ph.D. (*Spanish and Portuguese*)  
 Claude L. Hulet, Ph.D. (*Spanish and Portuguese*)  
 Bengt T.M. Löfstedt, Ph.D. (*Classics*)  
 C.P. Otero, Ph.D. (*Spanish and Portuguese*)  
 José Pascual-Buxó, Ph.D. (*Spanish and Portuguese*)  
 Pier-Maria Pasinetti, Ph.D., Dottore in Lettere (*Italian*)  
 Paul C. Smith, Ph.D. (*Spanish and Portuguese*)

**Associate Professors**

- Adriana Bergero, Ph.D. (*Spanish and Portuguese*)  
 Verónica Cortínez, Ph.D. (*Spanish and Portuguese*)  
 Andrea Loselle, Ph.D. (*French and Francophone Studies*)  
 Sara E. Melzer, Ph.D. (*French and Francophone Studies*)  
 A. John Skirius, Ph.D. (*Spanish and Portuguese*)  
 Malina Stefanovska, Ph.D. (*French and Francophone Studies*)

**Scope and Objectives**

The Romance Linguistics and Literature Program emphasizes modern linguistic and literary theories in the study of Romance lan-

guages. Linguistic and literary theories can be pursued independently or jointly; however, the integration of linguistic and literary knowledge is taken to be one of the highest aims of this interdisciplinary graduate program.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Romance Linguistics and Literature Program offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Romance Linguistics and Literature.

## Admission

The UCLA B.A. degree in French, Italian, Portuguese, or Spanish, or equivalent, is required. Applicants to the M.A. program are expected to have a grade-point average of at least 3.4 in upper division courses, especially in those considered germane to the proposed program. Three letters of recommendation and the General Test of the Graduate Record Examination (GRE) are also required.

Applicants admitted from elsewhere with preparation considered deficient in view of the intended specialization are required to take specified upper division courses. Such courses may be taken concurrently with graduate courses, but they may not be applied toward the course requirements for the M.A. degree.

Students select two Romance languages, one as their major language and one as their minor language. In each of the languages students may specialize in either linguistics or literature. If students know only the language of their major, they must prepare in at least one other Romance language during the first year so they can take courses in their minor no later than the second year of graduate study.

The UCLA M.A. degree in Romance Linguistics and Literature or the UCLA M.A. degree in French and Francophone Studies, Italian, Portuguese, or Spanish, or equivalent is required of applicants to the Ph.D. program. A strong academic record (normally a grade-point average of 3.4 or better), three letters of recommendation, and the Graduate Record Examination (GRE) General Test (normally a combined verbal/quantitative score of 1,100 or better) are required.

Formal application is required of all candidates for the Ph.D. program. Applicants who have completed the UCLA M.A. degree in Romance Linguistics and Literature with distinction (high

pass) are automatically eligible for admission to the Ph.D. program; those who received a middle pass are reviewed in the same manner as candidates from other institutions; those who received a low pass are ineligible for admission. Students whose M.A. program registers deficiencies in scope or quality may be admitted but are required to pass (with grades of B or better) three graduate courses approved by the chair.

## Master's Degree

The M.A. degree is offered through the comprehensive examination and thesis plans; the latter requires a special petition. Twelve courses are required for the M.A. and should be taken in at least two of the following academic departments or programs: French and Francophone Studies, Italian, Linguistics, Romance Linguistics and Literature, or Spanish and Portuguese. The distribution of the courses must be approved by the chair of the student's guidance committee or the program chair. An introductory course in linguistics is required as a requisite for all students majoring in the linguistics field but is not counted as part of the total number of courses required for the degree.

There is a language requirement for this degree.

## Doctoral Degree

The Ph.D. program recognizes two fields of specialization (linguistics or literature) and three options within each field.

*Linguistics.* (1) The grammar of a Romance language, (2) the relation of the grammar of a Romance language to the grammar of sister languages(s) or to language in general, and (3) the typological relationships of the Romance languages to other Indo-European languages and to language in general.

*Literature.* One of the following in the literatures of at least two Romance languages: (1) early Romance literature and philology, (2) Renaissance and baroque, and (3) modern literature, preferably with emphasis in one century.

The first minor must be in the same field as the major but must differ from it on the choice of language or the choice of option (i.e., it must differ from the major in being either a different option within the same field or the same option but on a different Romance language).

The second minor may be any of the six preceding options as long as it differs from each of them on the choice of language or the choice of option. It may also be in some other related field in the major language or in Romance linguistics.

In each of the two specializations (linguistics or literature) the Ph.D. program consists of a major and two minors. Five courses are required in the major, three courses in the first minor, and two courses in the second minor. At least one seminar is required in each of the three fields. In addition to those required for the mas-

ter's degree (or equivalent), students are required to take at least 10 other graduate courses, as well as such courses as the guidance committee may prescribe. An introductory course in linguistics is required as a requisite for all students majoring in the linguistics field but is not counted as part of the total number of courses required for the degree.

Written and oral qualifying examinations are required. There is a written examination in the major field and separate examinations in the first and second minors. Following successful completion of the written examinations, students take the University Oral Qualifying Examination, which covers the three fields and includes discussion and approval of the dissertation prospectus.

There is a language requirement for this degree.

## Romance Linguistics and Literature

### Graduate Courses

**202A-202B. Topics in Historical Romance. (4-4)** Seminar, three hours. Requisites: Linguistics 120A and 120B, or Spanish 120A and 120B. Course 202A is requisite to 202B. Study of main historical changes in phonology, morphology, and syntax undergone by different Romance languages (mainly Spanish, Italian, and French). S/U or letter grading.

**M204A-M204B. Romance Syntax: French. (4-4)** (Formerly numbered 204A-204B.) (Same as Linguistics CM228A-CM228B.) Lecture, four hours. Preparation: some knowledge of French (or a Romance language). Requisite: Linguistics 120B. Course M204A is requisite to M204B. Aspects of structure of French language, with emphasis on properties of construction not found in English. S/U or letter grading.

**206. Romance Language Structure. (4)** Lecture, three hours. Requisite: Linguistics 120B. Aspects of grammatical structure of a selected Romance language. May be repeated for credit with topic change. S/U or letter grading.

**211. Comparative Romance Syntax. (4)** Lecture, three hours. Requisite: French 210A or Portuguese 204A or Spanish 204A. Comparative study of syntactic processes in Romance languages. Investigation of parameters underlying linguistic variation.

**255. Topics in Romance Syntax. (1 to 4)** Topics in syntax of Romance languages, with emphasis on recent development in comparative studies; theoretical innovations based on Romance syntax.

**596. Directed Individual Study or Research. (4 to 8)** Tutorial, to be arranged. Study or research in areas or on subjects not offered as regular courses. Eight units may be applied toward M.A. degree requirements. S/U grading.

**597. Preparation for Graduate Examinations. (4 to 12)** Tutorial, to be arranged. 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. (2 to 12)** Tutorial, to be arranged. Research in preparation of M.A. thesis. S/U grading.

**599. Research for Ph.D. Dissertation. (2 to 12)** Tutorial, to be arranged. Preparation: successful completion of Ph.D. qualifying examinations. Research for and preparation of Ph.D. dissertation. S/U grading.

## Course List

In consultation with the appropriate adviser(s), courses should be selected with an eye to the organic relationship between them, preferably

among those listed below and/or their requisites:

## Introductory Courses

### Italian

201. Bibliography and Methods of Research

### Spanish

M200. Research Resources

## Linguistics Courses

### Grammatical Theory: Linguistics

201. Phonological Theory II

206. Syntactic Theory II

## Development of the Romance Languages

### Hispano-Romance: Spanish

M205A-M205B. Development of Portuguese and Spanish Languages

### Indo-European: Indo-European Studies

210. Indo-European Linguistics: Advanced Course II

280A-280B. Seminars: Indo-European Linguistics

### Italic Dialects: Latin

242. Italic Dialects and Latin Historical Grammar

### Italo-Romance: Italian

222A. History of the Italian Language

### Latin History: Latin

240. History of the Latin Language

### Medieval Latin: Latin

231A-231B. Seminars: Medieval Latin

### Paleography: History

218A-218B. Paleography I, II

### Romance Dialectology: Italian

222C. Italian Dialectology

### Spanish

209. Dialectology

### Romance Linguistics: Linguistics

225G. Linguistic Structures

### Vulgar Latin: Latin

232. Vulgar Latin

## Studies in the History of the Romance Languages

### Gallo-Romance: French

214. Problematics of Medieval Language and Literature

### Hispano-Romance: Spanish

M251A-M251B. Studies in Gallegan-Portuguese and Old Spanish

### Italo-Romance: Italian

210. Studies in Early Italian Literature

222A-222B-222C. Studies in History of Italian Language

## Synchronic Linguistics

### Advanced Grammar: French

201. Literary Research and Composition

### Italian

222B. Structure of Modern Italian

### Portuguese

202. Synchronic Morphology and Phonology

204A-204B. Generative Grammar

### Spanish

202A. Phonology

202B. Morphology

204A-204B. Generative Syntax and Semantics

### Studies in Linguistics and Dialectology: Spanish

256A-256B. Studies in Spanish Linguistics

257. Studies in Dialectology

## Literature Courses

### History of Ideas: French

260A-260B. Studies in History of Ideas

### Literary Criticism: French

202. Historical and Philosophical Background to French Literary Criticism

203. Contemporary Theories

258A-258B. Studies in Literary Criticism

### Italian

205A-205B. Studies in Criticism

### Spanish

M201A-M201B. Literary Theory and Criticism

### Philosophy and Literature: French

259A-259B. Studies in Philosophy and Literature

## Early Romance Literature

### Petrarca: Italian

214C. Studies in Medieval Literature: Petrarca's *Canzoniere*

251. Seminar: Petrarch

### Studies in Early Romance Literature: French

215A-215B. Medieval Literature

250A. Major Medieval Texts

250B. Structures of Medieval Literature

250C. Problems in Medieval Literature

### Italian

210. Studies in Early Italian Literature

214A-214F. Studies in Medieval Literature

215A-215B. Studies in 15th-Century Literature

250A-250D. Seminars: Dante

252. Seminar: Boccaccio

### Portuguese

C224. Early Portuguese Literature

### Spanish

222. Medieval Epic and Narrative Poetry

223. Medieval Prose

262A-262B. Studies in Medieval Spanish Literature

## Modern Romance Literature

### Genre Studies: Portuguese

252. Studies in Early Portuguese Literature

253. Studies in Modern Portuguese Literature

254. Studies in Early Brazilian Literature

255. Studies in Modern Brazilian Literature

### Studies in the 18th Century: French

218. Enlightenment

254A-254B. Studies in the 18th Century

### Italian

218A-218D. Studies in 18th-Century Literature

256A-256B. Seminars: 18th Century

### Portuguese

C227. 19th-Century Portuguese Literature

C232. 19th-Century Brazilian Literature and Culture

### Spanish

229. Romanticism

239. Romanticism and Realism in Spanish-American Literature

270A-270B. Studies in 18th-Century Spanish Literature

277A-277B. Studies in Colonial Spanish-American Literature

### Studies in the 19th Century: French

219. 19th Century

255A-255B. Studies in the 19th Century

### Italian

219A-219D. Studies in 19th-Century Literature

257A-257B. Seminars: Romanticism

### Portuguese

C228. Post-Romanticism and Naturalism in Portuguese Literature

### Spanish

230. Realism and Naturalism

271A-271B. Studies in 19th-Century Spanish Literature

278A-278B. Studies in 19th-Century Spanish-American Literature

### Studies in the 20th Century: French

220. 20th Century

221A-221B-221C. French-African Literature

256A-256B. Studies in Contemporary Literature

257A-257B. Studies in French-African Literature

### Italian

220. Studies in Turn-of-the-Century Literature

221A-221E. Studies in 20th-Century Literature

258A-258B. Seminars: Contemporary Italian Literature

### Portuguese

C229. 20th-Century Portuguese Literature

C234. Brazilian Modernism

C235. 20th-Century Brazilian Literature

### Spanish

232. Spanish Prose Literature from 1898 to the Civil War

233. Spanish Prose Literature after the Civil War

234. Spanish Drama and Poetry from 1898 to the Civil War

235. Spanish Drama and Poetry after the Civil War

240. Major Currents in Modern Spanish-American Literature

243A-243B. Contemporary Spanish-American Poetry

244A-244B. Contemporary Spanish-American Novel

245. Contemporary Spanish-American Essay

272A-272B. Studies in 20th-Century Spanish Literature

280A-280B. Studies in Contemporary Spanish-American Literature

## Renaissance and Baroque Literature

### Cervantes: Spanish

227. Cervantes

### Studies in Renaissance and Baroque Literature: French

216. Renaissance

217. 17th Century

251A-251B. Studies in the Renaissance

253A-253B. Studies in the 17th Century

### Italian

216A-216E. Studies in the Renaissance

217. Studies in 17th-Century Literature

253A-253B-253C. Seminars: Chivalric Poetry in Italy

255A-255B. Seminars: Baroque

### Portuguese

C225. Camões and the Portuguese Renaissance

C226. Baroque and Neoclassical Portuguese Literature

C231. Colonial Brazilian Literature and Culture

### Spanish

224. Poetry of the Golden Age

225. Drama of the Golden Age

226. Prose of the Golden Age

237. Literature of the Spanish Conquest

264A-264B. Studies in Golden Age Spanish Literature



## ROTC PROGRAMS

### *College of Letters and Science*

In accordance with the National Defense Act of 1920 and with the concurrence of The Regents of the University, a unit of the Senior Division Reserve Officers' Training Corps (ROTC) was established on the Los Angeles campus of the University in July 1920.

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). They are not considered academic majors, but ROTC courses may be taken as free electives and applied toward the total course requirements of the 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 students who apply early in their sophomore year. All have leadership laboratories which teach 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 four-year scholarships may be obtained by calling the appropriate department at UCLA — Army, (310) 825-7381; Air Force, (310) 825-1742; Navy, (310) 825-9075 — or by writing to Armed Forces Opportunities, P.O. Box 2865, Huntington Station, NY 11746-2102. When writing, specify which service (Army, Air Force, Navy/Marine) scholarship is desired. Applications for Army scholarships can also be obtained by calling (800) 872-7682. Completed applications should be submitted prior to July 15 (Army) or August 15 (Air Force and Navy) for early consideration, but no later than December 1 (all services) of the year preceding college matriculation. Two-year scholarship applications may be obtained from the appropriate UCLA department and are considered when received.

## AEROSPACE STUDIES

UCLA  
Hershey Hall  
Box 951611  
Los Angeles, CA 90095-1611  
(310) 825-1742  
<http://www.sscnet.ucla.edu/afrotc/>

Richard A. McIntosh, M.A., *Colonel, Chair*

### Professor

Richard A. McIntosh, M.A., *Colonel*

### Adjunct Assistant Professors

Ronald A. DeLap, Ph.D., *Major*

Timothy C. Reynolds, M.B.A., *Captain*

### Scope and Objectives

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 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

two 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 five-week field training program on an Air Force base during the summer preceding enrollment in the program.

Students interested in the five-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, medical examination results, performance during an officer board interview, and a physical fitness test.

Students selected for the five-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 \$250 to \$450 per month during the academic year. Additionally, they can qualify for up to \$3,450 for tuition and 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 an organized cadet corps. As integral part of aerospace studies curriculum, provides experiences designed to develop leadership potential and serves as orientation to active duty. P/NP grading.

#### 1A-1B-1C. Foundation of U.S. Air Force. (2-2-2)

Lecture, one hour. Survey course designed to introduce students to the U.S. Air Force and Air Force Reserve Officers' Training Corps. Topics include mission and organization of the 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 an Air Force junior officer. 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 the military as a profession, officership, military justice, civilian control of the 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.

**199. Special Studies in Aerospace Studies. (2 or 4)** Tutorial, to be arranged. Course of study for undergraduates who wish to engage in independent research under direct supervision of a department faculty member. P/NP or letter grading.

## MILITARY SCIENCE

UCLA  
127 Men's Gym  
Box 951609  
Los Angeles, CA 90095-1609  
(310) 825-7381, 825-7384  
fax: (310) 363-1588  
<http://www.sscnet.ucla.edu/milsci/>

Philip L. Barnette, M.A., M.S., *Lieutenant Colonel, Chair*

### Professor

Philip L. Barnette M.A., M.S., *Lieutenant Colonel*

### Adjunct Assistant Professors

Stacy M. Babcock, M.S., *Captain*  
Michael C. Berry, M.S., *Major*  
William McCloskey, B.A., *Major*  
Lorenzo R. Phillips, M.B.A., *Major*

## Scope and Objectives

Army ROTC prepares selected students for leadership as commissioned officers in the U.S. Army, Army Reserve, or National Guard. This training includes in-depth study of the military establishment, doctrine, leadership principles, management, and the ethical standards demanded of professional and effective leaders.

## Undergraduate Study

The military science curriculum is divided into two parts: (1) the Basic Course, two years of lower division study during which students must complete 12 units of military science coursework and (2) the Advanced Course, two years of upper division study consisting of 13 units of military science coursework, one of the history courses listed below, and a six-week summer camp.

Army ROTC students must satisfy military history requirements by completing History 125E, 125F, 127A, 127B, 130, 147A, 148A, 148B, 148C, 152A, or 152B in lieu of Military Science 110, with consent of the ROTC adviser.

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 \$350 and \$400 a month for 10 months during each of the two academic years, plus military science books and 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 17 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 six-week Advanced Camp 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. Students accepting ROTC Scholarships and a commission in the Regular Army, or who are selected to enter the Active Army, serve longer terms. ROTC students wishing to obtain 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 Basic Camp, membership in the Army Reserve or National Guard, completing two years of college-level Air Force or Navy ROTC, or previous active duty military service.

## 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 Reserve, National Guard, or Active Army. Distinguished graduates may qualify for a commission in the Regular 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.

**10. Introduction to Leadership. (2)** Lecture, one hour; discussion, one hour. Introduction to leadership and motivational theory. Topics include nature of organizations, individual behavior, motivation and performance, values and organizational commitment, and influence processes.

**11. U.S. Defense Establishment I. (2)** Lecture, one hour; discussion, one hour. Study of evolution and organization of U.S. Department of Defense, including study of military services, with emphasis on the U.S. Army. P/NP or letter grading.

**12. U.S. Defense Establishment II. (2)** Lecture, one hour; discussion, one hour. Fundamentals of national security policy development. 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 nonmilitary responses, military tactics, interrelationship of military and government, psychological warfare, and civic actions.

**21. Psychology of Leadership I. (2)** Lecture, one hour; discussion, one hour. Study of relationship of individual differences, group dynamics, formal organizational constraints, and impact of society on leadership process. Introduction to external environmental pressures on a leader and psychology of the individual as a follower, examined in areas of motivation, peer pressure/conformity, and group norms.

**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.

**112. Psychology of Leadership II. (3)** Lecture, one hour; discussion, one hour. Introduction to various individual leadership styles and personalities to assist students in development of their own individual style. Different philosophies of leadership, along with dimensions of leader behavior. Special consideration to counseling, management, and communication techniques that must be mastered to be an effective leader.

**113. Theory of Learning Applied to Teaching. (2)** Lecture, one hour; discussion, one hour. Study of instructional processes, lesson content planning procedures, techniques of applicatory education, role of testing (including evaluation and analysis). Emphasis on development of training programs to maximize organizational effectiveness. P/NP or letter grading.

**123. Military Legal Systems. (2)** Lecture, one hour; discussion, one hour. Introduction to theory and application of military law and legal systems, with emphasis on Uniform Code of Military Justice and rights of the accused under the constitution.

**125. Decision Making. (2)** Lecture, one hour; discussion, one hour. Designed to present students who become commissioned officers with new insight into modern methods of managerial decision making and into various steps involved in the process. Introduction to various components of leadership and functions of management in order to understand where areas of problem analysis and decision making impact and how they fit into leadership and management. Various steps which comprise the problem analysis and decision-making processes.

**126. Military Professionalism and Ethics. (2)** Lecture, 30 minutes; discussion, 90 minutes. Ethical concepts held by America's military institution. Classification of the military as a profession, special social responsibilities of those in the military, values related to and accepted by military society, and an ethical reasoning/decision-making process and model.

**199. Supervised Independent Studies. (1 to 3)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised independent studies and research for undergraduate students who desire to pursue topics of their own selection.

## NAVAL SCIENCE

UCLA  
123 Men's Gym  
Box 951399  
Los Angeles, CA 90095-1399  
(310) 825-9075  
fax: (310) 363-1952  
<http://www.sscnet.ucla.edu/nrotc/>

Mark J. Brousseau, M.A., *Colonel, Chair*

### Professor

Mark J. Brousseau, M.A., *Colonel, U.S. Marine Corps*

### Adjunct Assistant Professors

Cory M Cunningham, B.A., *Captain, U.S. Marine Corps*

Matthew C. Hipp, B.S., *Lieutenant, U.S. Navy*

Ian D. MacDiarmid, B.A., *Lieutenant, U.S. Navy*

James L. Trotter, M.S., *Commander, U.S. Navy*

## Scope and Objectives

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 \$200 per month subsistence pay. Nonscholarship students may apply to participate as members of the midshipman battalion with limited financial assistance, earning a reserve commission on completion of the baccalaureate degree. Because of the rapid development of highly technical ship systems, aviation, and other military equipment, science and engineering majors are highly desirable; however, Navy Scholarships are currently available to students pursuing any major offered by the University, as long as they complete basic technical requirements. In addition to University requirements, midshipmen must complete 28 units of naval science courses, a physical fitness test, and three summer cruises, each about four to eight weeks long. The department also conducts a sail training program for all midshipmen. All naval science courses, from ship systems and management to naval operations and amphibious warfare, are open to students who are not in the program but have an interest in the Navy 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 Naval Scholarships which are awarded primarily on a four-year basis to high school seniors selected in 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, books, and uniforms, students receive subsistence pay of \$200 per month. Scholarship students are obligated to serve on active duty for a minimum of four years following graduation and commissioning.

### College Program (Nonscholarship)

Three- and four-year College Program students are selected by the department chair at the beginning of each academic year from applicants of the freshman and sophomore classes. These students must compete for advanced standing prior to their junior year. A two-year program is also available to students who have not yet started their junior year. Students enter the two-year program with advanced 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, subsistence pay of \$200 per month in their junior and senior years. Nonscholarship students serve on active duty for a minimum of three years following graduation and commissioning. College Program students may be recommended for scholarship benefits based on superior academic performance and participation in NROTC.

### 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.

### Commissioning

Students must meet UCLA degree requirements in their selected fields and complete the naval science courses as follows: Naval Science 1A, 20B (freshman year), 102B (sophomore year), 103 (junior year), 102C (senior year). Courses 1B, 20A, 101A, and 101B can be taken in either the sophomore or junior year. Courses 103 and 104 are to be taken by candidates for commissions in the Marine Corps or Marine Corps Reserve in lieu of courses 101A and 101B.

In addition, scholarship students must include in their programs one year of approved calculus, one year of approved calculus-based physics, one year of approved freshman English, one term of American military history, and one term of computer science. Nonscholarship students must include in their programs one year of college algebra or higher mathematics, physical science, and English, and one term of computer science. Of these requirements, Marine Corps option students are only obligated to fulfill the American military history/national security policy requirement.

## Naval Science Minor

The Naval Science minor is designed for students completing a major in a departmental program who wish to augment that major. 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.

All minor courses 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

**1A. Introduction to Naval Science. (2)** Introduction to organization of the Naval Service, various components of the Navy, career opportunities, shipboard damage control, fire fighting, propulsion systems, and some customs and traditions of the Naval Service.

**1B. Naval Ship Systems I. (4)** 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.

**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. (2)** Conceptual study of seapower, emphasizing historical development of naval and commercial power. Seapower examined in relation to economic, political, and cultural strengths, focusing on current abilities of specific nations to use the oceans to attain national objectives.

### 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. Navigation II. (4)** Requisite: course 101A. Study of rules of the 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.

**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)** Requisite: course 102B. Current leadership and management in the U.S. Navy. Areas include human resources management, personnel management, material management, and performance and career evaluation.

**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.

**199. Supervised Independent Studies. (1 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised independent studies and research for undergraduate students who desire to pursue topics of their own selection. P/NP or letter grading.

## SCANDINAVIAN SECTION

*College of Letters and Science*

UCLA  
212 Royce Hall  
Box 951539  
Los Angeles, CA 90095-1539

(310) 825-6828  
fax: (310) 825-9754  
e-mail: [scandiniv@humnet.ucla.edu](mailto:scandiniv@humnet.ucla.edu)  
<http://www.humnet.ucla.edu/humnet/scandinavian/scandinavian/index.html>

Timothy Tangherlini, Ph.D., *Head*

### Professors

James R. Massengale, Ph.D.  
Mary Kay Norseng, Ph.D.  
Ross P. Shideler, Ph.D.

### Professor Emeritus

Kenneth G. Chapman, Ph.D.  
Jules L. Zentner, Ph.D.

### Associate Professor

Timothy Tangherlini, 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.

tures 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, 110, 115) in the Scandinavian Section except by petition in writing to the section. Non-Scandinavian students with knowledge of one of these Scandinavian languages 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 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

To be admitted as Scandinavian Languages majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of either Swedish, Norwegian, or Danish.

### The Major

*Required:* Twelve upper division Scandinavian courses, including 105 or 110 or 115, 141, 142, 143. As an option, three upper division courses in a related field may be taken if approved in advance by the undergraduate adviser. 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.

All minor courses must be taken for a letter grade, with an overall grade-point average of

2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degree

The Scandinavian Section offers the M.A. degree in Scandinavian.

## Admission

In addition to the University minimum requirements, prospective students for the M.A. program must have an undergraduate major in Scandinavian languages or equivalent. Applicants who have deficiencies in the undergraduate major must complete them by taking the appropriate courses as recommended by the graduate adviser. A placement examination in the Scandinavian languages, as well as in German, may be required.

Three letters of recommendation are required by the Graduate Division. The Scandinavian Section welcomes applications for all three quarters (Fall, Winter, Spring).

For the Ph.D. degree in Germanic Languages with Scandinavian literature as a major or minor field, see the Ph.D. in Germanic Languages. For a brochure describing the program and requirements, write to the department.

## Master's Degree

There are no specific areas of study, but students emphasize one modern language and literature area in Danish, Norwegian, or Swedish.

The M.A. degree is offered through the comprehensive examination plan. A total of 12 courses is required, including a minimum of nine upper division and graduate courses in Scandinavian languages, at least five of which must be graduate courses.

Three courses at the upper division or graduate level may be taken in a related field of linguistic or literary study to be determined in consultation with the graduate adviser; at least one of these must be at the graduate level. A comparative literature course in methodology or an equivalent course in methodology is required as one of the 12 courses.

There is a language requirement for this degree.

## Scandinavian

### Lower Division Courses

- 1. Elementary Swedish. (4)** Discussion, four hours. P/NP or letter grading.
- 2. Elementary Swedish. (4)** Enforced requisite: course 1.
- 3. Elementary Swedish. (4)** Enforced requisite: course 2.
- 4. Intermediate Swedish. (4)** Enforced requisite: course 3.
- 5. Intermediate Swedish. (4)** Enforced requisite: course 4.
- 8. Elementary Swedish: Intensive. (12)** Lecture, 15 course; 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)** Enforced requisite: course 11.
- 13. Elementary Norwegian. (4)** Enforced requisite: course 12.
- 14. Intermediate Norwegian. (4)** Discussion, four hours. Enforced requisite: course 13.
- 15. Intermediate Norwegian. (4)** Discussion, four hours. Enforced requisite: course 14.
- 21. Elementary Danish. (4)** Discussion, four hours. P/NP or letter grading.
- 22. Elementary Danish. (4)** Enforced requisite: course 21.
- 23. Elementary Danish. (4)** Enforced requisite: course 22.
- 24. Intermediate Danish. (4)** Enforced requisite: course 23.
- 25. Intermediate Danish. (4)** Enforced requisite: course 24.
- 50. Introduction to Scandinavian Literature. (4)** 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 Literature. (5)** Lecture, two hours; discussion, two hour. Enforced requisite: English Composition 3 or 3H. 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 Letters and Science 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.
- 110. Advanced Norwegian. (4)** Discussion, three hours. Requisite: course 15. Readings, composition, and conversation in Norwegian. May be repeated once for credit. P/NP or letter grading.
- 115. Advanced Danish. (4)** Discussion, three hours. Requisite: course 25. Readings, composition, and conversation in Danish. May be repeated once for credit. P/NP or letter grading.
- 141. Backgrounds of Scandinavian Literature. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of representative texts selected from literature of medieval, Renaissance, baroque, and Enlightenment periods. P/NP or letter grading.
- 142. Scandinavian Literature of the 19th Century. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of selected works from Romantic, realistic, and post-Romantic literature of Scandinavia in the 19th century. P/NP or letter grading.

**143. Scandinavian Literature of the 20th Century. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of selected works of modern Scandinavian literature from beginning of the century to the present. P/NP or letter grading.

**C144. Henrik Ibsen on the World Stage. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of selected plays by Henrik Ibsen. May be concurrently scheduled with course C251. P/NP or letter grading.

**C145. Getting Married: Strindberg and Battle of the Sexes. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. August Strindberg's portrayals of marital conflict reflected and shaped literary representation of the so-called battle of the sexes. His work, as well as its literary transformations, placed into a Scandinavian, European, and feminist context. May be concurrently scheduled with course C252. P/NP or letter grading.

**C146. Kierkegaard and Foundations of Existentialism. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of selected works by Søren Kierkegaard and other existentialist writers. May be concurrently scheduled with course C253. P/NP or letter grading.

**C147. Pan's Prophets: Knut Hamsun and Other Interpreters of Nature as Modern Idyll. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. 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 C254. P/NP or letter grading.

**C180. Literature and Scandinavian Society. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. 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 C263. P/NP or letter grading.

**181. Contemporary Swedish Literature. (4)** Discussion, three hours. Preparation: reading knowledge of a Scandinavian language. Reading and analysis of selected texts by major 20th-century Swedish authors.

**C182. Theory of the Scandinavian Novel. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Analysis of predominant structures of the Scandinavian novel from its 18th-century beginnings through its rise in the 19th century and its 20th-century evolution. Discussion of application of contemporary critical theories to the novels. May be concurrently scheduled with course C264. P/NP or letter grading.

**184. Hans Christian Andersen. (4)** Lecture, two hours; discussion, one hour. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Study of works of Hans Christian Andersen, Danish novelist, dramatist, and writer of tales, including 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.

**C185. Seminar: Scandinavian Literature. (4)** Discussion, 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 undergraduate adviser. May be concurrently scheduled with course C265.

**CM186. Voices of Women in Scandinavian Literature. (4)** (Formerly numbered C186.) (Same as Women's Studies M186.) Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language 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 C266. P/NP or letter grading.

**187. Scandinavian Film: Bergman and Others. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. 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.

**C188. Scandinavian Folk Narrative. (4)** Lecture, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Introduction to fairy tales and legends of Scandinavian tradition as well as to interpretive methodologies which strive to answer the question "why do people tell the stories that they tell?" Concurrently scheduled with course C267. Letter grading.

**190. Honors Course in Scandinavian. (4)** Limited to seniors with a minimum 3.0 grade-point average in major. Intensive study of a selected special topic in Scandinavian. Discussions, oral and written reports.

**199. Special Studies in Scandinavian. (2 or 4)** Tutorial, to be arranged with faculty member who directs the study (course section to be identified by two-letter code using initials of sponsoring instructor — see section for I.D. number). Limited to seniors and graduate students. Independent studies designed for graduates and senior undergraduates who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite.

### Graduate Courses

**C251. Henrik Ibsen on the World Stage. (4)** Discussion, three hours. Preparation: advanced knowledge of a modern Scandinavian language. Intensive study of works of Henrik Ibsen. May be concurrently scheduled with course C144. Graduate students may meet as a group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

**C252. Getting Married: Strindberg and Battle of the Sexes. (4)** Discussion, three hours. Preparation: advanced knowledge of a Scandinavian language. August Strindberg's portrayals of marital conflict reflected and shaped literary representation of the so-called battle of the sexes. His work, as well as its literary transformations, placed into a Scandinavian, European, and feminist context. May be concurrently scheduled with course C145. Graduate students may meet as a group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

**C253. Kierkegaard and Foundations of Existentialism. (4)** Discussion, three hours. Preparation: advanced knowledge of a modern Scandinavian language. Readings and discussion of selected works of Søren Kierkegaard and other existentialist writers. May be concurrently scheduled with course C146. S/U or letter grading.

**C254. Pan's Prophets: Knut Hamsun and Other Interpreters of Nature as Modern Idyll. (4)** Discussion, three hours. Preparation: advanced knowledge of a Scandinavian language. Intensive study 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 C147. Graduate students may meet as a group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

**C263. Literature and Scandinavian Society. (4)** Discussion, three hours. Designed for graduate students. Intensive study of selected aspects of Scandinavian society based on readings in the 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.

**C264. Theory of the Scandinavian Novel. (4)** Discussion, three hours. Preparation: advanced knowledge of a Scandinavian language. Analysis of predominant structures of the Scandinavian novel from its 18th-century beginnings through its rise in the 19th century and its 20th-century evolution. Discussion of application of contemporary critical theories to the novels. May be concurrently scheduled with course C182. Graduate students may meet as a group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

**C265. Seminar: Scandinavian Literature. (4)** Discussion, 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.

**C266. Voices of Women in Scandinavian Literature. (4)** Discussion, three hours. Preparation: advanced knowledge of a Scandinavian language. Intensive study of writings by Scandinavian women writers analyzed in historical, theoretical, sociological, critical, and comparative contexts. May be concurrently scheduled with course CM186. Graduate students may meet as a group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

**C267. Scandinavian Folk Narrative. (4)** Lecture, three hours. Preparation: advanced knowledge of a modern Scandinavian language. Introduction to fairy tales and legends of Scandinavian tradition as well as to interpretive methodologies which strive to answer the question "why do people tell the stories that they tell?" Concurrently scheduled with course C188. Letter grading.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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*

UCLA  
115 Kinsey Hall  
Box 951502  
Los Angeles, CA 90095-1502  
(310) 825-2676  
<http://www.humnet.ucla.edu/humnet/slavic/slavic.html>

Michael Heim, Ph.D., *Chair*

### Professors

Michael Heim, Ph.D.  
Vyacheslav Ivanov, Ph.D.  
Emily R. Klenin, Ph.D.  
Gail D. Lenhoff, Ph.D.  
Aleksandr L. Ospovat, Ph.D.  
Ronald W. Vroon, Ph.D.  
Olga T. Yokoyama, Ph.D.

### Professors Emeriti

Aleksandr Albijanić, Ph.D.  
Henning Andersen, Ph.D.  
Henrik Birnbaum, Ph.D.  
Thomas Eekman, Ph.D.  
Kenneth E. Harper, Ph.D.  
Peter C. Hodgson, Jr., Ph.D.  
Vladimir Markov, Ph.D.  
Rochelle Stone, Ph.D.  
Dean S. Worth, Ph.D.

### Associate Professor

Roman Koropeckyj, Ph.D.

### Senior Lecturers S.O.E.

Olga Kagan, Ph.D.  
Edward Denzler, M.A., *Emeritus*

### Lecturers

Georgiana Galateanu, Ph.D.  
Susan Kresin, Ph.D.  
Judith Simon, Ph.D.

## Scope and Objectives

The Bachelor of Arts degree in Russian Language and Literature is designed to provide students with basic mastery of the Russian language and familiarity with the classics of Russian literature. Within the major, students concentrate either in Russian literature and culture or Russian linguistics. 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 requirements by combining regular coursework with summer programs or with the University of California semester program in Moscow, which is open to students who have completed the equivalent of two years of study (American Council of Teachers of Foreign Languages — ACTFL — level 1). Students interested in this program should consult the undergraduate adviser as early as possible.

The Bachelor of Arts degree in Slavic Languages and Literatures is designed to provide students with basic mastery of two Slavic languages and familiarity with their literatures, as well as general background in the cultural, political, and social history of the Slavic peoples.

The department also offers a Bachelor of Arts degree in Russian Studies in which students achieve a basic mastery of the Russian language, as well as familiarity with Russian literature, history, and culture.

The graduate program provides advanced training in the 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) Russian Language and Literature, with concentrations in Russian literature or Russian linguistics, (2) Slavic Languages and Literatures, and (3) Russian Studies. The equivalent of a major in Slavic 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 Slavic 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 below 220 with consent of the instructor and the graduate and undergraduate advisers.

## Russian Language and Literature B.A.

### Preparation for the Major

*Required:* Russian 1, 2, 3, 4, 5, 6, or equivalent proficiency as determined through departmental testing (equivalent to ACTFL level 1), 99A.

### Transfer Students

To be admitted as Russian Language and Literature majors, transfer students 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.

### The Major

*Required:* Russian language skills equivalent to ACTFL level 2 (students usually take Russian 101A, 101B, 101C, 102A, 102B, and 102C to attain level 2 proficiency; consult the undergraduate adviser for information on summer programs and the Moscow semester program), Russian 106, 130A, 140A.

Students also must concentrate in either literature or linguistics. For the *literature* concentration, Russian 118, 119, 120 (all three may be taken in the sophomore year), and two courses from 124C through 124T, 125, 130B, 130C, 140B, 140C, 140D, M150 are required. For the *linguistics* concentration, two courses from Linguistics 103, 110, 120A, 120B, and two courses from Slavic 201, 202, Russian 118, 119, 120, 124C through 124T, 125, 130B, 130C, 140B, 140C, 140D, M150, Linguistics 103, 110, 120A, 120B, 127 are required.

## Slavic Languages and Literatures B.A.

### Preparation for the Major

*Required:* Russian 1, 2, 3, 4, 5, 6, or equivalent proficiency as determined through departmental testing (equivalent to ACTFL level 1), Slavic 99.

### Transfer Students

To be admitted as Slavic Languages and Literatures majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Russian and one Slavic civilization course.

### The Major

*Required:* Russian 101A, 101B, 101C, or equivalent proficiency as determined through departmental testing (equivalent to ACTFL level 1+); courses 118, 119, 120 (all three may

be taken in the sophomore year); one three-course sequence from Czech 102A, 102B, and 102C, or 102D, 102E, and 102F, or Polish 102A, 102B, and 102C, or 102D, 102E, and 102F, or Serbian/Croatian 103A, 103B, and 103C, or 103D, 103E, and 103F (placement with consent of instructor); three courses from Czech 102D, 102E, 102F, Polish 102D, 102E, 102F, Serbian/Croatian 103D, 103E, 103F, Russian 102A, 102B, 102C, 123, 130A, 130B, 130C, 140A through 140D, M150; two courses from Czech 155, Polish 152A, 152B, Serbian/Croatian 154, Slavic 125, 126.

## Russian Studies B.A.

### Preparation for the Major

*Required:* Russian 1, 2, 3, 4, 5, 6, or equivalent proficiency as determined through departmental testing (equivalent to ACTFL level 1), 99A.

### Transfer Students

To be admitted as Russian Studies majors, transfer students 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.

### The Major

*Required:* Russian 101A, 101B, 101C, or equivalent proficiency as determined through departmental testing (equivalent to ACTFL level 1+), three courses in Russian literature, two courses from History 131A through 131D, two courses from Economics 182, Geography 184, Political Science 128A, 128B, 156A, Russian CM170, and five additional courses selected from those listed above, from Russian language, literature, or linguistics courses, or from special courses (approved by the undergraduate adviser) offered by the Departments of Art, Art History, Design | Media Arts, Film, Television, and Digital Media, History, Music, Political Science, Slavic Languages and Literatures, and Theater.

## 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 (13 units):* Russian 6 and two courses from 25, 99A, 99B.

*Required Upper Division Courses (23 units):* Russian 101A, 101B, 101C, and two additional upper division Russian language and literature courses.

All minor courses must be taken for a letter grade, with 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 (10 to 15 units):* Russian 3 or 13B or 15B and two courses from 25, 99A, 99B.

*Required Upper Division Courses (20 units):* Five Russian language or literature courses, including at least two from Russian 118, 119, 120, 130A, 130B, 130C, 140A through 140D.

All minor courses must be taken for a letter grade, with 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 (10 to 15 units):* Russian 3 or 13B or 15B and two courses from 25, 99A, 99B.

*Required Upper Division Courses (20 units):* Five courses dealing directly with Russia, to be selected from any upper division Russian language and literature courses, Economics 182, Geography 184, History 131A through 131D, Political Science 128A, 128B, 156A, Russian CM170. With approval of the undergraduate adviser, other related courses may be applied toward the minor.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Slavic Languages and Literatures offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Slavic Languages and Literatures.

### Admission

In addition to the University minimum requirements, the department requires applicants to the M.A. program to hold the equivalent of a UCLA B.A. in Russian Language and Literature, Slavic Languages and Literatures, or Russian Studies, or to have completed three years of Russian language and a variety of courses in Russian history, literature, and linguistics.

All applicants must submit three letters of recommendation from persons capable of judging

their academic potential and a writing sample in the field they wish to pursue. The Graduate Record Examination (GRE) is also required as part of the application; it is not an obligation for international students whose native language is not English, unless they have a bachelor's degree from a university where the instruction is in English. The Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination is required of all international students whose first language is not English.

Applicants are formally admitted to the Ph.D. program after (1) passing the departmental M.A. examination with a grade of high pass, (2) demonstrating reading competency in both French and German, and (3) demonstrating proficiency in modern Slavic languages other than Russian as follows: applicants to the literature area must complete one year of the language of their second Slavic literature; applicants to the linguistics area must complete one year of one language and two years of another (one of the languages should represent the West Slavic group, the other the South Slavic group). Equivalent language proficiency may be demonstrated through written and oral examinations rather than coursework.

Applicants who do not have an M.A. in Slavic Languages and Literatures from UCLA must provide three letters of recommendation from persons capable of judging their academic potential and submit a writing sample in the field they wish to pursue. The Graduate Record Examination (GRE) is also required as part of the application.

A departmental brochure describing the curriculum in some detail is available from the department.

## Master's Degree

For the M.A. degree students choose a specialization in either literature or linguistics, with Russian usually as the principal language and literature.

The M.A. degree is offered through the comprehensive examination plan. A minimum of 36 units of graduate coursework is required of students in literature and 40 units of graduate coursework for students in linguistics. There are separate requirements for each specialization.

Students with M.A. degrees from other institutions must pass the M.A. comprehensive examination in order to be admitted to the Ph.D. program. Students with M.A. degrees in disciplines other than that of their planned specialization, or students who do not have an M.A. but have taken graduate-level courses equivalent to those required at UCLA for an M.A. degree, must complete the required number of course units.

There is a language requirement for this degree.

## Doctoral Degree

For the Ph.D. degree students choose a specialization in either literature or linguistics, with Russian usually as the principal language and literature. By special arrangement Ph.D. students may specialize in a language or literature other than Russian.

Students whose specialization is linguistics must take two required Slavic courses and three other advanced linguistics courses or seminars. Specific courses in linguistics are recommended preparation for linguists.

Students whose specialization is literature must take two required Slavic courses and four advanced literature courses or seminars. Students are also advised to acquire a sound general knowledge of modern Western European literature.

Written and oral qualifying examinations are required. Prior to the examinations, students are required to submit a qualifying paper that demonstrates their ability to conduct serious and original research. All students are expected to have a sound general knowledge of both Slavic philology and Russian literary history.

Students in linguistics take two written examinations. Usually one of the written examinations is on the structure of modern Russian and the other on comparative Slavic linguistics, the history of Russian, and the history and structure of a second Slavic language.

Students in literature must take a series of written examinations on Russian literature and one on a Slavic literature other than Russian.

Following successful completion of the examinations, all students take the University Oral Qualifying Examination, which is designed to test the fields of major interest and general background and which typically includes discussion of the dissertation topic.

Students are required to deliver a formal lecture in the California Slavic Colloquium after advancement to candidacy.

There is a language requirement for this degree.

## Bulgarian

### Upper Division Courses

**103A-103B-103C. Elementary Bulgarian. (5-5-5)** Recitation, five hours. Basic courses in the Bulgarian language. P/NP or letter grading.

**154. Survey of Bulgarian Literature. (4)** Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Survey of Bulgarian literature from the Middle Ages to the present.

## Czech

### Upper Division Courses

**102A-102B-102C. Elementary Czech. (5-5-5)** Recitation, five hours. Basic courses in the Czech language. P/NP or letter grading.

**102D-102E-102F. Advanced Czech. (4-4-4)** Recitation, three hours. Requisite: course 102C.

**155. Survey of Czech Literature from Middle Ages to the Present. (4)** (Formerly numbered 155A-155B.) Lecture, three hours. Lectures and readings in English. 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.

**199. Special Studies in Hungarian. (2 to 4)** Tutorial, to be arranged. Independent studies course for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite. P/NP or letter grading.

## Polish

### Upper Division Courses

**102A-102B-102C. Elementary Polish. (5-5-5)** Recitation, five hours. Basic courses in the Polish language. P/NP or letter grading.

**102D-102E-102F. Advanced Polish. (4-4-4)** Recitation, three hours. Requisite: course 102C.

**152A-152B-152C. Survey of Polish Literature. (4-4-4)** Lecture, three hours. Lectures and readings in English. **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.

### 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

**99. Introduction to Romanian Civilization. (4)** Lecture, three hours. Introductory survey of social and cultural institutions of the Romanian people and their historical background.

### 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.

**101D-101E-101F. Advanced Romanian. (5-5-5)** Recitation, five hours. Requisite: course 101C. Course 101D is requisite to 101E, which is requisite to 101F. 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.

**104. Intensive Elementary Romanian. (12)** 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 the Middle Ages to the present.

### 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

### Language

**1. Elementary Russian. (5)** Recitation, five hours; laboratory, one hour. P/NP or letter grading.

**2. Elementary Russian. (5)** Recitation, five hours; laboratory, one hour. P/NP or letter grading.

**3. Elementary Russian. (5)** Recitation, five hours; laboratory, one hour. P/NP or letter grading.

**4. Intermediate Russian. (5)** Recitation, five hours; laboratory, one hour. P/NP or letter grading.

**5. Intermediate Russian. (5)** Recitation, five hours; laboratory, one hour. P/NP or letter grading.

**6. Intermediate Russian. (5)** Recitation, five hours; laboratory, one hour. 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.

**16. Preintermediate Russian. (2)** Enforced requisite: course 3 or 13B or 15B. Designed for students who have completed first year of Russian (course 3 or 13B or 15B) but cannot take course 4 immediately. Conversation, reading, and composition. 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.

**100A-100B. Literacy in Russian. (4-4)** Discussion, three hours. For students who speak Russian but have difficulty reading and writing. Each course may be taken independently for credit with consent of instructor. 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-102D. Fourth-Year Russian. (4 each)** (Formerly numbered 102A-102B-102C.) Lecture, three hours. Requisite: course 101C. Advanced conversation and composition, with emphasis on vocabulary development and review of selected grammar topics in fiction, nonfiction, poetry, film. Each course may be taken independently for credit. P/NP or letter grading. **102A.** The Family in Contemporary Russia. (Formerly numbered 102B.); **102B.** The Individual and the State. (Formerly numbered 102A.); **102C.** Growing Up in Russia; **102D.** Emphasis on Social Science.

**103A-103B-103C. Russian for Native and Near-Native Speakers. (4-4-4)** (Formerly numbered 103.) Discussion, three hours. Improvement of oral and written language skills, emphasizing correct and diversified use of language and addressing individual grammatical difficulties. Courses may be taken independently for credit and may be repeated for credit with topic and/or instructor change. P/NP or letter grading. **103A.** Russian National Identity. Readings in literature, philosophy, criticism, film. **103B.** Literature and Film. Film adaptations of Russian literature. Readings and screenings. **103C.** Special Topics.

**106. Russian for Advanced Native and Near-Native Speakers. (4)** Lecture, three hours. Requisite: course 101C. Analysis of literary texts. P/NP or letter grading.

**107. Russian for Social Scientists. (2)** Preparation: three years of Russian. Reading of texts relevant to social scientists: viewing of Soviet TV. May be repeated for credit.



**108. Russian for Business: Language and Culture. (4)** (Formerly numbered 108A-108B-108C.) Recitation, three hours. Discussion of economics and business in Russia, language and advertising, business and official correspondence. P/NP or letter grading.

## Linguistics

**M40. Language and Gender: Introduction to Gender and Stereotypes in English, Japanese, and Russian. (5)** (Same as Communication Studies M40 and Japanese M40.) Lecture, three hours; discussion, one hour. Introduction to language from sociological perspective of gender. Use of research and examples in English, Japanese, and Russian to explore nature of male and female "genderlects" and gendered language, as reflected in lexicon, language behavior, phonetics and intonation, language acquisition. 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.

## Literature and Civilization

**25. Russian Novel in Translation. (4)** 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.

**25W. Russian Novel in Translation. (5)** Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for course 25. Study of major works by the great 19th-century Russian novelists. Satisfies Letters and Science 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, focusing 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.

**99A. Introduction to Russian Civilization. (4)** Lecture, three hours. Introductory survey of social and cultural institutions of the Russian people and their historical background.

**99B. Russian Civilization in the 20th Century. (4)** Lecture, three hours. Not open for credit to students with credit for course 99BW. 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.

**99BW. Russian Civilization in the 20th Century. (5)** Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H. Not open for credit to students with credit for course 99B. 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 Letters and Science Writing II requirement. Letter grading.

**118. Russian Literature of Middle Ages and Enlightenment. (4)** Lecture, three hours. Designed for juniors/seniors. Russian majors should take this course in their sophomore year. Lectures and readings in English. Survey of Russian literature from its origins through the Enlightenment, with focus on influence of church, state, and society in evolution of a national literature.

**119. Golden Age and the Great Realists. (4)** Lecture, three hours. Designed for juniors/seniors. Russian majors should 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.

**120. Literature and Revolution. (4)** Lecture, three hours. Designed for juniors/seniors. Russian majors should 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.

**124C-124T. Studies in Russian Literature. (4 each)** (Formerly numbered 124A-124G.) Lecture, three hours. Lectures and readings in English. P/NP or letter grading. Following writers are alternately discussed: **124C.** Chekhov. (Formerly numbered 124F); **124D.** Dostoevsky; **124G.** Gogol. (Formerly numbered 124B.); **124N.** Nabokov. (Formerly numbered 124G.) Nabokov as writer (the European stories and novel *The Gift*, originally written in Russian, and the American novels *Lolita*, *Invitation of a Spring*, and *Pale Fire*, originally written in English) and as critic (with excerpts from his criticism and from works by Pushkin, Gogol, and Lermontov), translator (*Eugene Onegin*), and memoirist (*Speak, Memory*). **124T.** Tolstoy. (Formerly numbered 124E.)

**125. The 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)** (Formerly numbered 127.) (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.

**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.

**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.

**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.

**M150. Russian Folk Literature. (4)** (Same as Folklore M150.) Lecture, three hours. Lectures and readings in Russian.

**CM170. Russian Folklore. (5)** (Formerly numbered M170.) (Same as Folklore M170.) 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.

**193. Seminar: Russian Literature. (4)** Seminar, three hours. Requisite: course 6. Recommended: course 101C. Reading and discussion of selected authors; written seminar papers usually required. May be repeated for credit with topic and/or instructor change.

## Graduate Courses

**201A-201B-201C. Russian: Vocabulary, Pronunciation, Style. (4-4-4)** Lecture, three hours. Requisites: courses 102C, 106. 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.

## Linguistics

**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 the Russian Language. (4)** Lecture, three hours. Requisites: course 220A, Slavic 201. Required for M.A. (linguistics, literature). Survey of history of the Russian language from its beginning to the present.

**210. Readings in Old Russian Texts. (4)** Lecture, three hours. Requisite: Slavic 201. Readings in premodern Russian texts. May be repeated for credit.

**220A-220B. Structure of Modern Russian. (4)** Lecture, three hours. **220A.** Phonology and Morphology. Required for M.A. (literature, linguistics). Advanced study and analysis of problems in Russian phonology, inflection, and derivation. **220B.** Morphosyntax. Requisite: course 220A. Required for M.A. (linguistics). Survey of Russian syntax and grammatical categories.

**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.

**261. Discourse Grammar of Russian. (4)** 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.

## Literature and Civilization

**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:

**212A.** The Golden Age. Required for M.A. (literature, linguistics). 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.

**212B.** Age of Realism. 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 Saltykov-Shchedrin, and concluding with works of the symbolist period, especially the short stories of Chekhov.

**213. 20th-Century Russian Literature. (4)** Lecture, three hours. Required for M.A. (literature). Lectures and readings in major and secondary writers.

**215. Contemporary Russian Literature. (4)** Discussion, three hours. Requisite: course 213. Close readings in selected texts of poetry and prose, metropolitan and emigre, of recent vintage. May be repeated for credit. S/U or letter grading.

**219. Movements and Genres in Russian Literature. (4)** Lecture, three hours. Required for M.A. (literature). Introduction to most important theoretical issues of Russian literature viewed in diachronic perspective.

**227. Linguistic Approaches to Russian Poetry. (4)**

Lecture, three hours. Designed for graduate students. Introduction to use of linguistic methods in study of Russian poetic texts. May be repeated for credit.

**C240. Russian Folklore. (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 CM170. S/U or letter grading.

**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.

**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.

**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 213. Selected authors and works from 20th-century poetry, prose, and drama. May be repeated for credit with consent of instructor and graduate adviser.

**294. Seminar: Russian Literary Criticism. (4)** Seminar, three hours. Requisites: courses 211B, 212A, 212B, 213. 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 the West. May be repeated for credit with consent of instructor and graduate adviser.

**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

**103A-103B-103C. Elementary Serbian/Croatian. (5-5-5)** Recitation, five hours. Basic courses in Serbian/Croatian. P/NP or letter grading.

**103D-103E-103F. Advanced Serbian/Croatian. (4-4-4)** Recitation, three hours. Requisite: course 103C. P/NP or letter grading.

**154. South Slavic Literature. (4)** (Formerly numbered 154A-154B.) Lecture, three hours. Lectures and readings in English. Survey of South Slavic literature from Middle Ages to the present. P/NP or letter grading.

## Slavic

### Lower Division Courses

**88. Seminar: Literature and Culture. (4)** Seminar, three hours. Variable topics course designed to explore themes and issues pertinent to Slavic literature and culture. Consult *Schedule of Classes* or department for topics to be offered in a specific term. Letter grading.

**99. Introduction to Slavic Civilization. (4)** Lecture, three hours. Introductory survey of social and cultural institutions of the Slavic peoples and their historical background.

## Upper Division Courses

**125. Interwar Central European Prose. (4)** (Formerly numbered M125.) 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.

**126. Postwar Central European Prose. (4)** (Formerly numbered M126.) Lecture, three hours. Analysis of selected novels, stories, plays, and essays of representative contemporary authors in translation. Special attention to relation between art and ideology. P/NP or letter grading.

**M179. Baltic and Slavic Folklore and Mythology. (4)** (Same as Folklore M126.) Lecture, three hours. General course for students interested in folklore and mythology and for those interested in Indo-European of antiquities.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Limited to seniors.

## Graduate Courses

### Linguistics

**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. (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.

**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. Required for Ph.D. (linguistics). 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 102A, 102B, and 102C, or Polish 102A, 102B, and 102C. Required for Ph.D. (linguistics). Introduction to structure and history of West Slavic languages.

**223. Introduction to South Slavic Languages. (4)** Lecture, three hours. Requisite: course 202. Recommended: Serbian/Croatian 103A, 103B, 103C. Required for Ph.D. (linguistics). 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.

**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.

## Literature

**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.

## Special Studies

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

**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 I. Kotlyarevsky, T. Shevchenko, I. Franko, L. Ukrainka, and P. Tychna.

## Related Courses

### Economics

182. Centralized Economics Systems

### Ethnomusicology

91C. Music and Dance of the Balkans

128. Folk Music of Eastern Europe

### Geography

184. Russia

### History

131A-131D. History of Russia

200D. Advanced Historiography: Europe

233A-233B. Seminars: Russian/Soviet History

### Linguistics

20. Introduction to Linguistics

103. Introduction to General Phonetics

110. Introduction to Historical Linguistics

120A. Phonology I

120B. Syntax I

M150. Introduction to Indo-European Linguistics

### Political Science

128A. U.S./Soviet Relations

128B. International Relations of Post-Communist Russia

156A. Government and Politics of Post-Communist States: Russia

156B. Government and Politics of Post-Communist States: Eastern Europe

## SOCIAL WELFARE

*School of Public Policy and Social Research*

UCLA  
3357 Public Policy Building  
Box 951656  
Los Angeles, CA 90095-1656  
(310) 825-2892  
<http://www.sppsr.ucla.edu/sw/>

A.E. Benjamin, Ph.D., *Chair and Director, MSW Program*  
Joseph A. Nunn, Ph.D., *Vice Chair, Agency and Community Relations*  
Stuart A. Kirk, D.S.W., *Chair, Doctoral Program*

### Professors

Rosina M. Becerra, Ph.D.  
A.E. Benjamin, Ph.D.  
Yehekel Hasenfeld, Ph.D.  
Stuart A. Kirk, D.S.W. (*Marjorie Crump Professor of Social Welfare*)  
Duncan Lindsey, Ph.D.  
James E. Lubben, D.S.W.  
Barbara J. Nelson, Ph.D., *Dean*  
Paul Ong, Ph.D.  
Robert F. Schilling, Ph.D.  
Fernando M. Torres-Gil, Ph.D.

### Professors Emeriti

Jerome Cohen, Ph.D.  
Jeanne M. Giovannoni, Ph.D.  
Doris S. Jacobson, Ph.D.  
Alfred H. Katz, D.S.W.  
Harry H.L. Kitano, Ph.D. (*UCLA Alumni and Friends of Japanese Ancestry Professor Emeritus of Japanese American Studies*)  
Alex J. Norman, D.S.W.  
Jack Rothman, Ph.D.  
Leonard Schneiderman, Ph.D.  
Harry Wasserman, D.S.W.

### Associate Professors

Pauline Agbayani-Siewert, Ph.D.  
Diane de Anda, Ph.D.  
Alfreda P. Iglehart, Ph.D.  
Ailee Moon, Ph.D.  
Rachelle A. Zukerman, Ph.D.

### Assistant Professors

Todd M. Franke, Ph.D.  
Mitchell T. Maki, Ph.D.

### Adjunct Associate Professor

JoAnn Damron-Rodriguez, Ph.D.

### Adjunct Assistant Professors

James McGuire, Ph.D.  
Jorja J. Prover, Ph.D.

### Fieldwork Consultants

Pamela Davis, L.C.S.W.  
Lartha R. Dunham, M.S.W.  
Colleen Friend, L.C.S.W.  
Elizabeth Heck, L.C.S.W.  
Katherine M. Kolodziejewski, Ph.D., *Emerita*  
Jane E. Kurohara, M.S.W., *Emerita*  
Gerardo P. Laviña, L.C.S.W.  
Joseph A. Nunn, Ph.D.  
Mary Kay Oliveri, L.C.S.W.  
Winifred E. Smith, M.S.W., *Emerita*  
Mary Brent Wehrli, M.S.W.  
Sharon Chun Wetteran, 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 Policy and Social Research, the program affords students instructional opportunities in the other affiliated departments — Policy Studies 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 health care, better job training, and better economic futures.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Social Welfare offers the Master of Social Welfare (M.S.W.) and Doctor of Philosophy (Ph.D.) degrees.

## Admission

### Master of Social Welfare

In addition to Graduate Division requirements, the M.S.W. program requires a minimum of

seven courses in the liberal arts, including three in the sociobehavioral sciences, or a combination of liberal arts and social welfare subjects as requisite undergraduate preparation for graduate study in the field of social work. An elementary statistics course with a grade of B or better and one course with human biology content are also required.

The University requires a grade-point average of 3.0 or better in all courses taken during the junior and senior years. In exceptional cases that require special approval of the Graduate Division if admission is recommended, applicants who have a grade-point average below 3.0 may be considered when there is clear evidence of capacity for academic achievement and professional development. In addition, the department applies the following criteria in the selection of candidates: personal suitability for professional education and a potential for successful social work practice, a satisfactory state of health, and an adequate financial and personal plan to permit completion of degree requirements.

The General Test of the Graduate Record Examination (GRE) is required, as are official transcripts from every school attended since high school. GRE scores must be less than five years old and may be repeated to achieve a higher score, if desired. In addition, international students whose native language is not English and whose higher education was not obtained in an English-speaking institution are required to take the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination. The department may request that specified additional examinations are taken to assist in the assessment of candidacy for admission.

Three letters of recommendation are required. In addition, an autobiographical statement and a professional concepts and goals statement must accompany the application.

Although a personal interview is not normally required as part of the application procedure, whenever possible a meeting with a member of the faculty is arranged for applicants.

Admission to the department requires simultaneous application to (1) the Department of Social Welfare and (2) the Graduate Division. Both applications and the program brochure can be obtained by writing to the Department of Social Welfare.

### Social Welfare M.S.W./Asian American Studies M.A.

The Department of Social Welfare and the Asian American Studies Program offer a concurrent program whereby students may pursue the M.S.W. and M.A. in Asian American Studies at the same time. Applicants are required to satisfy the regular admission requirements of both programs.

Students complete the Asian American studies courses in the first year and the social welfare courses in the second and third years. The Asian American Studies Program requires a

thesis to be completed by the third year. Students must complete the program requirements for both degrees. However, a maximum of 8 units of coursework in social welfare may be applied toward both degrees.

Applicants may submit the same statement of purpose to each program, but all other parts of the application process are separate to each graduate program. Applicants interested in the concurrent degree program should contact the Asian American Studies Program or the Department of Social Welfare.

### Social Welfare M.S.W./Law J.D.

The Department of Social Welfare and the School of Law offer a concurrent plan of study over four years leading to both a J.D. and an M.S.W. This integrated plan provides preparation for lawyers who want to focus on social welfare law and programs. Social workers interested in legal issues related to social welfare policy would also benefit from this preparation. Applicants are required to satisfy the regular admission requirements of both programs; contact the School of Law and the Social Welfare Department for further information.

### Ph.D. in Social Welfare

Admission requirements for the Ph.D. degree include meeting the general admission requirements of the Graduate Division and an M.S.W. degree from an accredited school of social work with a superior academic record. Students who possess a master's degree in social science and professional experience in a related field may also be admitted under one of the following plans:

1. Applicants who wish to obtain an M.S.W. are required to complete the first-year M.S.W. program. Students can be exempted from some second-year M.S.W. requirements via examinations on the basis of preparation received in Ph.D. courses. The plan is also available to applicants with a B.A. degree who possess an outstanding academic record.
2. Applicants who do not wish to obtain an M.S.W. may be required to take certain M.S.W. courses as requisites to Ph.D. courses.

The Graduate Record Examination (GRE) General Test is required. International applicants whose native language is not English and whose higher education was not obtained in an English-speaking institution are required to take the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination. The program may request that additional examinations be taken to assist in the assessment of candidacy for admission.

Official transcripts from every school attended since high school are required. Three letters of recommendation and a typewritten statement of professional and educational objectives are required. To exemplify communication skills, applicants may submit any of the following:

published articles, master's thesis, unpublished papers, or term papers written in graduate courses.

Admission criteria include quality of performance in previous undergraduate and graduate study, capacity for doctoral-level scholarship, ability to express oneself clearly in writing, success in professional employment and other pertinent experiences, results of the GRE, and other qualifications indicating eligibility for advanced study and research. Enrollment in the Ph.D. program is limited, and it may not be possible to accept all applicants who meet the formal qualifications for admission.

Prospective students must apply separately to the department and to the Graduate Division. Both applications and the school brochure are available by writing to the Department of Social Welfare doctoral program.

### Master's Degree

Social work practice in organizations, communities, and policy settings (SWCOPS), and social work practice with individuals, families, and groups (SWIFG) are offered as social work methods concentrations. Specializations (sub-concentrations) are available in gerontology, child welfare, school and youth services, health services, and mental health services.

The M.S.W. degree is offered through the comprehensive examination plan. A total of 76 units of graduate coursework in the department is required, including two courses in the sequence of social welfare policy and services, three courses in the human behavior and social environment sequence, nine courses in methods of social work practice, two courses in social welfare research, and six quarters of field practicum.

The curriculum requires theoretical courses in research methodology. Students have the option of substituting the second-year required substantive social welfare research course with the satisfactory completion of an individual research project, or participation in a group research project concerned with a social welfare problem.

There is a concurrent field placement in each of the two years.

### Doctoral Degree

The Ph.D. program trains research-oriented scholars to advance the field of social welfare through research and knowledge development, and to assume leadership roles in academic, policy, and practice settings. The curriculum is organized into three major areas: (1) specialization in a substantive area of social welfare, (2) integration of social and behavioral science knowledge into social welfare, and (3) research methods. Programs of study are planned in relation to the special and individual needs and interests of students.

There is a minimum core of required courses that includes two seminars on practice theory and research, two seminars on social welfare policy, and two graduate-level courses in statistics. In addition, students are required to take (1) at least three graduate-level courses in the social and behavioral sciences outside the department related to their specialization in social welfare, (2) three courses in advanced research methods, and (3) three quarters of research internship.

Every effort is made to individualize the curriculum around a student's area of interest and plans for the dissertation. In order to achieve this goal, a variety of patterns is utilized, including tutorials, small seminar groups, special courses in the M.S.W. program, and courses in other departments and schools of the University.

Written and oral qualifying examinations are required. The written qualifying examinations consist of an examination in social welfare policy and practice that reviews current theory and research and a major publishable scholarly paper on a social welfare topic, demonstrating the student's mastery of social science theory and methods of scientific inquiry.

Following successful completion of the written examinations, students take the University Oral Qualifying Examination, which covers the dissertation proposal and related areas.

## Social Welfare

### Upper Division Courses

**100A. Introduction to Social Welfare: Policies and Programs. (4)** 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 the profession to major social problems.

**100B. Social Welfare Policy: Overview. (4)** Requisite: course 100A. Review of existing policy regarding major social issues in the 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.

**101. Social Welfare in a Multicultural Society. (4)** 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.

**102. Social Welfare Organizations and Community Systems. (4)** Recommended requisites: courses 100A, 100B. Detailed demonstration of implementation of policy via the functioning of human service organizations. Examination of organizational structures/functions. Exploration of characteristics and organization of the community and forces that influence its development and change.

**103. Introduction to Direct Practice with Individuals, Families, and Groups. (4)** Requisites: courses 100A, 100B, 101. Description and demonstration of basic skills employed in direct social work practice via the casework process. Students practice these skills in written, role-play, small group, and video or audio exercises. P/NP or letter grading.

**104A. Filipino American Community and Family. (4)** Examination of interaction of Filipino American families and communities within the larger social and political environment to understand importance of social, cultural, and political influences of Filipino American families and communities. P/NP or letter grading.

**104B. Japanese American Redress. (4)** Examination of process through which Civil Liberties Act of 1988 was created, pursued, and passed. This act was the official apology from the U.S. government to over 110,000 Japanese Americans incarcerated in concentration camps during World War II. 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 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 Gerontology 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 Gerontology 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.

**104F. Japanese American Community and Family. (4)** Examination of interaction of Japanese American families and communities within the larger social and political environment to understand importance of social, cultural, and political influences of Japanese American families and communities. 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.

**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. Requisite: 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.

**M108. Violence against Women. (4)** (Same as Women's Studies M187.) Lecture, three hours. Requisites: Women's Studies 10, 110A. 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.

**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.

**199. Special Studies in Social Welfare. (2 or 4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average. Designed for juniors/seniors. Intensive directed research in social welfare. 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 a unified theory of human development. Letter grading.

**202A-202B. Dynamics of Human Behavior. (2-2)** 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 the social worker.

**203A-203B-203C. Integrative Seminars. (2-2-2)** Integrative courses which bring together theory and practice of social work in a variety of topic areas relevant to the profession. Includes identification of problem areas and populations-at-risk requiring further examination. S/U or letter grading.

**M203D. Supporting Families of Children with Special Needs. (2)** (Same as Psychiatry M254.) Techniques and issues in counseling families through evaluation, feedback, and treatment. Social and psychological stresses on family unit, professional's reactions, community resources, and issues of genetic counseling, placement, and developmental crises. S/U grading.

**M203E. Hispanic Mental Health Issues and Treatment. (2)** (Same as Psychiatry M231.) Mental health issues and needs of Hispanics through seminars and videotapes dealing with historical comparison of psychiatry in Mexico and the U.S., analysis of various theoretical perspectives regarding biopsychosocial behavior; distinguishing psychodynamic from cultural factors in treatment of Spanish-speaking patients; treatment of Hispanic families, couples, undocumented persons, and criminal justice system clientele.

**M203F-M203G-M203H. Child Abuse and Neglect. (2-2-1)** (Formerly numbered M290E-M290F-M290G.) (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 the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the 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 the homeless. Letter grading.

**220. History and Philosophy of Social Welfare. (2)** History of social work as a field: body of knowledge, method and process, and point of view analyzed within context of economic, political, social, philosophical, and scientific climate of the period.

**M221A. Foundations of Social Welfare Policy. (4)** (Same as Policy Studies M210 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 the welfare system; theory and research about welfare policies and organizational forms. S/U or letter grading.

**221B. Social Welfare Policy and Services II. (2)** 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.

**223. Seminar: Social Work Profession. (2)** Nature and role of social work in contemporary society; relationships with other professions; probable future trends in the profession; social work ethics, professional organizations, certification licensing; professional responsibility for continued self-criticism and improvement of the profession. S/U grading.

**225A-225B. Social Welfare Policy. (4-4)** Discussion, three hours. Designed for Ph.D. students:

**225A. Formulation and Analysis.** 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.

**225B. Implementation and Evaluation.** 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.

**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 casework 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.

**240A-240B. Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings I, II. (3-3)** (Formerly numbered 240A-240B-240C.) 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; fieldwork. Use of domestic violence as a 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 the systems.

**M241E. Leadership, Development, and Governance of Nonprofit Organizations. (4)** (Same as Policy Studies 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.

**245A-245B. Development of Social Work Practice Theory. (4-4)** Discussion, three hours. Designed for Ph.D. students:

**245A. Epistemology of Practice.** 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.

**245B. Models of Social Work Practice Research.** Research for practice, with major emphasis on methods of intervention research which seek to design, test, evaluate, and disseminate innovative intervention technologies.

**258. Critical Problems in Social Welfare.** (2) Designed for Ph.D. students. Current problems in the 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) Individual or group research projects requiring intensive examination and analysis of a social problem area, directed toward development of research knowledge and techniques for social work practice. In Progress and S/U or letter 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) (Formerly numbered 285A.) 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) (Formerly numbered 285B.) 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) (Formerly numbered 285C.) 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) Discussion, four 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. S/U or letter grading.

**286B. Advanced Research Methods.** (4) Discussion, four 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. S/U or letter grading.

**286C. Research Internship.** (4) Discussion, 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 or letter 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 Health Care Needs: Systems Perspective.** (4) (Same as Community Health Sciences M420.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices which 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 Policy Studies 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 Policy Studies M213.) Lecture, three hours. Examination of evolution of social policy and services for the mentally ill, with emphasis on political, economic, ideological, and sociological factors that affect views of the mentally ill and services they are provided. S/U or letter grading.

**M290L. Poverty, the Poor, and Welfare Reform.** (4) (Same as Policy Studies M214 and Urban Planning M246.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward the poor in the U.S. S/U or letter grading.

**M290M. Health Policy.** (4) (Same as Policy Studies M215.) Lecture, three hours. Introduction to contemporary issues in health care 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 Policy Studies M216.) Lecture, three hours. Policy issues that affect children and adolescents in relation to their interaction with schools and the 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 Policy Studies M211.) 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 the Poor.** (4) (Same as Law M215, Policy Studies M295, and Urban Planning M248.) Lecture, three hours. Designed for graduate students. Study of major income-maintenance programs in the U.S., with emphasis on interaction of moral attitudes toward the poor and structure and implementation of the law, policy, and administration. Current reform consensus and major reforms. Letter grading.

**M290S. Nonprofit Sector, State and Civil Society.** (4) (Same as Policy Studies M227 and Urban Planning M287.) Lecture, three hours; outside study, nine hours. Designed for graduate students. 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 the U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between the U.S. and other countries. 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 Policy Studies 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 the 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 Policy Studies 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.

**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 a disciplined practice foundation in the profession. In Progress and S/U 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 and S/U grading.

**490. Professional Communication for Social Welfare.** (2) Writing workshop on students' papers in progress, with an 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) 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 a 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.

# SOCIOLOGY

College of Letters and Science

UCLA  
2201 Hershey Hall  
Box 951551  
Los Angeles, CA 90095-1551  
(310) 825-1313  
<http://www.sscnet.ucla.edu/soc/>

Roger Waldinger, Ph.D., *Chair*

## Professors

Walter R. Allen, Ph.D.  
Rodolfo Alvarez, Ph.D.  
Ronald M. Andersen, Ph.D.  
Francis R. Anderson, B.A., *Acting*  
Kenneth D. Bailey, Ph.D.  
Richard A. Berk, Ph.D.  
Phillip Bonacich, Ph.D.  
Rogers W. Brubaker, Ph.D.  
Duane W. Champagne, Ph.D.  
Lucie C. Cheng, Ph.D.  
Robert M. Emerson, Ph.D.  
Michael S. Goldstein, Ph.D.  
Laura E. Gómez, M.A., J.D., Ph.D.  
Oscar Grusky, Ph.D.  
David Halle, Ph.D.  
M. Nicolette Hart, Ph.D.  
John C. Heritage, Ph.D.  
Jack Katz, Ph.D.  
Gail Kligman, Ph.D.  
Ivan H. Light, Ph.D.  
Michael Mann, Ph.D.  
Robert D. Mare, Ph.D.  
William Mason, Ph.D.  
Ruth M. Milkman, Ph.D.  
Anne R. Pebley, Ph.D.  
Melvin Pollner, Ph.D.  
Jeffrey Prager, Ph.D.  
William G. Roy, Ph.D.  
Emanuel A. Schegloff, Ph.D.  
Judith A. Seltzer, Ph.D.  
Edward E. Telles, Ph.D.  
Warren D. Tenhouten, Ph.D.  
Donald J. Treiman, Ph.D.  
Roger Waldinger, Ph.D.  
Maurice Zeitlin, Ph.D.  
Min Zhou, Ph.D.  
Lynne G. Zucker, Ph.D.

## Professors Emeriti

Jeffrey C. Alexander, Ph.D.  
Burton R. Clark, Ph.D.  
Harold Garfinkel, Ph.D.  
C. Wayne Gordon, Ph.D.  
John E. Horton, Ph.D.  
Harry H.L. Kitano, Ph.D. (*UCLA Alumni and Friends of Japanese Ancestry Professor Emeritus of Japanese American Studies*)  
Gene N. Levine, Ph.D.  
Valerie K. Oppenheimer, Ph.D.  
Jerome Rabow, Ph.D.  
Georges Sabagh, Ph.D.  
Melvin Seeman, Ph.D.  
Edwin S. Shneidman, Ph.D.  
Gerald H. Shure, Ph.D.  
Samuel J. Surace, Ph.D.  
Ivan Szelenyi, Ph.D.  
Ralph H. Turner, Ph.D.

## Associate Professors

Steven E. Clayman, Ph.D.  
Rebecca J. Emigh, Ph.D.  
Peter E. Kollock, Ph.D.  
Barbara Ballis Lal, Ph.D., *in Residence*  
David E. López, Ph.D.  
David D. McFarland, Ph.D.  
Vilma Ortiz, Ph.D.  
Gi-Wook Shin, Ph.D.

## Assistant Professors

Cameron D. Campbell, Ph.D.

John H. Evans, Ph.D.  
Aziza Khazzoom, Ph.D.  
Laura L. Miller, Ph.D.  
Meredith Phillips, Ph.D.  
Abigail Saguy, Ph.D.

## Adjunct Assistant Professors

Zsuzsa Berend, Ph.D.  
Michael F. Johnston, Ph.D.  
Kathleen Johnston Roberts, Ph.D.

## Scope and Objectives

Variety is the special characteristic both of the field of sociology and of the UCLA Department of Sociology, which was judged among the 10 best in the nation in a survey conducted by the Conference Board of the Associated Research Councils.

Sociology has a particular appeal to those students whose interests are broad and unspecialized. At both the undergraduate and graduate levels, students study history, politics, statistics and mathematics, race relations, demography, psychology, language, and many other topics. A sociology student becomes a member of an intellectual community in which all these interests are represented.

The primary purpose of the major in Sociology is to enhance students' capacity for critical analysis and understanding of social phenomena. It is intended, at the same time, to serve as preparation for careers in high school or junior college teaching, social work, architecture and urban planning, law, public health, and government service, among others. It also provides training for advanced graduate work in sociology and social psychology.

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.

#### Preparation for the Major

*Required:* One course from Sociology 1, 2, 3, 4, M5, 31; one course from Mathematics 2, 3A, 31A; Sociology M18 (or Statistics 10, Psychology 100A, or Economics M40).

All courses required for the major in Sociology, including lower division and allied field courses, must be taken for a letter grade. A 2.0 grade-point average is required for the preparation and for the major.

#### Transfer Students

To be admitted as Sociology majors, transfer students 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.

## The Major

*Required:* Ten upper division sociology courses (40 units), including Sociology 101, 102, and one course from 104, 104H, 106A, 113. These courses, devoted to the systematic exploration of sociological methods and theories, should be completed as early as possible and before taking other upper division courses. Students must also take seven additional upper division sociology courses.

To complete the major, four upper division allied field courses (16 units) in other departments are required (the allied fields are anthropology, communication studies, economics, geography, history, political science, and psychology), as is one course from English Composition 100W, 110, 129A through 129D, 131A through 131D (may be taken on a P/NP grading basis).

Only 8 units of Sociology 199 are allowed. At least six of the sociology courses 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 major, students must complete Mathematics 2, 3A, or 31A, and an honors section of Sociology 1 and M18.

Prior to taking other upper division sociology courses, students must complete an honors section of Sociology 101 and 102.

Also required are three undergraduate seminars from the Sociology 197 series; any two additional upper division sociology courses; courses 104H, 199HA, 199HB, 199HC (honors thesis seminars); four upper division allied field courses (16 units) in other departments (the allied fields are anthropology, communication studies, economics, geography, history, political science, and psychology); and one course from English Composition 100W, 110, 129A through 129D, 131A through 131D (may be taken on a P/NP grading basis).

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, 2201 Hershey Hall. Students should apply in the last term of 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 C112, 113. Students graduate with a bachelor's degree in sociology and a specialization in Computing.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Sociology offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Sociology.

## Admission

The primary aim of the graduate program is the training of scholars who conduct original research that contributes to the advancement of sociological knowledge. Therefore, the department ordinarily only accepts students who are seeking the Ph.D. degree. An M.A. in Sociology is received as part of the process of completing the requirements for the Ph.D.

In addition to the minimum University requirements (an acceptable bachelor's degree and a B average in all upper division and graduate work), the department requires (1) three letters of recommendation, preferably from professors of sociology who are familiar with the applicant's written work and research experiences, (2) transcripts from all colleges where applicants have studied (the department's evaluation considers not only the record in sociology, but all undergraduate work, including coursework in English composition, logic, linguistics, and mathematics), (3) a statement of purpose, not to exceed three typewritten double-spaced pages, outlining the reasons for pursuing graduate work, interests within sociology, career objectives, and any personal experiences bearing on these, (4) copies of one or two term papers or research reports written by the applicant, (5) an official statement of scores on the Graduate Record Examination (GRE), and (6) for applicants whose native language is not English, the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination.

Although background preparation in sociology is highly desirable, it is not mandatory for admission to the department. Applicants need not be uniformly high on all indicators of potential. The admissions committee, which generally consists of at least five faculty members and two advisory graduate student members, uses a number of indicators of particular skills rather than relying heavily on just one or two. For example, in assessing the level of verbal skills, the committee considers several items, including samples of written work and grades in courses that ordinarily require extensive verbal skills, as well as verbal GRE scores.

In addition to relatively formal criteria (such as analytic proficiency and articulateness), the department pays particular attention to applicants who seem likely to contribute considerable intellectual, social, or cultural diversity to its student body. Women, minorities and other students with diverse backgrounds and experiences are therefore encouraged to apply.

The deadline for receipt of applications is December 1. Application forms and more detailed information are available on request from the graduate affairs assistant in the department.

## Master's Degree

The M.A. degree is offered through the comprehensive examination plan. The examination is in the format of a master's paper. The required 42 units of graduate coursework consist of proseminars introducing the theoretical and research interests of the faculty, theory and research courses, topics courses, a methodology sequence, five additional courses in sociology, and a required course in intermediate statistical methods.

In addition to the 42 units of required coursework, some field examinations have their own course requirements for students who plan to take that field examination.

## Doctoral Degree

Field examinations include class, politics, and society; comparative ethnicity and nationalism; conversation analysis; cultural sociology; economic sociology; ethnographic methodology; ethnomethodology; mathematical sociology; people-processing institutions; political sociology; race/ethnicity; self and society; social demography; social psychology; social stratification and social mobility; sociology of gender; urban and suburban sociology.

In the quarter following acceptance of the master's paper, students submit a proposal specifying two of the field examinations and a timetable for completing the examinations. The department determines whether or not students may proceed directly to preparation for the field examinations, if additional courses need to be taken for breadth purposes, if the submitted paper needs additional work or if an additional paper needs to be done, and if the methodology sequence requirement has been adequately satisfied.

After the master's paper review, all students are required to take two courses of an additional specified methodology sequence that must be completed before award of the Ph.D. degree. In addition, the field examinations have required/recommended courses.

Written and oral qualifying examinations are required. Two specialized field examinations are administered by the area programs.

Following successful completion of the field examinations, students prepare a dissertation proposal and take the University Oral Qualify-

ing Examination, which covers general sociology, their specific fields, and the proposal.

## Sociology

### Lower Division Courses

**1. Introductory Sociology. (4)** Lecture, four hours. Survey of characteristics of social life, processes of social interaction, and tools of sociological investigation. P/ NP or letter grading.

**2. Changing Society and Making History. (4)** Lecture, three hours; discussion, one hour. Leading question is how do politics, economics, and culture interact in changing society and making history? Answers provided by introductory level of study of contending substantive theories and contrasting methods of inquiry contained both in classic and exemplary contemporary works.

**3. Sociology of Everyday Life. (4)** Lecture, three hours; discussion, one hour. Examination of ways in which taken-for-granted aspects of everyday life and relationships are shaped by interactional, cultural, and historical processes. Cultivation of capacity to critically observe tacit practices through which everyday life is constructed.

**4. Jobs and Careers: Sociological Approach. (4)** Lecture, three hours; discussion, one hour. Application of social science knowledge to common vocational problems. Description and analysis of major trends in employment, job search and hiring, career mobility patterns, forecasting, and entrepreneurship. Analysis of current thrust to worker ownership.

**M5. Social Organization of Black Communities. (4)** (Same as Afro-American Studies M5.) Lecture, three hours; discussion, one hour. 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.

**M18. Introduction to Statistical Methods for Social Sciences. (5)** (Same as Anthropology M80, Geography M40, and Statistics M12.) Lecture, four hours; discussion, one hour; laboratory, one hour. Elements of statistical analysis for social sciences. 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.

**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.

**31. Dilemmas of Third World Development. (4)** Lecture, three hours; discussion, one hour. Introduction to understanding dilemmas of Third World social development and prospects for progress in the future.

**88A-88Z. Lower Division Seminars. (4 each)** Seminar, three hours. Limited to 15 freshmen/sophomores. Variable topics of current sociological interest. Consult *Schedule of Classes* or "Department Announcements" for topics and instructors.

### Upper Division Courses

**101. Development of Sociological Theory. (4)** Comparative survey of basic concepts and theories in sociology from 1850 to 1920; codification of analytic schemes; critical analysis of trends in theory construction.

**102. Contemporary Sociological Theory. (4)** Requirement: course 101. Critical examination of significant theoretical formulations from 1920 to the present; analysis of relation between theoretical development and current research emphasis.

**103. Marxist Sociology. (4)** Fundamentals of Marxist theory and method and their historical development. Attention to continuing debates within Marxism and to differences between Marxism and other schools of sociological thought. May not be applied toward theory requirement for the major.



**104. Introduction to Sociological Research Methods. (4)** Not open to students with credit for course 104H. Systematic treatment and semiquantitative skills of use in sociological research (e.g., classification, questionnaire and schedule design, content analysis, critical analysis of studies, conceptual analysis of case materials). Fieldwork may be required.

**104H. Honors Thesis Research. (4)** Lecture, one hour; discussion, three hours. In-depth introduction to process of producing scholarly sociological research for students who intend to write an undergraduate honors thesis. Letter grading.

**106A. Introduction to Field Research Methods. (6)** (Formerly numbered 106.) Lecture, two hours; discussion, two hours; fieldwork, eight to 10 hours. Introduction to theory and practice of ethnographic field research, including consideration of 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. Intensive Field Research. (8)** Lecture, 90 minutes; discussion, 90 minutes; fieldwork, 15 to 20 hours. Requisite: course 106A. Field research practicum in which students write field notes on their experiences in and observations of intensive internship field placement. Readings focus on detached vs. "insider" fieldwork roles, ethical and political issues in fieldwork, use of qualitative and life history interviews in ethnography, and techniques for initial analysis of field data. Letter grading.

**106C. Analysis of Field Data. (4)** Lecture, two hours; discussion, two hours. Requisite: course 106B. Use of techniques of qualitative data analysis, including qualitative coding, analytic memoing, and grounded theory methods, to analyze field note and interview materials collected in courses 106A and 106B. Letter grading.

**107. Urban Poverty and Public Policy in the U.S. (Field Component). (4)** Requisite: course 144. Corequisite: one course from Geography 150 or 159A through 159E. Supplements and enriches students' academic understanding of urban poverty and the underclass by personal exposure and direct observation in a field setting. Students required to develop a plan of service in a local social service agency and observe policy formulation and implementation. P/NP or letter grading.

**109A-109B. Data Analysis for Social Scientists. (4-4)** Lecture, three hours; laboratory, one hour. Introduction to applied statistics and data collection for undergraduate students, especially sociology honors students. P/NP or 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 a replicable explanation of an historical event. P/NP or letter grading.

**C112. Introduction to Mathematical Sociology. (4)** (Formerly numbered 112.) Lecture, three hours; laboratory, two hours. Requisites: course M18, Mathematics 2, 3A (course whose content includes introductions to probability theory, matrix algebra, and differential and integral calculus). 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). Concurrently scheduled with course C243. Letter grading.

**113. Statistical and Computer Methods for Social Research. (4)** Lecture, three hours; laboratory, one hour. Requisite: course M18. Continuation of course M18, covering more advanced statistical techniques such as multiple regression, analysis of variance, or factor analysis. Content varies. Students learn how to use the computer and write papers analyzing prepared data sets.

**M115. Environmental Sociology. (4)** (Same as Environment M133.) Lecture, three hours. 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)** 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.

**117. Sociology of Family Demographic and Economic Behavior. (4)** Examination of demographic behavior associated with social organization of the family and its relationship to society's economic system. American and European historical studies of family socioeconomic and demographic characteristics and behavior in first half of course; U.S. experience since the 1930s in second half.

**CM124A-CM124B. Conversational Structures I, II. (4-4)** (Same as Communication Studies M144A-M144B.) Lecture, three hours; discussion, one hour. May be concurrently scheduled with courses C244A-C244B. P/NP or letter grading. **CM124A.** Introduction to some structures which are employed in organization of conversational interaction, such as turn-taking organization, organization of repair, and some basic sequence structures with limited expansions. **CM124B.** Requisite: course CM124A. 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 a 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)** 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.

**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 the emotions; the self and emotions; social construction of emotions.

**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.

**132. Social Psychology: Sociological Approaches. (4)** 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.

**133. Collective Behavior. (4)** Requisites: courses 1, M18. 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.

**134. Culture and Personality. (4)** Requisites: courses 1, M18. 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.

**135. Group Processes. (4)** Systematic study of formation, structure, and functioning of groups; analysis of group processes and group products from a variety of theoretical viewpoints; implications of various research techniques.

**136. Process and Socialization in the Family. (4)** Requisites: courses 1, M18. Designed for juniors/seniors. Examination of processes of interaction, decision making, role differentiation, conflict, integration, and socialization within the family and their interrelations with society.

**137. Psychoanalytic Sociology. (4)** Recommended preparation: one course in theory (course 101 or 102) and in social psychology. Requisites: courses 1, M18. Fieldwork may be required. Designed to review models of integration between psychoanalysis and sociology. Application of this analytical perspective to selected substantive areas and social processes, including but not limited to group development, delinquency, deviance, socialization, identity and self formation, role taking and role making.

**M138. Death, Suicide, and Trauma. (4)** (Same as Psychology M163.) Lecture, three hours. Designed for juniors/seniors. Definition and taxonomy of death; new permissiveness and taboos related to death; romanticization of death; role of the individual in his own demise; modes of death; development of ideas of death through life span; ways in which ideas of death influence conduct of lives; impact of dying on social structure surrounding the individual; preventive, interventive, and postventive practices in relation to death and suicide; developmental problems on witnessing traumatic death, including posttraumatic and grief reactions; partial death; mega-death; lethality; psychological autopsy; death of institutions and cultures. P/NP grading recommended (letter grading required if course to be applied toward Psychology or Sociology major).

**143. Human Health and Society. (4)** Lecture, three hours; discussion, one hour. Requisite: course 1. 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.

**144. Urban Poverty and Public Policy in the U.S. (4)** Historical overview of urban poverty and social welfare programs; ongoing debates about causes and consequences of poverty.

**145. Sociology of Deviant Behavior. (4)** Examination of leading sociological approaches to study of deviation and general survey of major types of deviation in American society.

**C146. Sociology of Interpersonal Conflict. (4)** (Formerly numbered 146.) Lecture, three hours; discussion, one hour. Development and transformation of everyday disputes and interpersonal troubles; dispute processing as informal social control in public places, neighborhoods, workplaces, and household settings in contemporary society. 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.

**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.

**148. Sociology of Mental Illness. (4)** Analysis of major sociological and social psychological models of madness. Study of social processes involved in production, recognition, labeling, and treatment of "mental illness."

**C149. People Processing Institutions. (4)** Discussion, three hours. Theory and research analyzing operation and decision-making processes of a variety of people processing institutions, including police, courts, schools, psychiatry, human service agencies, and medicine. Concurrently scheduled with course C229B. 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 the aged; caregiving relations and institutions; professions concerned with the aged and aging.

**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 M154.) Lecture, two 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 the 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.
- M155. Latinos in the U.S. (4)** (Same as Chicana and Chicano Studies M155.) Lecture, three hours; discussion, one hour. Prerequisite: course 1. 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 the larger social structure and on comparisons with other minority groups. Topics include migration, family, education, and work issues. P/NP or letter grading.
- 156. Ethnic and Status Groups. (4)** Characteristics of "visible" ethnic groups (e.g., Japanese, Mexican, and black); their organization, acculturation, and differentiation. Development, operation, and effects of selective immigration and population mobility. Status of chief minorities in continental U.S., with comparative materials from Jamaica, Hawaii, and other areas.
- 157. Social Stratification. (4)** 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.
- 158. Urban Sociology. (4)** Lecture, three hours. Description and analysis of urbanization and urbanism in the U.S. and the world.
- 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)** Study of causes and consequences of group conflict, with emphasis on majority/minority relations, prejudice, and discrimination. Special attention to alternative sociological and psychological theories of prejudice; effects of minority status on the individual; and possibilities for attitude and behavior change.
- M161. Comparative American Indian Societies. (4)** (Same as American Indian Studies M161.) Lecture, three hours. Prerequisite: course 1 or American Indian Studies 10. 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.
- 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.
- 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.
- M167. Contested Sexualities. (4)** (Same as Lesbian, Gay, Bisexual, and Transgender Studies M167 and 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.
- 168. Organizations and Society. (4)** Sociological analysis of organizations and their social environment. Introduction to basic theories, concepts, methods, and research on behavior of organizations in society.
- 169. Law and Society. (4)** 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.
- 170. Medical Sociology. (4)** 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.
- 171. Occupations and Professions. (4)** Description and analysis of representative occupations and professions, with emphasis on the contemporary U.S.
- 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.
- 173. Economy and Society. (4)** Sociology of economic life, with emphasis on principal economic institutions of the U.S.
- M174. Sociology of the Family. (4)** (Formerly numbered 174.) (Same as Women's Studies M174.) Lecture, four hours. Theory and research dealing with the 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. (4)** (Same as Education M108.) Prerequisite: course 1. Study of social processes and interaction patterns in educational organizations; relationship of such organizations to aspects of society, social class, and power; social relations within school, college, and university; formal and informal groups, subcultures in educational systems; roles of teachers, students, and administrators. Fieldwork may be required.
- M176. Sociology of Mass Communication. (4)** (Same as Communication Studies M147.) Prerequisite: course 1. 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.
- M177. The Military and Society. (4)** (Formerly numbered 177.) (Same as Women's Studies M177.) Lecture, three hours; discussion, one hour. Examination of the military as an organization and profession: personnel issues such as family, class, race, gender, and sexual orientation and postmodern military issues such as civil/military relations, media coverage, peacekeeping operations, and the future of war. P/NP or letter grading.
- M180. Introduction to Development Studies: Political Economy of Development. (4)** (Same as International Development Studies M100B and Political Science M197G.) Seminar, three hours. Analysis of determinants of underdevelopment, with focus on impact of colonialism, foreign investment, and trade, and on political economy.
- 182. Political Sociology. (4)** Contributions of sociology to study of politics, including analysis of political aspects of social systems, social context of action, and social bases of power.
- 183. Comparative and Historical Sociology. (4)** 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 a variety of theoretical perspectives.
- 184. Social Change. (4)** Study of patterns of social change, resistance to change, and change-producing agencies and processes.
- 185. American Society. (4)** Analysis of major institutions in the U.S. in historical and international perspective, with emphasis on topics such as industrialization, work, the state, politics, community, the family, religion, and American culture. Theories of social change, conflict, and order applied to the case of the U.S.
- 186. Latin American Societies. (4)** Descriptive survey of major Latin American societies, emphasizing their historical backgrounds and their emergent characteristics, with special attention to relations between rural and urban life.
- 187. Population and Society in the Middle East. (4)** Designed for juniors/seniors. Survey of Middle Eastern societies; their historic and environmental bases; contemporary demographic and cultural situation.
- 188. Comparative East Asian Societies before World War II. (4)** Lecture, two 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.
- 189. Japanese Society. (4)** Lecture, two and one-half hours; discussion, two hours. Prerequisite: course 1. Analysis of social-structural characteristics and functioning of contemporary Japanese society, with focus on (1) forms of social interaction and social structure, (2) work, family, and the life course, and (3) education and opportunity. Emphasis on structural perspectives, more than cultural perspectives.
- 190. Capitalism, Socialism, and Alternative Social Systems. (4)** Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Theories of capitalism and socialism, history of social experiments with socialism and other noncapitalist systems, and assessment of the record of these experiments. P/NP or letter grading.
- 191. Society and Politics in Korea. (4)** Lecture, three hours; discussion, one hour. Examination of society and politics in 20th-century Korea from a comparative/historical perspective; Korean case used to discuss major sociological and theoretical issues in social change and development (political and economic). P/NP or letter grading.
- 192. State and Society in China. (4)** Lecture, three hours. 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 the present.
- 193. Asia-Pacific Social Transformation since World War II. (4)** Lecture, three hours. Designed for juniors/seniors. Introductory and comparative survey of post-World War II development in Asia-Pacific region, with focus on ascent of Japan, newly industrialized capitalist countries, and emergence of socialist states.
- M194. Senior Seminar: Language, Interaction, and Culture. (4)** (Same as Anthropology M194 and Applied Linguistics and TESL M194.) Seminar, four hours. Limited to seniors in Language, Interaction, and Culture minor. Capstone course. Students carry out and present empirical research project that integrates methodologies and perspectives of at least two of the disciplinary areas (anthropology, applied linguistics, sociology) covered in course. Letter grading.
- 195A-195Z. 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.
- M196A-M196B. Contemporary Issues in Urban Poverty Research. (4-4)** (Same as Anthropology M196A-M196B.) Lecture, three hours. Prerequisites: Honors Collegium 7A, 7B. Two-term research seminar designed to engage students in ongoing faculty research projects focusing on models of urban poverty and underclass behaviors. P/NP or letter grading.

**197A-197Z. Undergraduate Seminars. (4 each)** Seminar, three hours. Limited to junior/senior Sociology majors. P/NP or letter grading.

**M197W. CAPP Washington Research Seminar. (8)** (Same as Political Science M197W.) Seminar, three hours; laboratory, 24 hours. Limited to CAPP Program students. Seminar for undergraduates 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.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Requisites: courses 1, M18. Limited to senior Sociology majors and graduate students. Course of independent studies designed for students who (1) desire a more advanced or specialized treatment of an area covered in regular course list and who present that course as a requisite or (2) desire work in an area of sociological analysis currently not covered by an upper division course. Only 8 units are allowed. See undergraduate counselor for course contract.

**199HA-199HB-199HC. Special Studies for Honors. (4-4-4)** Tutorial, to be arranged. Requisite: course 104H. Limited to sociology honors program students. Letter grading. **199HA.** Design of research project to serve as student's honors thesis. Research proposal, detailed bibliography, and regular meetings with sponsoring faculty member required. **199HB.** Continuation of work initiated in course 199HA. Series of progress reports are prepared in consultation with instructor. **199HC.** Completion of written report or honors thesis.

**199I. Independent Studies for Internships. (2 to 4)** Independent studies course to be supervised jointly by Field Studies Office and faculty adviser. Further supervision to be provided by business for which student is doing internship. May not be applied toward major requirements. Normally only 4 units of internship are allowed. P/NP 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 and S/U or letter grading.

**203A. Social Survey Practicum. (4)** Lecture, one hour; discussion, one hour; laboratory, two hours. Designed for graduate students. Training through practice in basic techniques of survey research.

**203B. Social Survey Research Seminar. (4)** Seminar, one hour; discussion, one hour; laboratory, two hours. Designed for graduate students. Development of individual survey research projects under faculty supervision.

**204. Topics in Sociological Theorizing. (4)** (Formerly numbered 255A-255B.) Seminar, four hours. Examination of selected issues and problems in classical or contemporary sociological theory. S/U or letter grading.

**208A-208B. Social Network Methods. (4-4)** Lecture, three hours; laboratory, one hour. Requisites: courses 209A and 209B, or 210A and 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. In Progress and letter grading.

**209A-209B. Data Analysis for Social Scientists. (4-4)** Lecture, three hours; laboratory, one hour. Introduction to applied statistics and data collection for graduate social sciences students. In Progress grading.

**209C. Mathematics for Social Statistics. (4)** Lecture, three hours; computer exercises. Designed for graduate students. Discussion of elementary mathematical techniques needed for more advanced statistics courses in various social sciences, psychology, and education. Calculus of sets, sets of numbers, sequences of numbers, notion of a function, polynomials, differentiation, elementary matrices, and vectors.

**210A-210B. Intermediate Statistical Methods I, II. (4-4)** Lecture, three hours; discussion, two hours. Requisite: course M18. 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. Requisite: 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)** In Progress 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. Requisite: 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. Survey Data Analysis. (4-4)** (Not the same as courses 212A-212B prior to Fall Quarter 1998.) Lecture, three hours. Requisites: courses 210A, 210B. Analysis and interpretation of primarily nonexperimental quantitative data, focusing 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 and letter 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)** (Formerly numbered 213A.) (Same as Biostatistics M208 and Community Health Sciences 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.

**213B. Techniques of Demographic and Ecological Analysis. (4)** Requisite: course 210A. Procedures and techniques for collection, evaluation, and analysis of demographic and ecological data; models of population and ecological structure and change; applications to study of social structure and social change.

**214A-214B. Naturalistic Methods for Recorded Data. (4-4)** Special features of audio and video recordings as sources of data; problems of description and analysis posed by working with recorded data; practical exploration of techniques of data collection and transcription with both audio and video data; analysis of single cases and analytically defined collections; use of computer to organize research with recorded data. In Progress grading.

**215A-215B. Experimental Sociology. (4-4)** Requisite: course 210A. Basic fundamentals of experimental method, particularly as it is used in social psychology. In Progress grading.

**216A-216B. Survey Research Design. (4-4)** Lecture, 90 minutes; discussion, 90 minutes. Requisite: course 210A. History of the survey method; facet meta-theory 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 requisite: course 217A. Theories and techniques of ethnographic fieldwork. Kinds of problems amenable to ethnographic approaches, methods, and techniques for doing fieldwork, and ethical problems involved in such research. In Progress grading.

**218A-218B. Ethnomethodological Methods. (4-4)** Examination of techniques used in ethnomethodological research, practice in critical evaluation of research, and directed experience in conduct of an extended investigation employing ethnomethodological procedures. In Progress grading.

**219A-219B. Advanced Statistical Methods I, II. (4-4)** Lecture, three hours; discussion, two hours. Requisites: courses 210A, 210B. Not required. Advanced multivariate statistical methods: discrete variables and events, logit and log-linear regression, event-history analysis, general linear model, exploratory and confirmatory factor analysis, linear causal models, latent variables, reciprocal causation, classification and clustering, time-series analysis.

**220. Self and Society. (4)** (Not the same as course 220 prior to Fall Quarter 1998.) 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.

**221. Social Ecology. (4)** Requisites: courses M18, 116. Designed for graduate students. Examination of various approaches to both microecology and macroecology, including classical and neoclassical ecology, social area analysis, sociocultural ecology, city-size distributions, effects of population density on animals and humans, proxemics, territoriality, and effects of physical environment on humans.

**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 the 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.

**223. Phenomenological and Interactionist Perspectives on Selected Topics. (4)** Lecture, three hours. Comparison of phenomenological and symbolic and perspectives by examining a 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 the two approaches. When relevant, attention to logical and historical relations of phenomenology and interactionism of pragmatist, existentialist, and ordinary language philosophies.

**224A-224B. Problems in Social Psychology. (4-4)** Requisite: course 210A. Basic course for graduate students intending to specialize in social psychology. **224A.** Major theoretical contributions to the field. **224B.** Current work being done in department in several subfields.

**225A-225B. Demographic Perspectives on Relationship of Family and Economic Systems. (4-4)** Requisites: courses 210A, 210B. Examination of interrelationship of family and economic systems in societies at different levels of economic development, focusing particularly on the U.S. experience. Central to course: (1) analysis of how demographic factors affect economic and family systems; (2) how these systems, and changes in them, affect demographic variables; and (3) how this two-way process influences relationship of family and economic systems over time. **225A.** Lectures and readings. **225B.** Individual research projects involving term paper and classroom reports of results.

**226A-226B. Introduction to Theory and Major Empirical Research in Social Demography. (4-4)** Lecture, two hours; discussion, one hour. Requisite: 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.

**227. Sociology of Knowledge. (4)** 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.

**228A-228B. Critical Issues in Macrosociology. (4-4)** Lecture, two hours; discussion, one hour. Designed for graduate students. Conceptual introduction to the area of macrosociology in which exemplary works are read, studied for substance and methods, and critiqued in seminar and in written papers. Usually team taught by faculty of varying orientations. In Progress grading.

**C229A. Sociology of Interpersonal Conflict. (4)** (Formerly numbered 229A.) Lecture, three hours; discussion, two hours. Development and transformation of everyday disputes and interpersonal troubles; dispute processing as informal social control in public places, neighborhoods, workplaces, and household settings in contemporary society. Concurrently scheduled with course C146. Letter grading.

**C229B. People Processing Institutions. (4)** (Formerly numbered 229B.) Lecture, three hours; discussion, two hours. Course C229A is not requisite to C229B. Theory and research analyzing operation and decision-making processes of a variety of people processing institutions, including police, courts, schools, psychiatry, human service agencies, and medicine. Concurrently scheduled with course C149. Letter grading.

**230. Nations and Nationalism. (4)** Lecture, three hours. Preparation for independent work in the area of nations and nationalism through close reading of key theoretical and empirical works in this or related areas. S/U or letter grading.

**231. Race and Ethnicity: International Perspectives. (4)** Lecture, one hour; discussion, two hours. Designed for graduate students. Role of race and ethnicity in political, economic, and social lives of nations other than the U.S., with emphasis on theoretical and methodological issues in comparative research.

**232. Class, Politics, and Society. (4)** (Not the same as course 232 prior to Fall Quarter 1998.) 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 the field of political sociology, oriented around critical themes in major theoretical traditions and contemporary exemplars. Special attention to competing perspectives on power, theory of the state, and relationship of class structure to politics.

**234. Sociology of Community Organization. (4)** Designed for graduate students. Survey of recent and classical research and literature dealing with predominantly political institutions, problem of order, and organization of communal life in the village and metropolis.

**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.

**236. Immigration. (4)** Lecture, three hours. Emphasis on recent immigration to the U.S. in light of historical experience. Examination of patterns of adaptation and ethnic change, with particular attention to new theoretical approaches within multidisciplinary framework. S/U or letter grading.

**237. Seminar: Theory and Research in Comparative Social Analysis. (2)** 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 the Third World, and implications for theory construction and social research. S/U grading.

**238. Feminist Theory. (4)** 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.

**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 grading.

**240. Mathematics of Population. (4)** Preparation: prior knowledge of matrices, calculus, and probability theory. Discrete and continuous deterministic and probabilistic models of growth and composition of a one-sexed population classified by age, plus selected topics on more complicated population models.

**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 a feminist-informed sociology necessitate a fresh approach?

**M242. Analysis of Data with Qualitative and Limited Dependent Variables. (4)** (Formerly numbered 242.) (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.

**C243. Introduction to Mathematical Sociology. (4)** (Not the same as course 243 prior to Fall Quarter 1998.) Lecture, three hours; discussion, one hour; laboratory, two hours. Requisites: courses 210A, 210B. 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). Concurrently scheduled with course C112. Graduate students have additional readings, meet as a group one additional hour each week, and learn to use mathematical software such as MATHEMATICA. Letter grading.

**C244A-C244B. Conversational Structures I, II. (4-4)** Lecture, three hours; discussion, one hour. May be concurrently scheduled with courses CM124A-CM124B. Graduate students have additional assignments and/or meet as a group one additional hour each week. S/U or letter grading. **C244A.** Introduction to some structures which are employed in organization of conversational interaction, such as turn-taking organization, organization of repair, and some basic sequence structures with limited expansions. **C244B.** Requisite: course C244A. Consideration of some more expanded sequence structures, story structures, topical sequences, 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 a new cultural sociology. Theoretical focus, with consideration of case studies.

**246. Cultural Studies: Hermeneutic, Semiotic, and Poststructural Traditions. (4)** Lecture, one hour; discussion, two hours. Examination of cultural analysis as it has evolved outside the discipline of sociology, on premise that these extra-sociological approaches provide critical resources in advancing the field of cultural sociology today. Theoretical and comparative emphasis, with consideration of case studies.

**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 the emotions; creativity and expressed affect; thought, sensations, and the emotions; specific emotions; cultural differences in emotional expression; measurement of emotions.

**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 a range of organizational settings. S/U or letter grading.

**M249B. Health and Illness Behavior. (4)** (Same as Community Health Sciences M275.) Lecture, four hours. Requisites: Community Health Sciences 210, Epidemiology 100. Sociocultural factors affecting differential patterns of health behavior, illness behavior, and sick-role behavior. S/U or letter grading.

**250. Methodological Problems. (4)** Lecture, four hours. S/U or letter grading.

**251. Topics in the Problem of Social Order. (4)** Lecture, four hours. S/U or letter grading.

**252. Selected Topics in Sociology of Gender. (4)** Lecture, two hours; discussion, two hours. Designed for graduate students. Seminar on selected topics in sociology of gender. May be repeated for credit.

**253. Quantitative Methods in Sociology. (4)** Lecture, four hours. S/U or 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 the concepts, current exemplars of research that utilize these concepts, and critical reflection on research traditions.

**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.

**C258. Talk and Social Institutions. (4)** Lecture, four hours; discussion, one hour. Practices of communication and social interaction in a 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)** Designed for graduate students. Review and critique of major analytical traditions in economy and society.

**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.

**263. Social Stratification. (4)** Lecture, four hours. S/U or letter grading.

**264. Personal Identity in Historical Perspective. (4)** Lecture, three hours. Designed for graduate students. Examination of distinctive features of personal identity in contemporary society through use of historical materials on various aspects of private life. Topics include home, food, clothing and appearance, personal odor, and cleanliness in everyday life.

**265. Problems in Organization Theory. (4)** Lecture, four hours. S/U or letter grading.

**266. Selected Problems in Analysis of Conversation. (4)** Requisites: courses C244A, C244B. Variable topics/formats course. Consult instructor for topics and formats to be offered in a specific term. May be repeated for credit with topic change. S/U or letter grading.

**267. Selected Problems in Communication. (4)** Lecture, four hours. 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.

**269. Collective Behavior and Social Movements. (4)** Lecture, three hours. Characteristics of crowds, mobs, publics, social movements, and revolutions; their relation to social unrest and their role in developing and changing social organization. Impact of collective behavior and social movements on social and political change. S/U or letter grading.

**270. Selected Problems in Socialization. (4)** Lecture, four hours. S/U or letter grading.

**271. Ethnomethodology. (4)** Lecture, four hours. S/U or letter grading.

**272. Topics in Political Sociology. (4)** Lecture, four hours. S/U or letter grading.

**273. Attitudes and Social Structure. (4)** Lecture, four hours. S/U or letter grading.

**274. Social Change and Development in Korea. (4)** Seminar, three hours. Requisite: course 191. In-depth understanding of social change and development in 20th-century Korea. Discussion, in comparative/historical perspective, of major theoretical and empirical issues related to social, political, and economic Korean transformation.

**M275. Contemporary Issues of the American Indian. (4)** (Same as American Indian Studies M200C and Anthropology M269.) Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in the 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.

**276. Selected Topics in Sociology of East Asia. (4)** 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.

**277. Japanese Society: Selected Topics. (4)** Lecture, two and one-half hours. Designed for graduate students. Social structural characteristics and functioning of contemporary Japanese society, with focus on comparison and evaluations of functional (or rational) and cultural explanations of selected social phenomena. Topics include forms of social interaction, work organization, family, education, and equality.

**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.

**279. Seminar: Applied Social Research. (4)** Seminar, two hours; discussion, one hour. Opportunities for applied research, distinctive features of applied work, and procedures commonly employed in various areas of research. Examination of representative work in specific areas of applied research.

**280. Seminar: Evaluation Research. (4)** Designed for graduate students. Technical and political aspects of implementing evaluation research studies. Role of evaluation research in social policy development, as well as procedures for undertaking process and impact evaluations. S/U or letter grading.

**281. Selected Problems in Mathematical Sociology. (4)** Exploration of some mathematical models of sociological processes. Possible topics include models of small groups, social mobility, kinship relations, organizations, social interaction.

**282. Organizations and the Professions. (4)** Lecture, four hours. S/U or letter grading.

**283. Applied Sociology. (4)** Discussion, two hours. Designed for graduate students. Examination of roots and intellectual traditions underlying contemporary interest and work in applied sociology. Discussion of range of methodological perspectives used in applied research, utility of social research in various substantive domains and conflicts and controversies related to ideological activities, competence and performance requirements, and identification with and participation in the discipline.

**284. Topics in Mental Health and Illness. (4)** Requisite: course 148. Designed for graduate students.

**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.

**M286. Applied Event History Analysis. (4)** (Same as Statistics M213.) Lecture, three hours. Requisites: courses 209A, 209B, and 209C, or 210A and 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.

**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)** Designed for graduate students. Analysis of current research on mental health service systems for persons with AIDS. S/U grading.

**291. Moral Solidarity in Communities. (4)** Comparative analysis of social solidarity and collapse of social solidarity in voluntary and traditional communities. Contrasts more and less solidarity types, with special reference to utopian communities and developmental processes.

**292A-292B-292C. Research Development. (4-4-4)** Lecture, four hours. S/U or letter grading.

**M296A-M296B. Social Theory and Comparative History. (4-4)** (Same as History M203A-M203B and Political Science M291A-M291B.) Colloquium, three and one-half hours every other week. Introduction to historically rooted social theory and theoretically sensitive history, following the program of the Center for Social Theory and Comparative History. Each course may be taken independently for credit.

**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.

**297B. Urban and Suburban Sociology. (4)** (Not the same as course 297B prior to Fall Quarter 1998.) Lecture, three hours. History and present condition of cities and suburbs in America. Today's urban/suburban neighborhoods contrasted with premodern cities. Examination of process of suburbanization as it began in the early 19th century and as it still continues; house and architectural styles and changing patterns of family and social life associated with them; patterns of racial, ethnic, income, and social class distribution in city and suburb; origin and nature of today's urban ghettos; politics of cities and suburbs. Focus on urban/suburban megalopolises associated with New York City, Los Angeles, Chicago, and Boston. GIS mapping. Letter grading.

**298A-298B-298C. Workshops in Culture and Society. (2-2-2)** Discussion, 90 minutes every other week. Interdisciplinary workshops 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. In Progress and S/U or letter grading.

**299A-299B-299C. Seminars: Latin American Sociology. (2-2-2)** Seminar, one hour; discussion, one hour. Regular forum for presentation, reading, and discussion of research on sociology of Latin America, including presentations by invited lecturers in Mellon Seminar in Latin American Sociology series. S/U grading.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

**495A-495B. Supervised Teaching of Sociology. (2-2)** Seminar, to be arranged. 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)** 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.

## SPANISH AND PORTUGUESE

*College of Letters and Science*

UCLA  
5310 Rolfe Hall  
Box 951532  
Los Angeles, CA 90095-1532  
(310) 825-1036  
<http://www.humnet.ucla.edu/spanport/>

Randal Johnson, Ph.D., *Chair*

### Professors

John C. Dagenais, Ph.D.  
Carroll B. Johnson, Ph.D.  
Randal Johnson, Ph.D.  
Efrain Kristal, Ph.D.  
Gerardo Luzuriaga, Ph.D.  
José Monleón, Ph.D.  
C. Brian Morris, Litt.D.  
Claudia Parodi-Lewin, Ph.D.  
Susan J. Plann, Ph.D.  
A. Carlos Quiñol, Ph.D.  
Enrique Rodríguez-Cepeda, Ph.D.)

### Professors Emeriti

Shirley L. Arora, Ph.D.  
Rubén A. Benítez, Ph.D.  
John A. Crow, Ph.D.  
E. Mayone Dias, Ph.D.  
Joaquín Gimeno, Ph.D.  
Claude L. Hulet, Ph.D.  
C.P. Otero, Ph.D.  
José Pascual-Buxó, Ph.D.  
Stanley L. Robe, Ph.D.  
Paul C. Smith, Ph.D.  
Marion A. Zeitlin, Ph.D.

**Associate Professors**

Adriana J. Bergero, Ph.D.  
 Héctor V. Calderón, Ph.D.  
 Verónica Cortínez, Ph.D.  
 Guillermo Hernández, Ph.D.  
 A. John Skirius, Ph.D.  
 Jesús Torrecilla, Ph.D.

**Assistant Professor**

Elizabeth A. Marchant, Ph.D.

**Lecturers S.O.E.**

José M. Cruz-Salvadores, M.A.  
 Isabel L. Herwig, Ph.D., *Emerita*  
 George L. Voyt, J.D., *Emeritus*

**Lecturers**

Susan C. Schaffer, Ph.D.  
 Silvia Sherno, Ph.D.

**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 four B.A. programs: B.A. in Spanish, B.A. in Spanish and Linguistics, B.A. in Portuguese, and B.A. in Spanish and 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 California State Single Subject Credential in Spanish, B.A. and M.A. programs in Latin American Studies, M.A. program in Folklore and Mythology, and M.A. and Ph.D. programs in Comparative Literature and Romance Linguistics and Literature.

**Undergraduate Study****Undergraduate Courses**

Spanish 1 through 3 use Garner, Rusch, and Domínguez' *Claro que sí*. 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. The courses must be passed with an average grade of C or better prior to beginning upper division work in the major.

**Transfer Students**

To be admitted as Spanish majors, transfer students 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.

**The Major**

*Required:* (1) Seven core courses, including Spanish 100A or 100B, 105 or 107 (possible exemption granted by passing departmental writing proficiency examination), 119A or 119B, 120A, 120B, 120C, and 127 and (2) six upper division Spanish elective courses in literature, culture, or linguistics.

**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. The courses must be passed with an average grade of C or better.

**Transfer Students**

To be admitted as Spanish and Linguistics majors, transfer students 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.

**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**

To be admitted as Spanish and Portuguese majors, transfer students 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.

**The Major**

*Required:* (1) Four upper division courses in language and linguistics: Portuguese 100A, 100B, 105, Spanish 105; (2) four upper division courses in literature 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 124 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**

To be admitted as Portuguese majors, transfer students 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.

**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 which they pursue under the faculty member's guidance through Spanish 170. 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.

## 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 199 course may be selected.

All minor courses must be taken for a letter grade, with 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 197 (one of the four must be from either 119A or 119B or from 120A, 120B, or 120C). Only one 4-unit Spanish 199 course may be selected, and only two upper division courses applied toward the minor may overlap with the major.

All minor courses must be taken for a letter grade, with 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 25A, 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.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### 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 Doctor of Philosophy (Ph.D.) degree in Hispanic Languages and Literatures.

### Admission

The department considers only applicants whose objective is the Ph.D. degree. Admission to the M.A. program in Spanish or in Portuguese is based on a careful review of the applicant's academic record by the graduate admissions committee. Minimum requirements are the B.A. in Spanish or in Portuguese from

UCLA or another recognized university and a satisfactory score on the Graduate Record Examination (GRE) General Test. If the graduate admissions committee deems that some area of the applicant's preparation in language or literature needs to be strengthened, it may require that one or more complementary courses be taken.

The UCLA M.A. in Spanish or in Portuguese, or the equivalent, is required for admission to the Ph.D. program in Hispanic Languages and Literatures. Also required are (1) three letters of recommendation from professors familiar with the applicant's work as a graduate student that address the applicant's capacity for research-oriented doctoral studies and possible entry into the profession and (2) scores from the Graduate Record Examination (GRE) General Test.

Applicants who hold the M.A. in Spanish or in Portuguese from UCLA must have the recommendation of the department to proceed toward the Ph.D. degree; they are notified of their eligibility to continue when they receive the M.A. degree.

## Master's Degrees

### M.A. in Spanish

The M.A. degree is offered through the comprehensive examination and thesis plans; the latter requires a special petition. Ten courses, seven of which must be at the graduate level, are required. Up to two graduate courses may be taken in another department with the approval of the graduate adviser.

Students choose a concentration in literature or linguistics.

Students who choose the literature concentration take a required course in literary theory and criticism and one upper division or graduate course in Spanish or Portuguese linguistics. The remaining seven elective courses are selected in consultation with the graduate adviser.

Students who choose the linguistics concentration are required to take one upper division or graduate course in literature offered by the department and nine elective courses to be selected in consultation with the graduate adviser.

### M.A. in Portuguese

The M.A. degree is offered through the comprehensive examination and thesis plans; the latter requires a special petition. Ten courses, seven of which must be at the graduate level, are required. Up to two graduate courses may be taken in another department with the approval of the graduate adviser.

Students choose a concentration in literature or linguistics.

Students who choose the linguistics concentration are required to take one upper division or graduate course in literature and nine elective courses to be selected in consultation with the adviser.

## Doctoral Degree

Ph.D. dissertation topics may be selected from any field in Spanish and Portuguese language and literature. Possible fields include Spanish linguistics; Portuguese linguistics; diachronic Hispanic linguistics and philology; medieval Spanish literature; Renaissance and Golden Age Spanish literature; eighteenth- and nineteenth-century Spanish literature; twentieth-century Spanish literature; colonial Spanish American literature; nineteenth-century Spanish American literature; twentieth-century Spanish American literature; Chicano literature; early Portuguese literature; modern Portuguese literature; early Brazilian literature; modern Brazilian literature; Spanish and Luso-Brazilian folklore.

After the B.A., a minimum of 18 graduate courses is required. A two-quarter sequence in Spanish or Portuguese literary theory and criticism may be required if students have not previously taken it or similar courses elsewhere. Students may petition for up to eight graduate courses used for the M.A. degree to count toward the Ph.D. degree.

Written and oral qualifying examinations are required. The written examinations consist of presentations of papers related to the specific and general areas of the dissertation.

Following successful completion of the written examinations, students take the University Oral Qualifying Examination, which covers the research papers and a dissertation prospectus.

## Portuguese

### Lower Division Courses

**1. Elementary Portuguese. (4)** Discussion, five hours; laboratory, one hour.

**2. Elementary Portuguese. (4)** Discussion, five hours; laboratory, one hour. Enforced requisite: course 1.

**3. Intermediate Portuguese. (4)** Discussion, five hours; laboratory, one hour. Enforced requisite: course 2.

**8A-8B. Portuguese Conversation. (2-2)** Discussion, three hours. Enforced requisite: course 3 with a grade of B or better.

**25. Advanced Portuguese. (4)** Enforced requisite: course 3.

**M35. Spanish, Portuguese, and Nature of Language. (4)** (Same as Spanish M35.) Lecture, three hours. 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.

**40A-40B. Portuguese, Brazilian, and African Literature in Translation. (4-4)** Lecture, three hours. Reading and discussion of selected works in translation. Papers and examinations in English. **40A.** Portuguese and Portuguese-African Literature; **40B.** Brazilian Literature.

**M42. Civilization of Spain and Portugal. (4)** (Same as Spanish M42.) Lecture, three hours; discussion, one hour. Required of majors. Lectures conducted in English; discussion sections conducted 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. (4)** (Same as Spanish M44.) Lecture, three hours; discussion, one hour. Required of majors. Lectures conducted in English; discussion sections conducted 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. (4)** Lecture, three hours. Conducted 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 25. Analysis of phonetic, phonemic, and morphological systems of Portuguese.

**100B. Syntax. (4)** Lecture, three hours. Requisite: course 25. Review of patterns of the Portuguese language.

**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 102B. Development of speaking, reading, and writing skills. Structured in thematic units, with songs, videos, and specific vocabulary emphasizing questions of Brazilian cultural identity.

**105. Advanced Composition and Style. (4)** Requisite: course 25. Practice in writing Portuguese with appropriate vocabulary, syntactical structures, and stylistic patterns.

**M118A-M118B. History of Portuguese and Spanish. (4-4)** (Same as Spanish M118A-M118B.) Lecture, three hours. Requisites: courses M35, 100A. Major features of development of Portuguese and Spanish languages from their origins in Vulgar Latin to modern times. **M118A.** Phonology; **M118B.** Morphology and Syntax.

**120A-120B. Introduction to Portuguese Literature. (4-4)** Lecture, three hours. Requisite: course 25. Introduction to principal periods, currents, and authors of Portuguese literature.

**C124. Early Portuguese Literature. (4)** Lecture, three hours. Requisite: course 25. 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 the Portuguese Renaissance. (4)** Lecture, three hours. Requisite: course 25. Study of main genres of Renaissance Portuguese literature, with particular emphasis on the 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 25. Study of main genres of baroque and neoclassical Portuguese literature through representative works. May be concurrently scheduled with course C226.

**C127. 19th-Century Portuguese Literature. (4)** Lecture, three hours. Requisite: course 25. 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 25. Study of principal features through representative works. May be concurrently scheduled with course C228.

**C129. 20th-Century Portuguese Literature. (4)** Lecture, three hours. Requisite: course 25. 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 25. Introduction to principal periods, currents, and authors of Brazilian literature.

**C131. Colonial Brazilian Literature and Culture. (4)** Lecture, three hours. Requisite: course 25. 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 25. 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 25. 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 25. 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 25. 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. Conducted in English. Topical analysis of main literary and historical themes of Brazilian culture, through films and literary texts. P/ NP or letter grading.

**197. Undergraduate Seminar. (4)** Seminar, three hours. Requisite: course 25. Variable topics course with readings, discussions, and papers; consult *Schedule of Classes* or department counselor for topic to be offered in a specific term.

**199. Special Studies. (2 to 4)** Tutorial, to be arranged. Eight units may be applied toward the major requirements.

### 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. 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 the Portuguese Renaissance. (4)** Lecture, three hours. 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. Study of main genres of baroque and neoclassical Portuguese literature through representative works. May be concurrently scheduled with course C126.

**C227. 19th-Century Portuguese Literature. (4)** Lecture, three hours. 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. Study of principal features through representative works. May be concurrently scheduled with course C128.

**C229. 20th-Century Portuguese Literature. (4)** Lecture, three hours. 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. 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. 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. 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. 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. 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 the Spanish and Portuguese Worlds. (4)** (Same as Folklore M249 and Spanish M249.) Lecture, three hours. Intensive study of folk literature of the Spanish and Portuguese cultures as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech.

**M251A-M251B. Studies in Galegan-Portuguese and Old Spanish. (4-4)** (Same as Spanish 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.

**252. Studies in Early Portuguese Literature. (4)** Discussion, two hours.

**253. Studies in Modern Portuguese Literature. (4)** Discussion, two hours.

**254. Studies in Early Brazilian Literature. (4)** Discussion, two hours.

**255. Studies in Modern Brazilian Literature. (4)** Discussion, two hours.

**256A-256B. Studies in Portuguese Linguistics. (4-4)** Lecture, two hours. Study of problems in analysis and description of the contemporary Portuguese language.

**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)** Designed for future teachers in this field.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

**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.

**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 prerequisite: course 1.

**2A. Intensive Spanish. (4)** Lecture, 20 hours; laboratory, five hours. Enforced prerequisite: 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 prerequisite: course 1G. May not be applied toward degree requirements. S/U grading.

**3. Elementary Spanish. (4)** Discussion, five hours; laboratory, one hour. Enforced prerequisite: course 2.

**3A. Intensive Spanish. (4)** Lecture, 20 hours; laboratory, five hours. Enforced prerequisite: 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 prerequisite: course 3.

**5. Intermediate Spanish. (4)** Discussion, five hours; laboratory, one hour. Enforced prerequisite: course 4.

**6. Intermediate Spanish. (4)** Discussion, five hours. Enforced prerequisite: course 5. Review and analysis of the more sophisticated and complex syntactic structures of Spanish, verb morphology, and lexical discrimination. Students who have completed course 5 with a grade of A- or better may enroll directly in course 25.

**7. Intermediate Spanish for Spanish Speakers. (4)** (Formerly numbered 6A.) Discussion, four hours. Preparation: proficiency as determined by placement test. Concentration on formal aspects of the 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 a grade of B or better may be admitted.

**9A-9B. Advanced Conversation. (2-2)** Discussion, three hours. Enforced prerequisite: course 8B.

**25. Advanced Spanish and Composition. (4)** Lecture, three hours. Enforced prerequisite: course 5. Emphasis on writing grammatically correct, lexically sophisticated, and rhetorically competent expository prose. Course 25 or 25A is requisite to all upper division courses in Spanish.

**27. Composition for Spanish Speakers. (4)** (Formerly numbered 25A.) Lecture, three hours. Enforced prerequisite: 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 prerequisite: course 25. 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. (4)** (Same as Portuguese M35.) Lecture, three hours. 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.

**M42. Civilization of Spain and Portugal. (4)** (Same as Portuguese M42.) Lecture, three hours; discussion, one hour. Required of majors. Lectures conducted in English; discussion sections conducted 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. (4)** (Same as Portuguese M44.) Lecture, three hours; discussion, one hour. Required of majors. Lectures conducted in English; discussion sections conducted 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 Quijote*.

**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 Quijote*.

**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:

**88A.** Reaching 2001 (Fantasy of Reality and Reality of Fantasy). Seminar, three hours. Introduction to some specific literary strategies employed by writers of the Hispanic world and analysis of formal characteristics that define categories such as surrealism, magical realism, the fantastic, and realism.

### 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.

**105. Spanish Composition. (4)** Lecture, three hours. Requisite: course 25. Practice in writing Spanish with appropriate vocabulary, syntactical structures, and stylistic patterns.

**107. Advanced Composition for Spanish Speakers. (4)** Lecture, three hours. Requisite: course 25 or 27. Practice in writing Spanish with appropriate vocabulary, syntactical structures, and stylistic patterns (in lieu of course 105). P/NP or letter grading.

**109. Spanish of Southern California. (4)** (Formerly numbered 107.) Lecture, three hours. Requisites: courses M35, 100A, 100B. Analysis of pronunciation, word formation, syntax, and lexicon of the Spanish of Southern California, with attention to regional features, social and age levels of speech, and interference from English. P/NP or letter grading.

**115. Applied Linguistics. (4)** Lecture, three hours. Requisites: courses M35, 100B. Survey of major linguistic problems faced by teachers of Spanish.

**M118A-M118B. History of Portuguese and Spanish. (4-4)** (Same as Portuguese M118A-M118B.) Lecture, three hours. Requisites: courses M35, 100A. Major features of development of Portuguese and Spanish languages from their origins in Vulgar Latin to modern times. **M118A.** Phonology; **M118B.** Morphology and Syntax.

**119A. Introduction to Study of Literature: Prose. (4)** Lecture, three hours. Requisite: course 25. Introduction to study of literary devices, figures of speech, and distinctive stylistic features in prose literature of Spain and Spanish America, particularly in the novel and essay.

**119B. Introduction to Study of Literature: Poetry and Drama. (4)** Lecture, three hours. Requisite: course 25. Introduction to study of literary devices, figures of speech, versification, and distinctive stylistic features in the poetry and drama of Spain and Spanish America.

**120A-120D. Literature in the Hispanic World. (5 each)** Lecture, four hours; discussion, one hour. Required of Spanish majors; must be taken in sequence. Historical/cultural survey of Hispanic literature from its beginning in medieval Iberia to contemporary writing in Spain, Latin America, and the U.S. Relationship between fundamental unity and astonishing geographic and cultural diversity. Particular attention to relation between literature and multicultural societies in which it is produced, as well as to individual texts which define or create new artistic possibilities:

**120A. Hispanic Literature to 1700.** Requisite: course 25. Multilingual Iberia: first literary texts in Hispanic dialects. Medieval Castilian literature. America: literature of discovery and conquest. Renaissance literature in Spain and America. Spanish Golden Age. Baroque literature in Spain and America.

**120B. Hispanic Literature, 1700 to 1898.** Requisite: course 120A. The Enlightenment, Spanish nationalism, and Spanish-American nation building. Romanticism in Spain and America. Journalism and *costumbrismo* in Spain and America. Historical narrative and sentimental novel in Spain and America. Regionalism in Spain. National diversity in America: *indigenismo*, gaucho literature, Mexican *corrido*, Afro-Americanism.

**120C. Hispanic Literature since 1898.** Requisites: courses 120A, 120B. Unity and divergence. *Modernismo* and Spanish Civil War in Spain and America. Representations of America. Spanish surrealism. American vanguardism. *Franquismo* and after. Mexico and Mexican Revolution. New American narratives, testimony, feminism.

**120D. Hispanic Literature in the U.S.** Requisites: courses 120A, 120B, 120C. Spanish presence in the Southwest. Ethnic diversity: Spaniards, *criollos*, *mestizos*. Mexican War and Mexican American literature. Literature of the Chicano movement: recovering *mestizo* heritage, feminist consciousness.

**122. Medieval Literature: El Camino de Santiago.** (4) Lecture, three hours. Introductory course in medieval Spanish literatures following route of imaginary pilgrimage through northern Spain in the year 1300, from French border near Roncesvalles to shrine of St. James in Santiago de Compostela. Readings works of literature (and viewing slides, listening to music, etc.) associated with each stop along the way. Letter grading.

**123. Medieval Literature: Poetry.** (4) Lecture, three hours. Recommended preparation: course 120A. Study of main genres through representative works.

**124. Golden Age: Poetry and Drama.** (4) Lecture, three hours. Recommended preparation: course 120A. Study, through representative works, of the Golden Age poetry and drama.

**125. Golden Age: Prose.** (4) Lecture, three hours. Recommended preparation: course 120A. Study of 16th- and 17th-century prose writing in Spain, with particular emphasis on *Lazarillo de Tormes* and the picaresque tradition.

**127. Golden Age: *Don Quijote*.** (4) Lecture, three hours. Recommended preparation: course 120A. Development of the novel in the Golden Age, with particular reference to *Don Quijote*.

**128. The Enlightenment and Romanticism in Spain.** (4) Lecture, three hours. Recommended preparation: course 120B. Study, through representative works, of main manifestations of thought and literature from 1700 to 1850.

**130. Post-Romanticism, Realism, and Naturalism in Spain.** (4) Lecture, three hours. Recommended preparation: course 120B. Development of main trends of Spanish literature from 1850 to 1898.

**132. 20th-Century Spanish Prose.** (4) Lecture, three hours. Recommended preparation: course 120C. Study of several representative works of Spanish prose literature since 1898.

**133. 20th-Century Spanish Poetry and Drama.** (4) Lecture, three hours. Recommended preparation: course 120C. Study of several representative works of Spanish poetry and drama since 1898.

**137. Literature of Colonial Spanish America.** (4) Lecture, three hours. Recommended preparation: course 120A. Study of most important genres and authors from the Conquest to 1810.

**139. Romanticism and Realism in Spanish-American Literature.** (4) Lecture, three hours. Recommended preparation: course 120B. Study, through representative literary works, of most important currents of thought and literary trends from 1810 to 1880.

**140. *Modernismo*.** (4) Lecture, three hours. Recommended preparation: course 120B. Study, through representative works, of principal characteristics of *modernismo* in Spanish-American literature.

**142. 20th-Century Spanish-American Literature: Fiction and the Essay.** (4) Lecture, three hours. Recommended preparation: course 120C. Study, through representative novels, short stories, and essays, of Spanish-American prose literature since 1910.

**143. 20th-Century Spanish-American Literature: Poetry and Drama.** (4) Lecture, three hours. Recommended preparation: course 120C. Study of principal poets, dramatists, and dramatic movements in Spanish-American literature since 1910.

**144. Mexican Literature.** (4) Lecture, three hours. Recommended preparation: course 120C. Study of major movements and authors of Mexican literature.

**M145A-M145B. Introduction to Chicano Literature.** (4-4) (Same as Chicana and Chicano Studies M145A-M145B.) Lecture, three hours. Requisite: course 25 or 25A. 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. **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.

**M149. Folk Literature of the Hispanic World.** (4) (Same as Folklore M149.) Lecture, three hours. Study of history and present dissemination of principal forms of folk literature throughout the Hispanic countries.

**151A-151B. Women in Hispanic Literature.** (4-4) Discussion, three hours. Recommended preparation: courses 120A, 120B, 120C. Study of works by and about women, with emphasis on portrayal of women, women's roles, and myths of womanhood within the Hispanic socio-ideological context. **151A.** Spain; **151B.** Spanish America.

**M161. Film and Literature of the Spanish-Speaking World.** (4) (Same as Comparative Literature M174.) Lecture, three hours. Exploration of perceptions of reality offered by different authors from Spain, Latin America, and the Chicano community. P/NP or letter grading.

**170. Senior Honors Tutorial.** (4) Tutorial, to be arranged. Preparation: completion of required nine upper division major core courses with 3.5 grade-point average. Directed individual research and writing of honors thesis. Letter grading.

**197. Undergraduate Seminar.** (4) Seminar, three hours. Limited to 15 junior/senior Spanish majors. Variable topics course with readings, discussions, and papers; consult *Schedule of Classes* or department counselor for topic to be offered in a specific term.

**M197A.** Introduction to Caribbean Literature. (4) (Same as Latin American Studies M197A.) Lecture, two hours; discussion, two hours. Interdisciplinary introduction to literature of French, Spanish, and English Caribbean.

**197A. Studies in Hispanic Culture and Civilization.** (4) Lecture, three hours. Required of students preparing for a California State Single Subject Credential in Spanish. Advanced course that studies diverse aspects of Hispanic culture, civilization, and history. Classroom discussions, papers, and examinations in Spanish.

**199. Special Studies. (2 to 4)** Tutorial, to be arranged. Eight units may be applied toward the major requirements.

## 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 the Spanish and Portuguese Worlds. (4)** (Same as Folklore M249 and Portuguese M249.) Lecture, three hours. Intensive study of folk literature of the Spanish and Portuguese cultures as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech.

**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.

**M286A-M286B. Studies in Hispanic Folk Literature. (4-4)** (Same as Folklore M286A-M286B.) Lecture, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

**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.

**310. Teaching Spanish in Elementary School. (4)** Lecture, three hours.

**370. Teaching Spanish in Secondary School. (4)** Lecture, three hours.

**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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**490. Using Technology in Foreign Language Classroom. (2)** 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.

**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

*College of Letters and Science*

UCLA  
334 Kinsey Hall  
Box 951538  
Los Angeles, CA 90095-1538  
(310) 825-3303  
<http://www.commstudies.ucla.edu/>

Neil M. Malamuth, Ph.D., *Chair*

**Professor**  
Neil M. Malamuth, Ph.D.

**Associate Professors**  
Patrice A. French, Ph.D.  
Paul I. Rosenthal, Ph.D.

**Assistant Professor**  
Martie G. Haselton, Ph.D.

**Senior Lecturers**  
Marde S. Gregory, M.A.  
Thomas E. Miller, M.A.

**Lecturers**  
Dee Bridgewater, Ph.D.  
John Kochian, M.A.  
Sonya H. Packer, M.A.

**Adjunct Professor**  
Thomas Plate, Ph.D.

## Scope and Objectives

There is no major in speech; however, several undergraduate courses are offered for interested students.

## Speech

### Lower Division Courses

**A. Oral Communication for Nonnative Speakers. (No credit)** Lecture, four hours. Speech A displaces 4 units on student's Study List but yields no credit toward a degree. Emphasis on public and private speaking skills in American English necessary for social, academic, and professional growth in this country. Provides experiences necessary to remove barriers to communication created by inappropriate oral language usage. Offered in summer only. P/NP grading.

**1. Principles of Oral Communication. (4)** Enforced requisite: satisfaction of Subject A requirement. Theory and practice of informal public speaking, including selection of content, organization of ideas, language, and delivery; practice in extemporaneous and manuscript speaking; training in critical analysis through reading and listening to contemporary speeches.

**1A. English Language Program in Effective Speaking. (4)** Lecture, eight hours and 20 minutes. Combination of courses A and 1 to help nonnative speakers of English increase fluency and vocabulary while also improving presentation skills. Language usage, reasoning, style, and delivery. Conversation and pronunciation practice. Offered in summer only. P/NP or letter grading.

**2. Public Speaking and Discussion. (4)** Enforced requisite: course 1. Continuation of course 1, with special emphasis on group discussions, panels, symposia, debates, and formal public speaking. Critical analysis of speeches in both contemporary and historical settings.

### Upper Division Courses

**107. Principles of Argumentation. (4)** Analysis of propositions, tests of evidence, briefing. Study of hindrances to clear thinking, ambiguity of terms, and prejudices. Critical analysis of selected argumentative speeches.

**190A-190B. Forensics. (2-2)** May be repeated once for credit.

**191. Analysis and Briefing. (2)** Intensive study of selected political or social issues; preparation of bibliography; analysis and evaluation of issues and arguments. May be repeated once for credit.

**197. Proseminar: Rhetoric. (4)** Designed for seniors. Variable topics course involving intensive study of discourse associated with a single major issue or personality.

**199. Special Studies. (2 to 4)** Tutorial, to be arranged. Limited to seniors.

## STATISTICS

*College of Letters and Science*

UCLA  
8130 Math Sciences  
Box 951554  
Los Angeles, CA 90095-1554  
(310) 825-8430  
<http://www.stat.ucla.edu>

Jan de Leeuw, Ph.D., *Chair*

**Professors**  
Peter M. Bentler, Ph.D.  
Richard A. Berk, Ph.D.  
William A. Clark, Ph.D.  
Susan Cochran, Ph.D.  
Donna M. Dabrowski, Ph.D.  
Jan de Leeuw, Ph.D.  
Sander Greenland, Ph.D.

Edward Leamer, Ph.D.  
 Ker-Chau Li, Ph.D.  
 Robert D. Mare, Ph.D.  
 William Mason, Ph.D.  
 Theodore Porter, Ph.D.  
 Dwight Read, Ph.D.  
 David Rigby, Ph.D.  
 Wing Hung Wong, Ph.D.  
 J. Arthur Woodward, Ph.D.

#### Professors Emeriti

Thomas S. Ferguson, Ph.D.  
 Robert I. Jennrich, Ph.D.  
 James B. MacQueen, Ph.D.  
 Judea Pearl, Ph.D.  
 Sidney C. Port, Ph.D.  
 N. Donald Ylvisaker, Ph.D.

#### Associate Professor

Rebecca J. Emigh, Ph.D.

#### Assistant Professors

Christina Palmer, Ph.D.  
 Janice Reiff, Ph.D.  
 Chiara Sabatti, Ph.D.  
 Frederic R. Schoenberg, Ph.D.  
 Hongquan Vu, Ph.D.  
 Yingnian Wu, Ph.D.

#### Lecturer

Mahtash Esfandiari, Ph.D.  
 Vivian Lew, Ph.D.  
 Juana Sanchez, Ph.D.

#### Adjunct Assistant Professors

Cornelis A. Bernaards, Ph.D.  
 Nicolas Christou, Ph.D.  
 Ivo Dinov, Ph.D.  
 Robert L. Gould, Ph.D.

## Scope and Objectives

The Department of Statistics was formally established in April 1998. One of the departmental goals is to coordinate both the undergraduate and graduate teaching of statistics at UCLA. Statistics is important for all sciences because a great deal of advanced work in each scientific discipline involves statistical analysis for proper interpretation of data. In addition, many laws, proposals, and programs in society require statistics to evaluate collected quantitative data.

## Undergraduate Study

### Undergraduate Courses

Students planning to pursue advanced degrees in statistics should enroll in the Statistics 100A, 100B, 100C sequence. The 110A and 110B sequence is less comprehensive than the 100 series. In particular, probability topics do not receive the same level of coverage. Courses 110A and 110B 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 department office in February.

### Statistics Minor

The Statistics minor is designed to provide a solid background in applied and theoretical statistics for students who are majors in another discipline.

To enter the minor, students should have successfully completed one lower or upper divi-

sion Statistics Department course with a letter grade, have an overall grade-point average of 2.0 or better, and file a petition with the undergraduate adviser in 8142A Math Sciences, (310) 206-3742.

#### Required Upper Division Courses (28 units):

Statistics 100A, 100B, 100C, M120A, M120B, and two additional statistics courses. Either Statistics 199 or 199I may be applied toward the additional two courses. A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in any other department or program.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Department of Statistics offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Statistics.

### Admission

Applicants to the M.S. program do not need to have an undergraduate statistics major but should have at least 12 quarter courses (or eight semester courses) in substantial upper division quantitative work, preferably in mathematics and statistics. Applicants must have a cumulative grade-point average of at least 3.2 in the upper division courses.

For direct admission to the Ph.D. program, a grade-point average of at least 3.5 must be presented. Applicants who have already obtained a master's degree must have maintained an average of better than 3.5 in graduate study.

Applicants must take the Graduate Record Examination (GRE) General Test and a Subject Test, preferably in Mathematics, and must submit at least three letters of recommendation from persons who can attest to their quantitative skills.

### Master's Degree

For areas of study, see Doctoral Degree.

The M.S. degree is offered through the comprehensive examination and thesis plans. For the former, students must pass the applied and theoretical statistics qualifying examinations at

the M.S. level. Eleven courses are required for the M.S. degree, eight of which must be graduate courses. With consent of the graduate vice chair, students may take up to five of the required 11 courses from other departments.

## Doctoral Degree

The strengths of current and prospective faculty dictate the specific fields of emphasis in the department: computational and computer-intensive statistics, applied multivariate analysis, bioinformatics, social statistics, and program evaluation.

Students are required to pass, with a grade of B or better, approved graduate courses for a total of 60 units of credit. At least 40 of these units must come from courses in the statistics department, with the remaining units from courses in related departments.

Written and oral qualifying examinations are required. The written examinations cover applied and theoretical statistics. Following successful completion of the written examinations, students take the University Oral Qualifying Examination.

## Statistics

### Lower Division Courses

**10. Introduction to Statistical Reasoning. (4)** (Formerly numbered 50.) Lecture, three hours; discussion, one hour. Preparation: three years of high school mathematics. Not open for credit to students with credit for course M11, M12, M13, Anthropology M80, Economics M40, Geography M40, Organismic Biology M22, or Sociology M18. Descriptive statistics, elementary probability, random variables, binomial and normal distributions. Large and small sample inference concerning means. P/NP or letter grading.

**M11. Introduction to Statistical Methods for Business and Economics. (5)** (Formerly numbered M51B.) (Same as Economics M40.) Lecture, three hours; discussion, one hour; laboratory, one hour. Not open to students with credit for course 10, M12, M13, 100A, 100B, 100C, Anthropology M80, Geography M40, Mathematics 170A, 170B, Organismic Biology M22, or Sociology M18. 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.

**M12. Introduction to Statistical Methods for Social Sciences. (5)** (Formerly numbered M51C.) (Same as Anthropology M80, Geography M40, and Sociology M18.) Lecture, four hours; discussion, one hour; laboratory, one hour. Elements of statistical analysis for social sciences. 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.

**M13. Introduction to Statistical Methods for Life and Health Sciences. (5)** (Same as Organismic Biology M22.) Lecture, three hours; discussion, one hour; laboratory, one hour. 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.

## Upper Division Courses

**100A. Introduction to Probability Theory. (4)** (Formerly numbered M100A.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 32B, 33B. Not open to students with credit for Electrical Engineering 131A or Mathematics 170A. Students may receive credit for only two of the following: courses 100A, 110A, Biostatistics 100A. Probability distributions, random variables and vectors, expectation. P/NP or letter grading.

**100B. Introduction to Mathematical Statistics. (4)** (Formerly numbered 152B.) Lecture, three hours; discussion, one hour. Requisite: course 100A. Survey sampling, estimation, testing, data summary, one- and two-sample problems. P/NP or letter grading.

**100C. Linear Models and Statistical Dimension Reduction. (4)** (Formerly numbered 152C.) Lecture, three hours; discussion, one hour. Requisite: course 100B. Analysis of variance, categorical data, linear regression, decision theory and Bayesian inference. P/NP or letter grading.

**110A-110B. Applied Statistics. (4-4)** (Formerly numbered 154A-154B.) Lecture, three hours; discussion, one hour. P/NP or letter grading. **110A.** Requisites: Mathematics 32B, 33B. Not open to students with credit for Electrical Engineering 131A. Students may receive credit for only two of the following: courses 100A, 110A, Biostatistics 100A. Probability, distributions, expectation, estimation, central limit theorem, confidence intervals, testing. **110B.** Requisite: course 110A. One- and two-sample problems, goodness of fit and contingency tables, correlation and regression, analysis of variance, nonparametrics.

**M120A. Introduction to Regression Analysis. (4)** (Formerly numbered M153A.) (Same as Biomathematics M153A and Biostatistics M153A.) Lecture, three hours; discussion, one hour. Requisites: course 100B, Mathematics 115A. Linear regression, diagnostics and model building, general linear model theory, analysis of variance and covariance. Full integration of theory and software. P/NP or letter grading.

**M120B. Introduction to Generalized Linear Models. (4)** (Formerly numbered M153B.) (Same as Biomathematics M153B and Biostatistics M153B.) Lecture, three hours; discussion, one hour. Requisite: course M120A. Nonlinear regression, exponential family, generalized linear models, categorical data analysis, statistical software. P/NP or letter grading.

**125. Introduction to Statistics with Resampling. (4)** Lecture, three hours; discussion, one hour. Simple intuitive introduction to practical application of statistics for experiments and surveys in business and biological, medical, physical, and social sciences. Resampling methods — bootstrap and permutation test — are table-free and distribution-free, require common sense (not calculus), yet have a broader range of applications than classical parametric statistical procedures. P/NP or letter grading.

**130A. Statistical Analysis with STATA. (4)** Lecture, three hours; discussion, one hour. Requisite: course 10 or M11 or M12 or M13. How to manage and analyze quantitative data using STATA statistical software. Graphical analysis and programming and extensions to basic package. P/NP or letter grading.

**130B. Statistical Analysis with SAS. (4)** (Formerly numbered 130.) Lecture, three hours; discussion, one hour. Requisites: courses 10, 130A. How to manage and analyze quantitative data using statistical procedures produced by SAS Institute, Inc. Discussion of many statistical techniques available in SAS and ways to extend basic system by SAS programming. P/NP or letter grading.

**M140. Introduction to Spatial Statistics. (4)** (Same as Geography M171.) Lecture, three hours; laboratory, one hour. Requisite: course M12. Introduction to methods of measurement and interpretation of geographic distributions and associations. P/NP or letter grading.

**150. Data Analysis. (4)** Lecture, three hours. Requisites: courses 100A and 100B, or 110A and 110B, or M120A and M120B, or one course from 10, M11, M12, M13 and one upper division statistics course. Practice in solving statistical problems, with coverage of basics of cleaning and checking data, exploratory analysis, model building, model checking, reporting results, working with "clients." P/NP or letter grading.

**170. Introduction to Time-Series Analysis. (4)** Lecture, three hours; discussion, one hour. Requisite: course 10 or M11 or M12 or M13 or Anthropology M80 or Economics M40 or Geography M40 or Organismic Biology M22 or Sociology M18. 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.

**180. Introduction to Bayesian Statistics. (4)** Lecture, three hours. Requisites: Mathematics 32B, 33B. 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 include protein alignment algorithms and image denoising procedures. P/NP or letter grading.

**197. 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.

**199. Special Studies in Statistics. (1 to 4)** Tutorial, one to four hours. At discretion of chair and subject to availability of staff, individuals may study topics suitable for undergraduate course credit but not specifically offered as separate courses. No more than 8 units may be applied toward degree requirements. P/NP or letter grading.

**199I. Independent Studies for Internships. (2 to 4)** Tutorial, to be arranged. Independent studies course to be supervised jointly by the Field Studies Office and faculty supervisor. Further supervision to be provided by business for which student is doing internship. P/NP or letter grading.

## Graduate Courses

**200A-200B. Statistical Theory. (4-4)** (Formerly numbered Mathematics 276A-276B.) Lecture, three hours. Requisite: course 100C. Letter grading. **200A.** Sufficiency, exponential families, least squares, maximum likelihood estimation, Fisher information, Cramér/Rao inequality, confidence intervals. **200B.** Asymptotic properties of tests and estimates, consistency and efficiency, likelihood ratio tests, chi-squared tests.

**201. Nonparametric and Robust Statistics. (4)** (Formerly numbered Mathematics 278B.) Lecture, three hours. Requisite: course 200B. Development of nonparametric and robust procedures for hypothesis testing, estimation in one- and two-sample problems, linear and nonlinear regression, multiple classification, density estimation. Letter grading.

**202. Decision Theory. (4)** (Formerly numbered Mathematics 278C.) Lecture, three hours. Requisites: course 200B, Mathematics 131A. Bayes, admissible, and minimax decision rules. Invariant tests and estimates, best unbiased tests, locally best tests. Application to general linear model. Letter grading.

**203. Sequential Analysis. (4)** (Formerly numbered Mathematics 278D.) Lecture, three hours. Requisites: course 200B, Mathematics 131A. Bayes sequential decision problems, stopping rule problems, optimality of sequential probability ratio test, Wald identity, asymptotic theory, and other topics. Letter grading.

**204. Nonparametric Function Estimation and Modeling. (4)** (Formerly numbered Mathematics 278I.) 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.

**210A. Applied Statistics. (4)** (Formerly numbered Mathematics 277.) Lecture, three hours. Requisites: courses M120A, M120B. Outline of principles of applied statistics, followed by survey of specific data analyses from physical, life, and social sciences. Methods include regression, analysis of variance and covariance, survival analysis, categorical data analysis, and simple time-series analysis. Illustration of transformations, plotting, model selection and evaluation, and estimation and decision procedures. Letter grading.

**210B. Applied Statistics. (4)** Lecture, three hours. Requisite: course 210A. How one uses statistical tools to find answers for empirical questions relative to scientific research and/or public policy. Students work with real datasets, many from projects undertaken by UCLA Statistical Consulting Center, and gain experience constructing datasets that can be properly analyzed. Letter grading.

**M211. Analysis of Data with Qualitative and Limited Dependent Variables. (4)** (Formerly numbered Mathematics M278G.) (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)** (Formerly numbered Mathematics 278E.) Lecture, three hours. Requisite: course M120B. 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)** (Formerly numbered Mathematics M278H.) (Same as Sociology M286.) Lecture, three hours. Requisites: Sociology 209A, 209B, and 209C, or 210A and 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.

**M215A-M215B. Linear Statistical Models. (4-4)** (Formerly numbered Mathematics M279A-M279B.) (Same as Biostatistics M250A-M250B.) 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.

**216. High-Dimensional Data Analysis. (4)** Lecture, three hours. Requisites: courses 100A, 100B, 100C. Designed for graduate students. Discussion of several statistical methodologies useful for exploring voluminous data, including principle component analysis, clustering and classification, tree-structured analysis, neural network, hidden Markov models, sliced inverse regression (SIR), and principal Hessian direction (PHD). S/U or letter grading.

**217A-217B. Applied Regression Analysis. (4-4)** Lecture, three hours. 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.

**218. Generalized Linear Models. (4)** Lecture, three hours. Requisite: course 100C or M120A. 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 grading.

**M220A-M220B. Applied Probability. (4-4)** (Same as Mathematics M282A-M282B.) Lecture, three hours. Requisite: course 100A or Mathematics 170A. S/U or letter grading. **M220A.** Conditioning, Markov chains, Poisson process, Brownian motion, stationary processes, applications. **M220B.** Simulation, renewal theory, martingale, and selected topics from queuing, reliability, speech recognition, computational biology, mathematical finance, epidemiology.

**221. Time-Series Analysis. (4)** Lecture, three hours. Requisites: courses 100A, 100B, 100C. 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. Letter grading.

**222. Spatial Statistics. (4)** Lecture, three hours. Preparation: statistical computing experience strongly recommended. Requisites: courses 100A, 100B, 100C. 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.

**M230. Statistical Computing. (4)** (Formerly numbered Mathematics M280.) (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.

**240. Multivariate Analysis. (4)** (Formerly numbered Mathematics 278A.) 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.

**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 201B. 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.

**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 201A, 201B. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in Epidemiology 201A and 201B 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 Organismic Biology M216.) Lecture, three hours. Requisite: course M13. 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.

**M252. Statistical Methods for Physical Sciences. (4)** (Same as Atmospheric Sciences CM213.) Lecture, three hours; discussion, one hour. Designed for graduate 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. S/U or letter grading.

**M254. Statistical Methods in Computational Biology. (4)** (Same as Biomathematics M271.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Requisite: course 100A. Training in probability and statistics for students interested in pursuing research in computational biology, genomics, and bioinformatics. Letter grading.

**285. Current Topics in Statistics. (2 to 4)** (Formerly numbered Mathematics 285L.) Seminar, one to three hours. Topics in various statistical areas by means of lectures and informal conferences with staff members. S/U grading.

**296. Participating Seminar: Statistics. (1 to 2)** (Formerly numbered Mathematics 296L.) Seminar and discussion by staff and students. S/U 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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**495. 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.

**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.

**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

*School of Medicine*

UCLA  
72-131 Center for the Health Sciences  
Box 951749  
Los Angeles, CA 90095-1749  
(310) 825-6643  
<http://www.surgery.medsch.ucla.edu/>

### Chairs

E. Carmack Holmes, M.D. (*William P. Longmire, Jr., Professor of Surgery*), *Executive Chair*  
James B. Atkinson, M.D., *Vice Chair Clinical Affairs*  
Edward H. Livingston, M.D., *Vice Chair, Wadsworth VA*  
Bruce E. Stabile, M.D., *Vice Chair, Harbor-UCLA*  
Jesse E. Thompson, Jr., M.D., *Vice Chair, Olive View-UCLA*  
Achilles Demetriou, M.D., Ph.D., *Chief of Surgery, Cedars-Sinai*  
Arthur Fleming, M.D., *Chief of Surgery, Charles R. Drew University of Medicine and Science*

## 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 pathology of these conditions, the therapy that may be applied, and the anticipated results of treatment. They are also encouraged to learn about the impact 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 as-

signed to rotations at a combination of UCLA, Harbor-UCLA, West Los Angeles VA, and Olive View-UCLA Medical Centers. Each facility has a special orientation depending on the patient population and the individual staff, in addition to the initial surgery clerkship orientation. 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 the *Announcement of the UCLA School of Medicine*.

## Surgery

### Upper Division Course

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Individual projects carried out under direction of a faculty member. Special studies in surgery, with appropriate objectives, readings, laboratory work, or other assignments designed for proper training of students. P/NP or letter grading.

## TEACHER EDUCATION

See Diversified Liberal Arts and Education

## THEATER

*School of Theater, Film, and Television*

UCLA  
103 East Melnitz Building  
Box 951622  
Los Angeles, CA 90095-1622

(310) 825-5761  
<http://www.theater.ucla.edu/dot/dotframehome.htm>

William D. Ward, M.F.A., *Chair*

### Professors

Alan M. Armstrong, M.F.A.  
Gilbert Cates, M.A.  
Gary A. Gardner, Ph.D.  
Hanay Geigamamah, B.F.A.  
Michael J. Hackett, Ph.D.  
Patricia M. Harter, Ph.D.  
Robert Israel, M.F.A.  
Neil Jampolis, B.F.A.  
Michael S. McLain, Ph.D.  
Dunya Ramicova, M.F.A.  
Beverly J. Robinson, Ph.D.  
Rich Rose, M.F.A.  
Mel Shapiro, M.F.A.  
Carol F. Sorgenfrei, Ph.D.  
José Luis Valenzuela, B.A.  
Edit Villarreal, M.F.A.  
William D. Ward, M.F.A.

### Professors Emeriti

Walden P. Boyle, Ph.D.  
John R. Cauble, M.A.  
Donald B. Crabs, M.A.  
Henry Goodman, Ph.D.  
Robert H. Hethmon, Ph.D.  
John H. Jones, M.A.

Joanne T. McMaster, M.F.A.  
 Sylvia E. Moss, B.A.  
 Carl R. Mueller, Ph.D.  
 Norman F. Welsh, B.A.  
 William T. Wheatley, Ph.D.

#### Associate Professor

Margaret L. Wilbur, M.F.A.

#### Lecturers

Daniel A. Ionazzi, M.B.A.  
 Tom Orth

#### Adjunct Associate Professors

Anna Krajewska-Wieczorek, Ph.D.  
 Joe Olivieri

#### Adjunct Assistant Professors

Sandra Caruso, M.A.  
 Jacques Heim  
 Tim Miller  
 Judith Moreland, M.F.A.

#### Visiting Professors

Helen Burns  
 Erika Fischer-Lichte  
 Leon Katz, Ph.D.  
 Michael Langham

#### Visiting Associate Professors

Ellen Geer  
 Salome Jens

#### Visiting Assistant Professors

Michael Arabian  
 Gary Busby  
 Lynn Dally  
 Nancy Dussault  
 Stephen Eich  
 Nan Friedman  
 Marsha Ginsberg  
 John Gloré  
 Nicholas Gunn  
 Christine Kellogg  
 Linda Kerns  
 William MacDuff  
 James McDermott  
 Wanda McGuire  
 Kelly McLane  
 Ed Monaghan  
 Karen Morrow  
 Ndubisi Nwafor, Ph.D.  
 Jean Louis Rodrigue  
 Amen Santo  
 Benedicte Schoyen  
 David Schweizer  
 Deborah Scott  
 April Shawhan  
 Christopher Vened  
 Paul Wagar  
 Jonathan Wang  
 Jacqueline Wazir  
 Peter Wittrock

## 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. At the graduate level, 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.

## Undergraduate Study

### Theater B.A.

The Bachelor of Arts degree provides a liberal education and preprofessional training in a comprehensive program that combines the study of the arts, humanities, and sciences with exploration of the principal areas of theater practice — acting, design, directing, the history and criticism of theater and drama, musical theater, and playwriting. The program is designed to ensure that students graduate with a sound humanistic and experiential base for further pursuits in education and in life beyond the University.

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 advanced elective courses in acting, design and production, directing, musical theater, playwriting, theater history, criticism, dramatic literature, and performance, leading to a culminating research or creative experience in the senior project.

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.

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.

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.

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. The dance courses (Theater 1A, 1B, 1C) are open to all freshman Theater majors and must be taken as prerequisites to be considered for the musical theater program. Auditions for the program are held during Spring Quarter of the freshman year. Junior transfer students are also eligible for consideration for an audition. Additional courses provide hands-on training with professional artists and a range of performing experiences from workshops to full production.

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.

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.

### 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. On receipt of the application the department notifies students of the screening process, which includes submission of a written essay on a topic selected annually by faculty members, letters of recommendation, and an interview and/or audition. Information on the scheduling of the audition/interview is sent to each applicant with the departmental request for supplemental materials. Every applicant must complete the interview portion of the application process. The audition is optional for all students except those wishing to qualify for admission on the basis of their ability in performance. 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.

All entering students are admitted to the Theater major and may audition and/or interview for elective courses in acting, design and production, directing, history and criticism of theater and drama, musical theater, or playwriting.

### Preparation for the Major

*Required:* Theater 11, 12, 13, 14A, 14B, 14C, 15, 50 (must be taken for 4 units total).

### The Major

*Required:* A total of 58 upper division units, including Theater 101A, 101B, 101C, 106, 150 (must be taken for 4 units total), 180, and 34 upper division elective units selected from courses 101 through 199 not otherwise specified as requirements.

The Ray Bolger musical theater program electives are Theater 104C, 114A, 114B, 114C, 115A, 115B, 115C, 116A, 116B, 116C, 134A, 134B, 134C, 135A, 135B, 135C, 137A, 137B, 137C.

Through certain of these required courses, students are responsible for completing specific production assignments related to production activity of the theater curriculum.

## Graduate Study

.For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs., and included on their websites.

### Graduate Degrees

The Department of Theater offers the Master of Arts (M.A.), Master of Fine Arts (M.F.A.), and Doctor of Philosophy (Ph.D.) degrees in Theater.

## Admission

### M.A./Ph.D. in Theater

The M.A. degree is awarded only in conjunction with study in the Ph.D. degree program to students who have successfully completed one year of graduate work and all requirements for the M.A. degree and who do not wish to continue in the Ph.D. program.

Ph.D. applicants must submit evidence of potential as a practicing scholar as indicated by (1) breadth and depth of advanced coursework in history, theory, criticism, (2) the imagination and quality of scholarly writing and academic achievements, and (3) the grade-point average, Graduate Record Examination (GRE) scores, awards, scholarships, and fellowships. Additionally, candidates should demonstrate awareness and experience in one of the major fields of theater.

Applicants may be admitted with an M.F.A., M.A., or B.A. degree. The dossier for admission must contain a statement of purpose indicating areas of interest appropriate to the Ph.D. degree, as well as a thesis or other writing samples, and other information such as a résumé, portfolio, script, production book, and interview that may be required to establish the quality of applicants' work in the specialization.

Admission is competitive, and only a limited number of applicants are accepted each year in each program.

Applicants are advised that all records submitted in support of an application, including creative work (original or otherwise), are not returnable nor is the department responsible for such material. For further information, contact the Student Services Office in the department.

### M.F.A. in Theater

Students are admitted to the M.F.A. program in Fall Quarter only. Admission is competitive, and only a limited number of applicants are accepted each year in each program. The department does not have an application in addition to the *UCLA Application for Graduate Admission*, and no screening examination prior to admission is required.

In addition to satisfying minimum University requirements for graduate admission, applicants must have completed an undergraduate major in any area comparable to that offered at UCLA and must provide the department with at least three letters of reference and a statement of purpose. The Graduate Record Examination (GRE) is not required.

Evidence of creative ability and professional intent is required. When submitting the application, applicants must indicate the M.F.A. degree objective and satisfy the specific admission requirements of one of the following areas of specialization within the M.F.A. program.

*Acting.* Submit a complete résumé and audition for the acting committee or its representative.

*Design and Production (scenic, costume, lighting, and sound design, or production management/technology).* Submit a résumé and evidence of ability appropriate to the area of emphasis as demonstrated by sketches, renderings, photographs, production books, plots, technical papers, reviews, or other appropriate exhibits. An interview and presentation of the portfolio is required.

*Directing.* Submit a résumé and evidence of production work, which may include copies of prompt books, photographs, reviews, and critical commentaries, and an essay outlining a directorial approach to a selected play. If the review committee requests an interview, applicants are notified of city location and dates at which time a full portfolio may be presented. Interviews are conducted at various locations around the country in February.

*Playwriting.* Submit a résumé and two examples of creative writing which may include dra-

matic writing or narrative fiction such as full-length plays, one-act plays, and screenplays. At least one stage play must be included. An interview may be required by the department.

*Producer's Program.* Submit a résumé, examples of related coursework, and a statement outlining areas of specific interest and intent. An interview may be required by the department.

Applicants are advised that all records submitted in support of an application, including creative work (original or otherwise), are not returnable nor is the department responsible for such material. For further information, contact the Student Services Office in the department.

## Master's Degrees

### M.A. in Theater

The program leads to a general graduate degree, though there are opportunities, through electives and thesis or research paper topics, to stress a particular interest such as acting, design, directing, dramatic writing, or theater history and criticism.

The M.A. degree is offered through the comprehensive examination and thesis plans. Students are required to complete a minimum of 10.5 courses (42 units), five of which must be at the graduate level, in at least one year of intensive study and research. There are required courses in theater production management and production and performance laboratory, one in theater history, one in theater production theory, and five courses that emphasize production practice or historical study. Students accepted for joint M.A. and Ph.D. programs take a required course sequence in the background of theatrical art.

### M.F.A. in Theater

The M.F.A. degree is offered through the comprehensive examination plan, which is satisfied by fulfilling a series of creative projects appropriate to student specializations.

*Acting.* A total of 23.5 courses (94 units) is required for the degree; of these, 20.5 courses (82 units) must be graduate-level (200 and 400 series) courses.

*Design and Production (scenic, costume, lighting, and sound design, or production management/technology).* A total of 26 courses (104 units) is required for the degree; of these, 23.5 courses (94 units) must be graduate-level (200 and 400 series) courses.

*Directing.* A total of 26.5 courses (106 units) is required for the degree; of these, 23.5 (94 units) must be graduate-level (200 and 400 series) courses.

Required courses are scheduled to permit completion within a three-year period. Specific course requirements for each program are available in the Student Services Office.

For the design and production program, directing program, and producer's program, a professional internship experience associated



with a theater, film, or television company is required.

## Doctoral Degree

Ph.D. students are expected to be knowledgeable regarding theater history and theory, critical methods, theatrical production, and dramatic literature.

Students must complete a minimum of 12 graduate courses and two required professional courses. A course sequence in theory and criticism is required. The remaining nine courses are elective graduate courses, seminars, or tutorials. The dissertation is a historical, critical, analytical, or experimental study of a theater topic. A screening examination is administered during the first week of Fall Quarter based on a reading list supplied at the time of application. At the end of the student's second quarter in residence, a preliminary oral examination is administered by a representative committee of the faculty.

Written and oral qualifying examinations are required. Following successful completion of the written examination, students take the University Oral Qualifying Examination.

There is a language requirement for this degree.

## 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. Letter grading.

**11. Contemporary Theater Issues. (4)** Lecture, three hours. Investigation of theater in contemporary American culture and society. Topics illustrated by faculty 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. (4)** Lecture, three hours. Provides a base for subsequent study in theater. Development of techniques of play reading and habits of scholarship useful to further study in each of the theater's subdisciplines, including acting, directing, design, playwriting, and critical study. Letter grading.

**14A-14B-14C. Introduction to Design. (4-4-4)** Lecture, three hours; studio, six hours. Exploration of visual interpretation of drama. Study of styles and techniques of design, collaborative role of the 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. Prerequisite: 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, 24 hours. Introduction to interpretation of drama through art of the actor. Development of individual insights, skills, and disciplines in presentation of dramatic material to an audience. P/NP or letter grading.

**28A-28F. Acting, Voice, and Movement Workshops I. (2 each)** 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.

**50. Theater Production and Performance. (2)** Studio, six hours. Laboratory experience in various aspects of theater production, including scenery, costumes, lighting, stage management, or member of a crew. May be repeated for a maximum of 8 units. Letter grading.

### Upper Division Courses

**101A-101B-101C. History of World Theater and Drama. (4-4-4)** Lecture, three hours; discussion, one hour. Survey of history of influence of different cultures, traditions, and technologies on development of theater as a social institution. Letter grading. **101A.** Ritual and Religious Drama. Study of origins of theater and drama from oral tradition, myth, storytelling, Shamanism, collective ritual, Greek festival drama, and cloister drama of different cultures. **101B.** Rise of Secular Drama. Study of Renaissance secular theater and drama in Europe, Asia, Africa, and the New World. **101C.** Emergence of Realism and 20th-Century Responses. Study of realism and subsequent departures from realism in theater and drama.

**102A. Theater of Japan. (4)** 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. (4)** 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. (4)** 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. (4)** 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, the Middle East, and Africa. Analogous forms from European theater included for comparative purposes.

**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 the mid-1800s. Letter grading.

**M103B. African American Theater History: Minstrel Stage to Rise of the 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 the minstrel stage to the rise of the American musical. Letter grading.

**M103C. Origins and Evolution of Chicano Theater. (4)** (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).

**M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement. (4)** (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 which led to emergence of Chicano theater. Letter grading.

**M103E. African American Theater History: The Depression to the 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 the Depression to the present. Letter grading.

**103F. Native American Theater. (4)** Study of American Indian theater as an evolving art form.

**M103H. Contemporary Chicano Theater: Chicano Theater since 1980. (4)** (Same as Chicana and Chicano Studies M103H.) Lecture, three hours. Prerequisite: 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. (4-4-4)** Lecture, three hours. Study of history of influence of different cultures, traditions, and technologies on development of theater as a social institution in America. Letter grading. **104A.** Revolutionary War to the Civil War; **104B.** Civil War to WWI; **104C.** WWI to the Present.

**105. Main Currents in Theater. (4)** Lecture, three hours. Critical examination of leading theories of theater from 1887 to the present. Study and discussion of modern styles of production.

**106. History of American Theater and Drama. (4)** Lecture, three hours. Survey of key works of American dramatic literature and landmarks of American theater history. Letter grading.

**107. Drama of Diversity. (4)** Lecture, three hours. Investigation of diversity in American society as manifested in dramatic works and theatrical presentations. Letter grading.

**108. Special Topics in History and Criticism. (4)** Lecture, three hours. Investigation of selected topics of diversity in American society as manifested in dramatic works and theatrical presentations. Letter grading.

**111A. Selected Topics on History of European Theater from Primitive Times to 1640. (4)** Lecture, three hours. Investigation in depth of a selected area of study in theater history from the Greeks to 1640. May be repeated twice for credit.

**111B. Selected Topics on History of European Theater from 1640 to 1900. (4)** Lecture, three hours. Investigation in depth of a selected area of study in theater history from the Renaissance through 1900. May be repeated twice for credit.

**111C. Selected Topics on History of European Theater from 1900 to the Present. (4)** Lecture, three hours. Investigation in depth of a selected area of study in theater history from the baroque to the present. May be repeated twice for credit.

**114A-114B-114C. Dance and Singing for Music Theater I. (1-1-1)** Studio, five hours. Prerequisite: course 1A. Designed for Theater majors. Sophomore-level course providing foundation for music theater students' voice training, as well as dance and movement technique. Letter grading.

**115A-115B-115C. Acting, Voice, and Movement I. (6-6-5)** Studio, 14 to 17 hours. Study of beginning acting technique: improvisation, games, and sense memory with examination of action and objective exercises, outline of Stanislavsky system, and development of voice and movement skills. Letter grading.

**116A-116B-116C. Acting, Voice, and Movement II. (6-6-5)** Studio, 14 to 17 hours. Development of acting skills through scene study, use of self, and personalization. Examination of characterization exercises and their application to contemporary American scenes. Development of speech, voice, and movement skills. 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.

**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. Acting for Camera. (2-2)** Studio, six hours. Development of performance techniques for camera and interpretation of comedy and drama for television, film, and emerging technologies. Study and practice in single- and multiple-camera productions. 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. Advanced Voice. (2)** Studio/laboratory, three to four hours. Requisites: courses 126A, 126B, 126C. Development of voice techniques for the stage, including work in relaxation, limbering, breathing, articulators, and resonators.

**124B. Advanced Speech. (2)** Studio/laboratory, three to four hours. Requisite: course 124A. Designed to acquaint students with International Phonetic Alphabet and its uses and to exercise students' skills in pronunciation, enunciation, and development of diction versatility.

**125A. Advanced Movement. (2)** Studio/laboratory, three hours. Physical awareness for the actor, concentrating on warming up the body, relaxation, control, stunts, and gymnastics.

**125B. Advanced Movement and Combat. (2)** Studio/laboratory, three to four hours. Requisite: course 125A. Advanced and contemporary approach to classical and modern movement for the stage actor.

**126A-126B-126C. Acting, Voice, Movement III. (4-4-4)** Studio, nine hours. Requisite: course 12. Study of characterization, including introduction to Shakespeare. Approach to verse, scansion, use of emolbies in classic texts. Personalization within heightened reality. Further work in voice, speech, and movement. 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-128F. Acting, Voice, and Movement Workshops II. (2 each)** 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.

**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 for a maximum of 6 units. Concurrently scheduled with course CM229.

**130A. Fundamentals of Playwriting I. (4)** Lecture, three hours; discussion, one hour. Required of Theater majors. Designed to stimulate students' creative faculties through preparation and completion of a one-act play. Students' critical faculties stimulated by play analysis and scene exercises in discussion section.

**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.

**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.

**C133A-C133B-C133C. Script Development Workshops. (4 to 8 each)** Lecture, four hours; studio, 24 hours. Guided preparation of a script for production, with focus on collaborative process between playwright and director, scene work, staged readings, casting, rehearsal, and production. 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 and Singing for Music Theater II. (1-1-1)** Studio, five hours. Requisites: courses 1A, 114A, 114B, 114C. Designed for Theater majors. Junior-level course providing intermediate-level instruction for music theater students' voice training, as well as dance and movement technique. Letter grading.

**135A-135B-135C. Dance and Singing for Music Theater III. (1-1-1)** Studio, five hours. Requisites: courses 1A, 114A, 114B, 114C, 134A, 134B, 134C. Designed for Theater majors. Senior-level course providing advanced instruction for music theater students' voice training, as well as dance and movement technique. Letter grading.

**136. Advanced Acting for the Stage. (4)** Lecture/laboratory. Requisite: course 123. Study and practice of art of acting through a 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.

**141A. Lighting Techniques for the Stage. (4)** Lecture, three hours; laboratory, six hours. Requisite: course 10. Required of Theater majors. Intensive study of theater lighting, with emphasis on relationship of lighting instruments and control equipment to lighting design. Courses 141A, 140A, and 142A may be taken in any sequence, but not concurrently.

**144. Theater Sound Techniques. (2)** Lecture, two hours; laboratory, two hours. Requisites: courses 14A, 14B, 14C. Study of equipment and techniques utilized in recording and reproduction of sound for the theater.

**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.

**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.

**150. Theater Production and Performance. (2)** Studio, six hours. Requisite: course 50. Laboratory experience in various aspects of theater production, including performance in a project or production, stage management, member of a crew, or assignment as a designer or assistant on a production. May be repeated for a maximum of 8 units. Letter grading.

**151A-151B. Scenic Design. (4-4)** Lecture/studio. Requisites: courses 14A, 14B, 14C. Introduction to principles of study and practice of the design of scenery for theater, film, and television. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of the design. Letter grading.

**C151C. Production Design for Film and Television. (4)** Lecture/studio. Study of role of art director. Production design for single- and multiple-camera production and set decoration. Concurrently scheduled with course C451C. Letter grading.

**152A-152B. Lighting Design. (4-4)** Lecture/studio. Requisites: courses 14A, 14B, 14C. Investigation of principles and techniques of lighting design for theater and television. Study of lighting, with emphasis on imagination, text analysis, metaphor, and conceptualization. Investigation of composition and control of light and color in relation to the actor.

**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.

**153A-153B. Costume Design. (4-4)** Lecture/studio. Requisites: courses 14A, 14B, 14C. Letter grading.

**153A.** Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process and character analysis leading to visual presentation of the design. **153B.** Study of costume design for period productions, development of conceptual designs, and costume design for music theater.

**C153C. Costume Design for Film and Television. (4)** Lecture/studio. 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. Concurrently scheduled with course C453C. Letter grading.

**154A-154B. Sound Design. (4-4)** Lecture/studio. Requisites: courses 14A, 14B, 14C. Letter grading.

**154A.** Study of recording, mixing, editing, and playback of sound effects, voice, and music in the theater. **154B.** Introduction to 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.

**C154C. Sound for Film and Television. (4)** Lecture/studio. Study of current professional sound recording, re-recording, mixing, and synchronization practices for film and television. Concurrently scheduled with course C454C. Letter grading.

**C155A-C155H. Graphic Representation of Design. (2 each)** (Formerly numbered C155A-C155G.) 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 for a maximum of 4 units. Letter grading.

**C156A. Introduction to Computer-Assisted Drafting.** (2) Studio, four hours. Requisite: course 147A or 147B. Study of computer-assisted design for theater, film, and television. Introduction to computer drafting, drawing and editing techniques, drawing floor plans, and elevation drawings. Concurrently scheduled with course C456A. Letter grading.

**C156B. Introduction to Computer-Assisted Design.** (2) Studio, four hours. Requisite: course 147A or 147B. Study of computer-assisted design for theater, film, and television. Investigation of computer-assisted design techniques, including lighting designs, use of symbol libraries, and pictorial. Introduction to computer-assisted drafting. Concurrently scheduled with course C456B. Letter grading.

**C156C. Introduction to Computer-Assisted Rendering.** (2) Studio, four hours. Requisite: course 147A or 147B. Study of computer design for theater, film, and television. Investigation of three-dimensional computer drawing: wire-frame perspective drawing and photo-realistic computer rendering techniques. Concurrently scheduled with course C456C. 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 an authentic-appearing costume using contemporary methods. Concurrently scheduled with courses C457A-C457B-C457C. **C157A.** Requisites: courses 14A, 14B, 14C. Introduction to draping, pattern grading fitting, and slash and spread adaptation. Letter grading. **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.** 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.

**163B.** 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.

**163C.** 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.

**C163D. Directing Project for the Stage.** (4) Lecture, four hours; studio, six hours. Requisites: courses 163A, 163B, 163C. Completion of course C163D satisfies course 180 requirement. Application of stage directing techniques in production of a short play. Students direct a one-act play. May be repeated once for credit. Concurrently scheduled with course C263D. 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.

**C172. Technical Theater Laboratory.** (2) Hours to be arranged. Required of Theater majors. Laboratory in various aspects of theater production. Must be repeated for a maximum of 8 units, but no assignment may be repeated more than once. Concurrently scheduled with courses C272 and C472.

**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 the professional duties of stage manager, including participation as a stage manager in preproduction, rehearsal, and performance phases of a production. Problems of unions, auditions, organization, scheduling, and responsibilities of a lengthy run. May be repeated once for credit. Letter grading.

**175A-175D. Summer Theater Workshops.** (4 or 8 each) Lecture. Participation in production and performance of full-length plays for general public. Offered in summer only. Letter grading. **175A-175B.** Practice in and observation of complete operation of a summer theater company. **175C-175D.** Specialization in technical theater.

**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 taken for a maximum of 8 units. 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/studio, three hours. Requisites: courses 101A, 101B, 101C. Preparation of a conceptual or creative project to provide a culminating experience in the production of a creative or research work. Letter grading.

**C190A. Role of Producer in Professional Theater.** (2) Study of structure governing economic and artistic decision-making processes in professional theater of America. Concurrently scheduled with course C294A.

**C190B. Role of Management in Educational and Community Theater.** (2) Study of artistic, social, and economic criteria in administration of educational and community theater. Concurrently scheduled with course C294B.

**191. The Touring Company.** (2 to 12) Lecture, 20 hours; laboratory, 22 hours. Rehearsal and technical preparation of a theatrical work for touring and performance of that work on tour.

**192. Motion Picture, Television, and Theater Internship.** (2, 4, or 8) Field experience, eight, 16, or 24 hours; individual conferences, to be arranged. Limited to senior Theater majors. Internship at various studios or theaters accentuating creative contribution, organization, and work of professionals in their various specialties. May be taken for a maximum of 8 units.

**M193. Art Alive: Art and Improvisation in the Museum.** (4) (Same as Honors Collegium M116.) Seminar, four hours. Offered in collaboration with the Los Angeles County Museum of Art (LACMA). Interpretation of art in the collection through acting, dialogues, movement, and music. Research into history and art history and production of a creative performance piece required. P/NP or letter grading.

**199. Special Studies in Theater Arts.** (2 to 8) Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to seniors. May be taken for a maximum of 8 units.

## 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. (4-4-4)** Discussion, 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.** (Formerly numbered 208.) 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)** (Formerly numbered 495B.) Laboratory, to be arranged. Requisites: courses 208A, 208B. Demonstration of competence in practice of dramaturgy through completion of approved dramaturgical assignment. May be repeated for a 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-216B-216C. Theory and Criticism I, II, III. (6-6-6)** Lecture, four hours; laboratory, one hour. Designed for graduate students. Studies in theory and criticism of theater, dramatic literature, and performance. Letter grading. **216A.** Through the 16th Century. **216B.** 16th through 19th Centuries. Requisite: course 216A. **216C.** 19th Century to the Present. Requisite: course 216B.

**220. Graduate Forum. (1)** Seminar, two hours bi-monthly or five times per term. 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.

**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 for a maximum of 6 units. Concurrently scheduled with course CM129.

**“M**y mentor—Maidie Norman—was the first person to teach African American theater history on the UCLA campus. That was in 1968,” recalls Professor Beverly Robinson. “Later, as an undergraduate, I took her courses and became excited about American and African theater history and folklore studies. Little did I know I would have an opportunity to demonstrate her influence on my education and subsequent teaching in the areas I love.”

Three decades later, Robinson continues to energize the UCLA Theater Department, enriching it with her broad experience and special focus on American and African American theater.

“Theater is a reflection of ideas,” she likes to say “that beckons an audience to participate. As students learn to look at these ideas, I want them to stimulate their critical and associative learning skills, as well as to enhance their sense of responsibility to share what they have learned with others.”

A commitment to sharing is reflected in her own life not only through her teaching and publications. Robinson serves as a dramaturge, mu-

sic, speech, folklore, and research consultant for theater, film, television, and exhibits. She also developed the teaching curriculum for the Mind Builders Folk Arts Program in New York, which trains students to identify, collect, and preserve cultural traditions in the Bronx, particularly from community elders.

Such a background attests to the possibilities for theater students. “Undergraduate training introduces them to the many fingers that collaborate to make the strong hand of theater. In addition to acting, they have opportunities in areas such as design, directing, community outreach, playwrighting.... Many become involved in film and television, teaching, entrepreneurship, research and consulting, as performers, technicians, and educators.”

“Every student comes with the ability to learn,” Robinson affirms. “I love making them stretch beyond their own intellectual realizations. As an instructor, I believe learning is just as important as teaching, and my students always have something that I can learn to stimulate me to offer my best.”



**Beverly Robinson,  
Theater Department**

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*Every student comes with the ability to learn. I love making them stretch beyond their own intellectual realizations. As an instructor, I believe that learning is just as important as teaching, and my students always have something that I can learn to stimulate me to offer my best*

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**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.

**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.

**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 design 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. Prerequisite: 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. Prerequisite: course 245B. Laboratory experience in professional duties of production manager, including participation as a production manager in pre-production, 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.

**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 medium of 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. (4)** Lecture, four hours; studio, six hours. Prerequisites: courses 163A, 163B, 163C. Application of stage directing techniques in production of short play. Students direct a one-act play. 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.

**C272. Production and Performance Laboratory. (2)** Lecture, three hours; laboratory, to be arranged. Designed for graduate students. Credit for creative production assignments required of all M.A. students during first three terms in residence. May be repeated twice for credit. Concurrently scheduled with courses C172 and C472.

**290A. Role of Management in Artistic Decision Making in the Theater. (4)** Discussion, four hours. 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. S/U or letter grading.

**290B. Programming and Planning Policies in the Theater. (4)** Analysis of social, artistic, and economic roles of the arts as reflected in programming policy. Examination of social goals pursued in establishing relationships between the arts and their environment.

**C294A. Artistic Control of Theatrical Production by Professional Producer. (2)** Designed for graduate students. Study of structure governing economic and artistic decision-making processes in professional theater of America and historical development of involvement of producer in artistic process. Concurrently scheduled with course C190A. Additional research and writing required of graduate students.

**C294B. Organization and Operation of Community Theater. (2)** Designed for graduate students. Study of artistic, social, and economic criteria in administration of educational and community theater, with research in history of current practices in operations, administration, and organization. Concurrently scheduled with course C190B.

**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 personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.** 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.

**420B.** 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.

**420C.** 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.

**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. S/U 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.

**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.

**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.

**C433A-C433B-C433C. Script Development Workshops. (4 to 8 each)** Lecture, four hours; studio, 24 hours. Designed for graduate students. Guided preparation of a script for production, with focus on collaborative process between playwright and director, scene work, staged readings, casting, rehearsal, and production. 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)** Limited to M.F.A. candidates. Review discussion and critique of playwriting projects. May be repeated for a maximum of 6 units. In Progress and S/U grading.

**441A-441B-441C. Lighting Design. (4-4-4)** Lecture/studio. Letter grading:

**441A.** 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.

**441B.** Study of use of light and color to define space, effect of light on scenery and costumes, lighting for arena/thrust theaters, multiscenic productions, lighting patterns, and moving scenery. May be repeated once for credit.

**441C.** 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.

**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.

**444A-444B-444C. Sound Design. (4-4-4)** Lecture/studio. Letter grading:

**444A.** 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.

**444B.** 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.

**444C.** 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.

**C451C. Production Design for Film and Television. (4)** Lecture/studio. Study of role of art director. Production design for single- and multiple-camera production and set decoration. Concurrently scheduled with course C151C. 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.

**C453C. Costume Design for Film and Television. (4)** Lecture/studio. 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. Concurrently scheduled with course C153C. Letter grading.

**C454C. Sound for Film and Television. (4)** Lecture/studio. Study of current professional sound recording, re-recording, 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)** (Formerly numbered C455A-C455G.) 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 for a maximum of 4 units. Letter grading.

**C456A. Introduction to Computer-Assisted Drafting. (2)** Studio, four hours. Requisite: course 147A or 147B. Study of computer-assisted design for theater, film, and television. Introduction to computer drafting, drawing and editing techniques, drawing floor plans, and elevation drawings. Concurrently scheduled with course C156A. Letter grading.

**C456B. Introduction to Computer-Assisted Design. (2)** Studio, four hours. Requisite: course 147A or 147B. Study of computer-assisted design for theater, film, and television. Investigation of computer-assisted design techniques, including lighting designs, use of symbol libraries, and pictorial. Introduction to computer-assisted drafting. Concurrently scheduled with course C156B. Letter grading.

**C456C. Introduction to Computer-Assisted Rendering. (2)** Studio, four hours. Requisite: course 147A or 147B. Study of computer design for theater, film, and television. Investigation of three-dimensional computer drawing: wire-frame perspective drawing and photo-realistic computer rendering techniques. Concurrently scheduled with course C156C. 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 an authentic-appearing costume using contemporary methods. Concurrently scheduled with courses C157A-C157B-C157C. **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 construction, 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 some 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 taken for a 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.

**C472. Production and Performance Laboratory. (2 to 8)** Laboratory, to be arranged. Limited to M.F.A. candidates. Credit for creative production projects required of all M.F.A. students. May be repeated three times for a maximum of 16 units. Concurrently scheduled with courses C172 and C272.

**474. Projects in Theater Design. (2 or 4)** Discussion, three hours; laboratory, 12 hours to be arranged. Designed for graduate students. Study and practice in preparation and performance of dramatic works for public performances as a contributing artistic member of a departmental production. Creative responsibilities include designer, technical supervisor, production manager, choreographer, or dramaturge. May be repeated for a maximum of 16 units. Letter grading.

**495A-495B-495C. Practicum and Practice in Teaching Theater. (2-2-2)** (Formerly numbered 495A, 496.) 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.

**596B. Directed Individual Studies: Writing. (2 to 12)** Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor.

**596C. Directed Individual Studies: Directing. (2 to 12)** Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor.

**596D. Directed Individual Studies: Design. (2 to 12)** Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor.

**596E. Directed Individual Studies: Acting. (2 to 12)** Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor.

**596F. Directed Individual Studies: Production. (2 to 12)** Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor.

**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.

## Related Courses

### Classics

143. Ancient Drama

### Comparative Literature

1A, 1B, 1C. World Literature

### English

10A, 10B, 10C. English Literature

90. Shakespeare

112. Children's Literature

135. Creative Writing: Drama

167. Drama, 1842 to 1945

### Film and Television

126. Acting for Film and Television

M177. Film and Television Acting Workshop

### Italian

122. Italian Theater

### Music History

135A-135B-135C. History of Opera.

**World Arts and Cultures**

171. Lighting Design for Dance Theater.

172. Costume and Scenic Design Concepts for Dance Theater

## URBAN PLANNING

*School of Public Policy and Social Research*

UCLA  
3357 Public Policy Building  
Box 951656  
Los Angeles, CA 90095-1656

(310) 825-4025, 825-7331  
[http://www.spsr.ucla.edu//dup/home\\_dup.htm](http://www.spsr.ucla.edu//dup/home_dup.htm)

Donald Shoup, Ph.D., *Chair***Professors**

Lucie C. Cheng, Ph.D.  
Dana Cuff, Ph.D.  
J. Eugene Grigsby III, Ph.D.  
Susanna B. Hecht, Ph.D.  
Shirley Hune, Ph.D.  
Jacqueline Leavitt, Ph.D.  
Robin Liggett, Ph.D.  
James E. Lubben, D.S.W.  
Barbara J. Nelson, Ph.D.  
Paul Ong, Ph.D.  
Donald Shoup, Ph.D.  
Edward W. Soja, Ph.D.  
Michael Storper, Ph.D.

**Professors Emeriti**

Leland S. Burns, Ph.D.  
John Friedmann, Ph.D.  
Allan D. Heskin, Ph.D., LL.B.  
Peter Marris, B.A.

**Associate Professors**

Randall Crane, Ph.D.  
Leobardo Estrada, Ph.D.  
Anastasia Loukaitou-Sideris, Ph.D.  
Brian Taylor, Ph.D.  
Abel Valenzuela, Jr., Ph.D.

**Assistant Professors**

Evelyn Blumenberg, Ph.D.  
Raul Hinojosa-Ojeda, Ph.D.  
Michael Stoll, Ph.D.

**Lecturers**

Stephen Commins, Ph.D.  
Carol Goldstein, B.A.  
Gilda Haas, M.A.  
Neal Richman, Ph.D.  
Goetz Wolff, M.Phil.

**Adjunct Professor**

Karen Hill Scott, Ph.D.

## 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 a two-year Master of Arts degree and a Ph.D. degree. Concurrent degree programs allow students to combine study for an M.A. 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.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of Urban Planning offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Urban Planning.

## Admission

### M.A./Ph.D. in Urban Planning

The department admits students in Fall Quarter only, and the application process should begin a year in advance of the quarter for which applicants are applying. Applicants who are admitted but do not enroll are not guaranteed admission at a later date.

Prospective applicants may obtain a detailed bulletin and the UCLA Application for Graduate Admission by writing to the Department of Urban Planning, School of Public Policy and Social Research, 3250 Public Policy Building, UCLA, Box 951656, Los Angeles, CA 90095-1656, (310) 825-4025, e-mail: [up-info@spsr.ucla.edu](mailto:up-info@spsr.ucla.edu).

A statement of purpose, letters of recommendation, grade-point averages, and relevant experience are all considered in the review process for admission. Applicants must submit transcripts from each college attended and should have a minimum grade-point average of

3.0 or B for their junior and senior years. Applicants to the M.A. program are also encouraged to submit Graduate Record Examination (GRE) scores.

The Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination is required for those whose native language is not English, unless at least two years of university-level coursework at an English-language institution have been completed. A score of 600 (paper and pencil test) or 260 (computer-based test) on the TOEFL or overall band score of 7.0 on the IELTS is expected, and applicants with a score below 550 (paper and pencil test) or 220 (computer-based test) on the TOEFL or overall band score of 7.0 on the IELTS are not considered for admission.

For M.A. applicants, work samples such as reports, research papers, and slides are optional. No more than two pieces of work should be submitted; samples written in a foreign language are not considered. Work samples are returned only on request. Applicants in the U.S. must enclose a self-addressed, stamped envelope.

Students admitted to the Ph.D. program must have a master's degree in planning or a closely related field. Students in the M.A. program in Urban Planning at UCLA should inform the graduate adviser before December 15 of their second year if they wish to be considered for the Ph.D. program for the following Fall Quarter.

A minimum grade-point average of 3.5 is required in all graduate work completed for consideration for the Ph.D. program. Employment experience in planning or a closely related field is strongly recommended.

Applicants are required to submit two statements of purpose. The first should address how past experiences have shaped the applicant's interest in planning, the applicant's personal career plans, and how a Ph.D. in planning contributes to those plans. The second statement should describe the applicant's intended area of concentration, specific areas of interest in planning, including research interests, and current plans for the dissertation.

Before acceptance into the program, two faculty members must agree to assume responsibility for guiding students in their studies.

### Urban Planning M.A./Architecture M.Arch. I

The Department of Architecture and Urban Design and the Department of Urban Planning offer a concurrent plan of study providing an integrated curriculum for architects interested in specializing in social, economic, and environmental policy issues and for urban planners interested in integrating architecture and urban design into policy and planning practice. Education in planning offers an overview of theories and methods that permit identification and treatment of urban problems; education in architecture stresses physical, aesthetic, and

technical issues in the design of buildings and building complexes. In the program, students pursue studies in both schools/departments and receive both the M.Arch. I and the M.A. in Urban Planning at the end of four years.

Students who are interested in the concurrent degree program must apply and be admitted to the M.Arch. I program in the Department of Architecture and Urban Design and to the M.A. program in the Department of Urban Planning. For additional information, contact the graduate advisers in both departments.

### Urban Planning M.A./Latin American Studies M.A.

The Latin American Studies Program and the Department of Urban Planning offer a two and one-half to three-year concurrent degree program leading to an M.A. degree in each program. Issues related to migration and settlement, comparative urbanization, human resources development and distribution, and rural economics are all of direct concern to planners and other policymakers working in Latin America. The program provides an integrated curriculum through which students can develop professional knowledge and skills while receiving advanced area studies and language training.

Further details may be obtained from the graduate advisers in both departments.

### Urban Planning M.A./Law J.D.

The School of Law and the Department of Urban Planning offer a concurrent plan of study providing an integrated curriculum for students planning to specialize in the legal aspects of urban problems. Education in planning offers an overview of theories and methods that permit identification and treatment of urban problems; education in law offers insight into the institutional causes and possibilities for treatment of these problems. Students pursue studies in both areas and receive both the J.D. and M.A. in Urban Planning degrees at the end of four years.

### Urban Planning M.A./Management M.B.A.

The John E. Anderson Graduate School of Management and the Department of Urban Planning offer a three-year concurrent degree program designed for students who seek careers that draw on general and specialized skills in urban planning and management. By providing knowledge of the workings of both the private and public sectors, the program enables individuals who have acquired these skills to move easily between careers in private industry and public service. Application materials should be requested separately from both schools.

## Master's Degree

Students choose an area of concentration by the end of the first quarter in the program. Areas of concentration are fields in which planners characteristically become engaged, pro-

fessionally or through research. The areas are not meant to be mutually exclusive. The concentrations are regional and international development, social policy and analysis, environmental policy and analysis, and community development and the built environment. In special circumstances, students may devise their own area in consultation with appropriate faculty members.

The M.A. degree is offered through the comprehensive examination and thesis plans. The comprehensive examination plan offers the option of a client-oriented project in lieu of an examination.

Students must complete a minimum of 72 units of coursework, including 13 graduate courses in urban planning or a related field. Requirements include six core courses and five courses in a selected area of concentration. On entering the program, students must pass proficiency examinations in basic mathematics and microeconomics before enrolling in designated urban planning courses.

Students without substantial prior experience in planning are required to complete a minimum of 300 hours of fieldwork. Fieldwork is defined as clinical or real-world experience with a planning office, a private organization involved in planning, a community action agency, or applied research within a clinical context (excluding conventional university-based research projects).

## Doctoral Degree

Ph.D. students choose a major field by the end of the first quarter in the program. Expertise in the major field is primarily reflected in an ability to teach a sequence of urban planning courses at a major university, from introduction to the field to an advanced research seminar. Within each major field, students should identify two to three subspecializations that reflect their particular interests and approach.

The major fields are history of planning practice, history of planning doctrines, political economy of urban and/or regional development, community development — social, economic, and physical critical studies of cities and regions, comparative social policy, social policy formation (U.S.), public finance of urban services, social services planning, urban transportation planning, housing policy, political economy of the environment, land-use policy and planning, regional resources policy (water, energy, and so forth), pollution and environmental hazards, history of environmental policy, history of the built environment, social policy and the built environment, planning and designing the built environment, comparative international and third world studies — regional development, rural development, urbanization policy, housing policy, resource-based development, and environmental policy.

In special circumstances, students may devise their own field in consultation with appropriate faculty members.

A high level of competence in a major field and in planning theory and history, as measured by coursework and doctoral examinations, is required. In addition, students must satisfy a requirement in research methods and take three related courses in an area outside their major field and a required course in advanced research methods to aid in their preparation for the major field examination.

Written and oral qualifying examinations are required. Following successful completion of the planning theory and history, major field, and research methods requirements, including the written examinations, students take the University Oral Qualifying Examination, which consists of a defense of the dissertation proposal.

## Urban Planning

### Lower Division Course

**88. Lower Division Seminar: Special Topics in Urban Planning. (4)** Seminar, three hours; outside study, nine hours. Prerequisite: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in urban planning approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

### Upper Division Courses

**CM128. Global Environment and Development: Problems and Issues. (4)** (Same as Geography M128.) Lecture, three hours; discussion, one hour. Prerequisite: Geography 5. Designed for juniors/seniors. Questions of population, resource use, Third World poverty, and the environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Examination of emergent local and regional coalitions for self-reliance and sustainable development. Case studies from Africa, Latin America, Asia, and the U.S. Concurrently scheduled with course C266. P/NP or letter grading.

**M149. Transportation Geography. (4)** (Same as Geography M149.) Study of geographical aspects of transportation, focusing on characteristics and functions of the various modes and on complexities of intra-urban transport.

**C184. Looking at Los Angeles. (4)** Discussion, three hours. Introduction to physical form and history of Los Angeles, with emphasis on visual observation of the city as a skill for architects and planners. Field trips throughout the city. Concurrently scheduled with course C284. Letter grading.

**CM189. Environmentalism: Past, Present, and Future. (4 to 6)** (Same as Geography M115.) Discussion, three hours; optional field study, five to 10 hours. Exploration of history, politics, and theories of environmental movements, dynamics of race, class, and gender in relation to environmental agendas, and potential role of environmentalism in reshaping our society. Readings, discussion, and research papers. Offered annually as a graduate research seminar and biannually as an undergraduate upper division lecture and field studies program. Concurrently scheduled with course C265. P/NP or letter grading.

**M190. Human Environment: Introduction to Architecture and Urban Planning. (4)** (Same as Architecture and Urban Design M190.) Lecture, three hours; outside study, nine hours. Kinds of problems that arise in creating and maintaining an 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 the human-made to the natural environment. Students encouraged to comprehend major urban issues both as citizens and as potential technical experts.



**191. Introduction to Cities and Planning. (4)** Survey of urban history and evolution in the 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.

**192. Urban Policy and Planning. (4)** 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.

**193. Special Topics in Urban Policy and Research. (4)** Lecture, three hours. Examination of a 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.

**M194. Women and the City. (4)** (Same as Women's Studies M194.) Lecture, three hours. 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.

**M195. Policy, Planning, and Community. (4)** (Same as Asian American Studies M108B.) 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.

**C196. 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 C237C. Letter grading.

**197. Planning for Minority Communities. (4)** Lecture, three hours. Introduction to inner-city policy issues on three separate levels: (1) each student develops a comprehensive inner-city urban program using materials from Alternatives Inner-City Future Exercise, (2) each student is expected to identify value assumptions 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 which affect implementation.

**199. Special Studies. (2 to 8)** Tutorial, to be arranged. Independent research or investigation on a selected topic to be arranged with a faculty member. May be repeated for credit.

## Graduate Courses

**M202A. Public Control of Land Development. (3 to 6)** (Same as Law M286.) Lecture, three hours. 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, eminent domain, taxation, urban development, environmental law, and negotiation. Theory and doctrine applied to case studies; research project/paper and/or examination required.

**M202C. Seminar: Urban Affairs. (3 to 6)** (Same as Law M526.) Seminar, two hours; two field trips. 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 antispeculation and rent control legislation. Catalytic role of economic and community development in expansion of housing supply also considered.

**205. Seminar: Master's 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 a research/client project. Administrative issues and common implementation problems. S/U or letter grading.

**M206A. Introduction to Geographic Information Systems. (4)** (Formerly numbered 206A.) (Same as Policy Studies M224A.) Lecture, three hours; laboratory, one hour. Preparation: one graduate-level statistics course, familiarity with one of the packaged statistics programs. 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 a planning problem. Letter grading.

**M206B. Advanced Geographic Information Systems. (4)** (Same as Policy Studies M224B.) Lecture, four hours; laboratory, four hours. Prerequisite: course M206A or Policy Studies 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. Public Resource Allocation. (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.

**208. Seminar: Advanced Research Methods. (4)** Seminar, three hours. Required of Ph.D. students in their first year. Process of developing Ph.D. plan of study in preparation for major field examination. Advanced critical analysis of research methods prominent in social sciences and field of urban planning. S/U grading.

**209. Special Topics in Planning Theory. (2 to 8)** Seminar, three hours. Topics in planning theory selected by faculty. May be repeated for credit.

**210A. Introduction to Planning Theory. (4)** Lecture, three hours. Historical introduction to major ideas and theories of planning which have influenced its development from the early 19th century to the present. Letter grading.

**210B. Comparative History of Planning Practice. (4)** Lecture, three hours. Limited to Ph.D. and advanced M.A. students. History of city planning, its critics, and profession of planning through the 19th and 20th centuries. Comparison of evolution of the field in several countries, especially English-speaking countries.

**210C. Colloquium in Planning Theory. (4)** Lecture, one hour; discussion, two hours. Prerequisite: course 210A. Limited to Ph.D. students. Introduction to some central theoretical issues of contemporary planning.

**211. Law and the Quality of Urban Life. (4)** Lecture, three hours. Introduction to law as an 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 a partial cause and cure of urban problems. Examination of law as a changing process rather than a collection of principles, so that students develop facility to interact with law and lawyers in a positive and forceful manner.

**214. Ethics in Planning. (4)** Examination of ethical dimensions of planning at many levels, including issues of bribery and corruption, aspects of client/sponsor and employer/employee relationships, collection, use, and release of information, and ethical aspects of administrative discretion. Ethical aspects of planning methods, concept of environmental ethics, and evolution of code of ethics in planning profession.

**M215. Spatial Statistics. (4)** (Same as Geography M272.) Lecture, two hours; discussion, one hour; laboratory, one hour. Specific techniques useful in analysis of spatial data and modeling of spatial distributions.

**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 an urban planning problem. Each project spans two terms. Successful completion of project meets requirements of Comprehensive Examination Plan A of master's 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 the built environment. Development of fundamental skills of graphic ideation and communication. Letter grading.

**219. Special Topics in the Built Environment. (2 to 8)** Seminar, three hours. Topics in the built environment selected by the faculty. May be repeated for credit.

**220A. Quantitative Analysis in Urban Planning I. (4)** Lecture, three hours. 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 a tool in analysis of planning-related data.

**220B. Quantitative Analysis in Urban Planning II. (4)** Lecture, three hours. Prerequisite: 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 a tool in statistical analysis and modeling.

**221. Evaluation Methods. (4)** Lecture, three hours. Prerequisites: courses 207, 220A. Examination of methods used to evaluate efficiency and effectiveness of government programs and investment projects. Theory and practice of evaluation, with emphasis on techniques of cost-effectiveness analysis, cost-benefit analysis, discounting, sensitivity analysis, target efficiency, fiscal audits, and evaluation design.

**222. Introduction to Histories and Theories of Urban Planning. (4)** Lecture, 90 minutes; discussion, 90 minutes. 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. Generally taken Fall Quarter of first year of M.A. program. Letter grading.

**223. Professional Development Seminar. (4)** Seminar, 90 minutes; discussion, 90 minutes. Recommended preparation: course 222. Problems of professional practice. Development of methods which integrate theory and practice through readings and individual and collective analyses of each student's fieldwork experience. Students must be working in a 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.

**229. Special Topics in Planning Methods. (2 to 8)** Seminar on topics in planning methodology selected by faculty. May be repeated for credit.

**M230. Introduction to Regional Planning: Evolution of Regional Planning Doctrines. (4)** (Formerly numbered M232A.) (Same as Policy Studies 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.

**M231. Regional Development, Urbanization, and Industrial Policy. (4)** (Formerly numbered M234.) (Same as Policy Studies M242.) 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.

**233. Political Economy of Urbanization. (4)** Introduction to basic concepts and analytical approaches of urban political economy, with major emphasis on American urban problems. 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.

**234A. Development Theory. (4)** (Formerly numbered 266.) 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 the 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 of the other planning courses addressing Third World issues. Letter grading.

**234B. Rural Development Issues. (4)** (Formerly numbered 267B.) Lecture, three hours. Recommended preparation: course 234A. Development more thoroughly of themes raised in earlier courses. Topics may include peasantries, development and rural women, agricultural ecology, comparative land reform, agrarian revolution, and special problems of tropical development. May be repeated for credit with consent of instructor. Letter grading.

**M234C. Resource-Based Development. (4)** (Formerly numbered M267A.) (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 the 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. Requisite for course 235A: course 234A; for course 235B: course 235A. 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 Policy Studies M240.) Lecture, three hours; laboratory, 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. Theories of Regional Economic Development II. (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. Regional World: Territorial Development in Global Economy. (4)** Lecture, three hours. Requisite: course 236B. Advanced course in regional development examining changes in organization of economic systems, their geographies, and scale at which local, national, and international economies operate. Emphasis on importance of rules, information exchanges, and institutional and cognitive processes. Letter grading.

**237A. Sectoral Analysis. (4)** (Formerly numbered 206B.) 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 the 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 the 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 C196. Letter grading.

**238. Advanced Seminar: Urban and Regional Development. (4)** Seminar, two hours; discussion, two hours. Designed for Ph.D. students. Advanced research seminar on major issues in urban and regional development theory and/or policy. Topics usually reflect faculty research projects and change from year to year. May be repeated for credit.

**239. Special Topics in Urban and Regional Development Policy. (2 to 8)** Seminar, three hours. Topics in urban and regional development policy selected by faculty. May be repeated for credit.

**M240. Local Government. (2 to 6)** (Formerly numbered M202B.) (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 Policy Studies M210 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 the welfare system; theory and research about welfare policies and organizational forms. S/U or letter grading.

**M243. Privatization, Regulation, and Public Finance. (4)** (Same as Policy Studies M293.) Lecture, three hours; outside study, nine hours. Requisite: Policy Studies 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.

**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.

**M246. Poverty, the Poor, and Welfare Reform. (4)** (Same as Policy Studies M214 and Social Welfare M290L.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward the poor in the 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 the new diversity and gender with global restructuring, new urban economy, and policies of workplace, housing, schools, and governance.

**M248. Law and the Poor. (4)** (Same as Law M215, Policy Studies M295, and Social Welfare M290R.) Lecture, three hours. Designed for graduate students. Study of major income-maintenance programs in the U.S., with emphasis on interaction of moral attitudes toward the poor and structure and implementation of the law, policy, and administration. Current reform consensus and major reforms. Letter grading.

**249. Special Topics in Social Policy and Analysis. (2 to 8)** Seminar, three hours. Topics in social policy and analysis selected by faculty. May be repeated for credit.

**250. Introduction to Social Policy. (4)** Lecture, three hours. Analysis of demographic changes, history, needs, and ideological debates which affect development of social policy in the U.S., compared with Western Europe.

**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.

**252. Social Impact Analysis. (4)** (Formerly numbered 256.) Lecture, three hours. Exploration of ways of assessing and determining social impacts on communities resulting from large-scale planning projects. Students develop mitigation measures to address identified adverse consequences. S/U or letter grading.

**253. Survey Methods in Planning. (4)** (Formerly numbered 254.) Lecture, three hours. Requisite: course 220B. Use of surveys in planning. Conducting of a small area survey, with emphasis on methods to obtain quality data appropriate for planning: questionnaire development, sample design, interviewing, data processing, and analysis. Presentation of survey to planners or public agencies. S/U or letter grading.

**M254. Transportation, Land Use, and Urban Form. (4)** (Formerly numbered M286.) (Same as Policy Studies 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 the strong central city and polycentric city, neotraditional town planning debate, rail transit and urban form. Letter grading.

**M255. Transportation Planning. (4)** (Formerly numbered 255.) (Same as Policy Studies 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)** (Formerly numbered M287.) (Same as Policy Studies M221.) Lecture, three hours. Requisites: courses 207 and 220B, or Policy Studies 201 and 203. Descriptions of travel patterns in metropolitan areas, recent trends and projections into the 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)** (Formerly numbered M289.) (Same as Policy Studies 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)** (Formerly numbered M290.) (Same as Policy Studies 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; the automobile in the sustainability debate. Letter grading.

**M259. Advanced Real Estate Development for Planners and Architects. (4)** (Same as Architecture and Urban Design M259.) Discussion, three hours. Requisite: course 216. Review of basic site planning and design, with emphasis on how development plans (including proposed design solutions) are iteratively modified to achieve economic and political feasibility. Organized as a studio to produce a buildable project, including design and finance plans, for a client. S/U or letter grading.

**260. Environmental Politics and Governance. (4)** (Formerly numbered 260A, 260B.) 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.

**261. Land-Use Control: Economic and Structural Perspectives. (4)** Lecture, two hours; discussion, one hour. Requisites: courses 260A, 260B. Comparison of regulatory methods of land-use control to command or planning methods. Basics of land use as a commodity in first part: land economics, land markets. Development, historically, of a structuralist perspective on use of land in cities and regions in second part. Land-use regulation (in third part) in light of first two, to see how effective it is in steering course of land development. Regulatory approach compared with real planning.

**M262A. Toxics Reduction: Science, Engineering, and Policy Issues. (4)** (Same as Chemical Engineering M290U and Environmental Health Sciences M249.) Lecture, three hours. Requisites: courses 260A, 260B. Public health experts, industrial engineers, and planners are being asked to assess risks biologically active chemicals present and to take such risks into account in planning process. Examination of potential for toxics reduction and current state of government and industry activities in this area. Letter grading.

**262B. Urban Environmental Problems: Water Resources. (4)** Lecture, three hours. Water is life and wealth in California, which has world's most extensive long-distance, interbasin 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.

**M262C. Pollution Prevention. (2)** (Same as Environmental Health Sciences M239.) Seminar, one hour. Designed for graduate students. Series of talks by academics, policymakers, industry representatives, and public interest advocates addressing opportunities for and obstacles to adopting principles of pollution prevention, including several case studies of specific policy and industry initiatives in this area. S/U grading.

**263. Natural Resource Conservation. (4)** Discussion, three hours. Requisites: courses 260A, 260B. Exploration, through reading, discussion, and student presentations, of meaning of resource conservation, its desirability, and ways of achieving it. Emphasis on integrated management of public lands, though students may attend particularly to a specific resource (minerals, water, timber, wilderness).

**M264. Environmental Law. (3 to 6)** (Same as Law M290.) Lecture, three to three and one-half hours. Examination of the 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 a means of illustrating policy issues underlying the field.

**C265. Environmentalism: Past, Present, and Future. (4 to 6)** Discussion, three hours; optional field study, five to 10 hours. Exploration of history, politics, and theories of environmental movements, dynamics of race, class, and gender in relation to environmental agendas, and potential role of environmentalism in reshaping our society. Readings, discussion, and research papers. Offered annually as a graduate research seminar and biannually as an undergraduate upper division lecture and field studies program. Concurrently scheduled with course CM189. S/U or letter grading.

**C266. Global Environment and Development: Problems and Issues. (4)** (Formerly numbered C252.) Lecture, three hours; discussion, one hour. Questions of population, resource use, Third World poverty, and the environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Examination of emergent local and regional coalitions for self-reliance and sustainable development. Case studies from Africa, Latin America, Asia, and the U.S. Concurrently scheduled with course CM128. S/U or letter grading.

**M267. Environmental and Resource Economics and Policy. (4)** (Formerly numbered M280.) (Same as Policy Studies CM250.) Lecture, three hours. Requisites: courses 207 and 220B, or Policy Studies 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 which bear on public policies. Letter grading.

**268. Advanced Seminar: Environmental Analysis and Policy. (4)** Discussion, three hours. Generally designed for second-year M.A. and Ph.D. students. Exploration of broad issues related to environmental and resource planning. May be repeated for credit.

**269. Special Topics in Environmental Analysis and Policy. (2 to 8)** Seminar, three hours. Topics in environmental analysis and policy selected by faculty. May be repeated for credit.

**M270. Homelessness: Housing and Social Service Issues. (4)** (Formerly numbered 270.) (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 the homeless. Letter grading.

**271. Community Economic Development. (4)** (Formerly numbered 236C.) Lecture, three hours. Requisite: course 236B. Introduction to fundamentals of community economic development and neighborhood development strategies. Overview of basic approaches, important concepts, resources and language of the 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. 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 which are interactively modified to meet economic feasibility tests. S/U or letter grading.

**273. Site Planning. (4)** Lecture, 90 minutes; laboratory, 90 minutes. Introduction to principles of site planning for urban areas.

**274. Introduction to Physical Planning. (4)** Lecture, 90 minutes; discussion, 90 minutes. Overview of physical planning, land use, site analysis, and surveys; general plans and community plans; environmental review; zoning and ordinances; social impacts.

**M275. Community Development and Housing Policies: Roles of State, Civil Society, and Nonprofits. (4)** (Formerly numbered 275.) (Same as Policy Studies 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 the 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.

**M276. Urban Housing and Community Development. (3 to 4)** (Formerly numbered M231.) (Same as Law M287.) Lecture, three hours; discussion, one hour. Examination of past 40 years of federal and state programs to stem urban decline and improve housing in the 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. Letter 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.

**278. Qualitative Research Methods for Planners and Designers. (4)** Lecture, 90 minutes; discussion, 90 minutes. Emphasis on conceptualizing research projects using grounded theory; relation to survey data. Techniques include content analysis, user needs analysis, participant observation, questionnaire construction, interview techniques. Projects include students' own research.

**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. Nonprofit Development. (4)** (Formerly numbered 216.) Discussion, three hours. 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.

**281A. Introduction to History of the Built Environment in the 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.

**281B. Advanced Seminar: History of the Built Environment. (4)** Discussion, three hours. Requisite: course 281A. Extended discussion of research methods and writing techniques suitable for advanced students working toward completion of some research on history of the built environment in the U.S.

**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 the built environment of cities. Letter grading.

**283. History of the American Household and American Home. (4)** Lecture, 90 minutes; discussion, 90 minutes. Requisite: course 281A. Introduction to history of housing design in the U.S., emphasizing changing roles of women and men from Colonial times to the present and effects of these social changes on physical form of the dwelling and settlement. Discussion of concerns of professional architects and planners, as well as activity of bankers, builders, and homemakers.

**C284. Looking at Los Angeles. (4)** Discussion, three hours. Introduction to physical form and history of Los Angeles, with emphasis on visual observation of the city as a skill for architects and planners. Field trips throughout the city. Concurrently scheduled with course C184.

**285. Women and Community Development: Great Gender Debates. (4)** Seminar, 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 Policy Studies 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 Policy Studies M227 and Social Welfare M290S.) Lecture, three hours; outside study, nine hours. Designed for graduate students. 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 the U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between the U.S. and other countries. Letter grading.

**M288. Leadership, Development, and Governance of Nonprofit Organizations. (4)** (Same as Policy Studies 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.

**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 a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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 a 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.

**M470. Introduction to Occupational and Environmental Health Education. (2 or 4)** (Same as Community Health Sciences M470.) Lecture, three hours. Preparation: at least three social sciences courses. Designed to provide students with understanding of problem areas of occupational and environmental health and health education interventions which can be applied. Letter grading.

**496. Field Projects. (2 to 8)** Tutorial, to be arranged. 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. Research in Planning. (2 to 8)** Tutorial, to be arranged. May be repeated for credit.

**597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**598. Preparation for M.A. Thesis in Urban Planning. (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**599. Ph.D. Dissertation Research in Planning. (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

## URBAN STUDIES

*Interdepartmental Program  
College of Letters and Science*

UCLA  
4256 Bunche Hall  
Box 951472  
Los Angeles, CA 90095-1472  
(310) 825-3862  
<http://www.polisci.ucla.edu/>

Eric H. Monkkonen, Ph.D., *Chair*

### Faculty Advisory Committee Professors

Bryan C. Ellickson, Ph.D. (*Economics*)  
Eric H. Monkkonen, Ph.D. (*History*)

### Assistant Professors

Brian Taylor, Ph.D. (*Urban Planning*)  
Jan Reiff, Ph.D. (*History*)

## Scope and Objectives

Cities are multifaceted and can usefully be explored from more than one disciplinary perspective. The undergraduate specialization in Urban Studies brings together students and faculty from the Departments of Economics, Geography, History, Political Science, Psychology, and Sociology who share an interest in the modern city. The program gives students a solid grounding in the urban perspectives and methods of at least two departments. The specialization must be taken in conjunction with a major in the social sciences.

## Undergraduate Study

### Urban Studies Specialization

Students may elect to combine the Urban Studies specialization with a departmental major and may petition to have the area of specialization recognized with the bachelor's degree.

The option of completing an individual major in Urban Studies is also open to qualified students. For more information on individual majors, see the College of Letters and Science section of this catalog.

Students with a departmental major should seek advising in their major department. Those interested in the individual major should consult a Letters and Science counselor.

Courses within the specialization must be taken for a letter grade. The specialization must be taken in conjunction with a major in the division of social sciences.

### Preparation for the Specialization

*Required:* At least five of the following courses appropriate to the courses to be taken in the specialization: Economics 1, 2; Geography 4; Political Science 40; Psychology 10; Sociology 1, M18, 104 or equivalent.

### Upper Division Requirements

*Required:* Nine upper division courses, including (1) at least three courses outside the major department selected from Anthropology 167, Economics 120, Geography 150, Psychology 168, Sociology 158; (2) a minimum of three courses selected from one of the following suites within the major department: Economics 130, 133; Geography 150, 156; History 154A through 154D; Political Science 143A, 143B, 167B; Psychology 127, 135; Sociology 132, 156, 160; (3) a minimum of three courses selected from one of the suites in item 2 in a department outside the major department; (4) internship experience in an urban governmental or community service organization.

Professor Eric H. Monkkonen (9252 Bunche Hall, 310-825-3376) is the program adviser. For further information, contact the political science undergraduate counselor in the program office.

## UROLOGY

*School of Medicine*

UCLA  
66-143 Center for the Health Sciences  
Box 951738  
Los Angeles, CA 90095-1738  
(310) 825-5088  
<http://www.urology.medsch.ucla.edu/>

### Chairs

Jean B. deKernion, M.D. (*Fran and Ray Stark Foundation Professor of Urology*), *Chair*  
Robert B. Smith, M.D., *Vice Chair*

### Director

Mark S. Litwin, M.D., M.P.H., *Director of Medical Student Education*

## 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 UCLA, Harbor-UCLA, Olive View-UCLA, UCLA-Santa Monica Hospital, and West Los Angeles VA Medical Centers.

For further details on the Department of Urology and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

## WOMEN'S STUDIES

*Interdepartmental Program  
College of Letters and Science*

UCLA  
240 Kinsey Hall  
Box 951504  
Los Angeles, CA 90095-1504  
(310) 206-8156, 206-8101  
e-mail: [wsp@women.ucla.edu](mailto:wsp@women.ucla.edu)  
<http://www.women.ucla.edu/>

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 Paul Von Blum, Ph.D. (*Communication Studies*)

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Sondra Hale, Ph.D. (*Anthropology*)

#### Adjunct Associate Professor

Jacqueline D. Goodchilds, Ph.D. (*Psychology*)

#### Adjunct Assistant Professor

Fridelle Spiegel, Ph.D. (*History*)

## Scope and Objectives

The Women's Studies Program, established in 1975, 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 the 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, and cultural diversity. Students develop critical reasoning and analytical skills, research and communication skills, a deep appreciation for complexities of power, asymmetries in gender relations across time, class, and cultures, and conceptual tools for social change. Emphasis on multidisciplinary and multiethnic 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 core faculty members who teach women's studies courses come from various UCLA departments 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 a student representative sets program policies and curricula.

The program sponsors two student associations and 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 interdisciplinary 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 program. 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.

All courses 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 a grade 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 requisites, as applicable, for upper division women's studies courses in the disciplines.

#### Transfer Students

To be admitted as Women's Studies majors, transfer students with 90 or more units must complete the following introductory courses prior to admission to UCLA: one feminist perspectives on women and society course and departmental lower division requisite courses.

#### 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 as follows:

1. Three core courses, including (a) one feminist theory course from Women's Studies 110A or 110B or M192, (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 program, and (c) course 197 (departmental 197 courses may not be applied)

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

Four units of Women's Studies 199 may be applied toward the concentration requirement for the major. This limit does not apply to Women's Studies 199HA or 199HB.

## Honors Program

The honors program is open to advanced junior and senior Women's Studies majors with a 3.4 grade-point average in women's studies courses and a minimum 3.0 overall GPA who have no outstanding incomplete grades, and to majors who demonstrate ability to do honors work by submitting a paper to the program chair for approval. Students wishing to undertake honors in the major are advised to complete Women's Studies 197 by Spring Quarter of the junior year.

To be eligible for honors at graduation, students must successfully complete course 197 and two successive terms of independent studies (courses 199HA, 199HB) with their faculty sponsor and receive a grade of B+ or better on their research paper/project. Course 199HA may be applied toward the concentration requirement; course 199HB is in addition to the minimum required concentration courses. Further information is available from the undergraduate counselor in the program office.

## Women's Studies Minor

The Women's Studies minor augments 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 240 Kinsey 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):* One feminist theory course from Women's Studies 110A or 110B or M192; 120 or 197 or an equivalent senior research seminar approved in advance; and five elective courses

from the approved list of women's studies courses issued each term by the program. At least three elective courses must be taken in departments other than the major department. No more than 4 units of any 199 course may be applied.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Courses in which students receive a grade 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

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

### Graduate Degrees

The Women's Studies Program offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Women's Studies.

### Admission

Applicants to the M.A. and Ph.D. programs must submit the *UCLA Application for Graduate Admission* and meet the requirements of the Graduate Division. In addition to University requirements for admission, scores on the Graduate Record Examination (GRE) General Test are required.

### Master's Degree

For major fields, see Doctoral Degree.

The M.A. degree is offered through the thesis plan. At least 10 courses (40 units) are required, at least nine (36 units) of which must be graduate courses. Coursework includes four required graduate courses in women's studies, including 4 units of independent study, one course in research methods in the student's field of emphasis or another course for training in research, and 20 units of electives selected from a designated group of courses.

### Doctoral Degree

Major fields include feminist theory, women and health, sexuality, comparative gender roles, and women of color.

Ph.D. students are required to complete the 40 units of coursework required for the M.A. degree and 20 additional units, including 12 units of dissertation research. A maximum of 8 units of upper division coursework may be applied toward the degree, including the 4 units allowed for the M.A. degree. Eight elective units

are selected based on the designated specialization and the need for additional courses in research methods. At the discretion of the adviser and in consultation with the student additional work in research methods, including a course in statistical methods, may be required depending on the student's specialization.

Written and oral qualifying examinations are required. The written field examination consists of two parts: a section covering general knowledge of feminist theory, methods, and pedagogy (breadth) and a section covering the student's area of specialization (depth).

Following successful completion of the written examination, students take the University Oral Qualifying Examination, which focuses on the dissertation proposal in relation to the student's specialization.

There is a language requirement for this degree.

## Women's Studies

### Lower Division Course

**10. Introduction to Women's Studies: Feminist Perspectives on Women and Society. (4)** Lecture, two and one-half hours; discussion, one hour. 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

#### Core Courses

**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.

**197. Senior Research Seminar. (4)** Seminar, three hours. Requisites: courses 10, and 110A or 110B. Designed for advanced junior/senior Women's Studies majors or minors. In-depth study of a 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. P/NP or letter grading.

#### Supporting 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 the 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.

**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, health care, and health care providers. Discussion of basic health concepts and self-care; consideration of a women's health speciality and ways to deliver health care to women. Exploration of roles and lifestyles of female physicians. P/NP or letter grading.

**M106. Imaginary Women. (4)** (Same as Honors Collegium 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. 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 English 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 English M107C.) Lecture, four hours. Enforced requisite: 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 M108.) Lecture, three hours. Study of major literary works that address issues of idealized desire, emotional/sexual boundaries, and development of sexual identity. 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 the 1880s to the present. Survey of women vocalists, instrumentalists, composers/arrangers, and producers and their impact on development of jazz. P/NP or letter grading.

**112. Special Topics in Women and the Arts. (4)** (Formerly numbered M112.) 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, representation, 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. (4)** (Formerly numbered M14.) (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.

**M119. Tristan, Isolde, and History of Heterosexuality. (4)** (Same as German M104.) Lecture, three hours. German, French, and English versions of Tristan and Isolde story from Middle Ages to the 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.

**M123. International Political Economy of Work and Gender. (4)** (Same as Economics M158.) Lecture, three hours. Requisite: Economics 1 or 5 or 100. Analysis of women's economic status in world economy by taking account of interdependencies between household and market activities and between economic systems and legal and political institutions. Introduction of alternative theoretical approaches in social sciences; presentation of empirical evidence. Letter grading.

**125. Women and Health Care in the U.S. (4)** Lecture/discussion, three hours. Requisite: course 10. Examination in depth of various ways women provide health care in both paid and unpaid capacities and of political, economic, and social factors affecting women as recipients of health care. 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)** (Formerly numbered 128.) (Same as Honors Collegium 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. 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 the Chicana/Chicano community and the 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 the 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.

**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 legitimation of scientific knowledge. Applications of theoretical critiques to research design, practice, and interpretation. Letter grading.

**135. Women in Physics and Mathematics. (4)** Lecture, two and one-half hours. Examination of lives and scientific contributions of five women of the 20th century — Lise Meitner, discoverer of nuclear fission; Emmy Noether, mathematician; Maria Goeppert Mayer, discoverer of nuclear shell model; Dorothy Crowfoot Hodgkin, X-ray crystallographer and organic chemist; and Chien-Shiung Wu, nuclear physicist. P/NP or letter grading.

**M136. Music and Gender. (4)** (Same as Music History M136.) Lecture, four hours. Analysis of gender ideologies in several musical cultures; representations of gender, the 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.

**M137J. Psychology of Language and Gender. (4)** (Same as Communication Studies M124 and Psychology M137J.) Lecture, three hours. Requisite: Psychology 10. Designed for juniors/seniors. 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. P/NP or 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.

**142. Maya Women and Contemporary Social Change. (4)** Seminar, three hours. Requisite: course 10. Survey of recent literature on Maya culture in Chiapas, Mexico, and Guatemala. Examination of culture change through study of women as social actors, participating in political, economic, and religious change. 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. 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 CM243. P/NP or letter grading.

**M148. Women in Higher Education. (4)** (Same as Education M148.) Lecture, three hours. Designed for juniors/seniors. Education and career development of women in higher education. Specifically, emphasis on undergraduate and graduate women; women faculty and administrators; curricula, programs, and counseling services designed to enhance women's educational and career development, affirmative action, and other recent legislation. P/NP or letter grading.

**M151. Marriage, Family, and Kinship. (4)** (Same as Anthropology M151.) Lecture, three hours. Requisite: Anthropology 9. Examination of understandings of kinship in cross-cultural perspective and impact of kinship on interpersonal relationships, gender roles, and socio-cultural systems. Readings from popular materials and formal ethnographic accounts. P/NP or letter grading.

**M153. The Media and Aggression against Women. (4)** (Same as Communication Studies M153.) Lecture, two hours; discussion, two hours. Requisite: Communication Studies 152. Study of the growing body of literature on relationship between mass media and aggression against women. Consideration of both role of the media as reflecting cultural values and scripts and its potentially powerful role as a socializing agent of the culture. Analysis of research on role of individual differences among members of a culture as mediators of the impact of the media. Letter grading.

**M154P. Gender Systems: North American. (5)** (Same as Anthropology M154P.) Lecture, three hours; discussion, one hour; fieldwork, three hours. Requisite: course 10. Designed for junior/senior social sciences majors. Comparative study of women's lives and gender systems in North American cultures from an anthropological perspective. Critical review of relevant theoretical and practical issues using ethnography, case study, and student fieldwork, internship, and presentation. P/NP or letter grading.

**M154Q. Gender Systems: Global. (4)** (Same as Anthropology M154Q.) Lecture, three hours. Requisite: course 10. Designed for junior/senior social sciences majors. Comparative study of gender systems globally from an anthropological perspective. Outline of material conditions of women's lives in the world — gender division of labor, relationship of gender to the 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 sociocultural 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.

**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. Requisite: 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. Requisite: 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.

**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 and Sociology 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.

**M170. Alternate Traditions: In Search of Female Voices in Contemporary Literature. (4)** (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 a cross-cultural perspective. Common themes, problems, and techniques. P/NP or letter grading.

**171. Jurisprudence of Sexual Equality. (4)** (Formerly numbered 170.) Lecture, four hours. Requisites: course 10 and one course from 110A through M110D or Political Science 10 or Philosophy 6 or 9. Exploration of models of equality described and/or advocated by legal theorists — equality of opportunity, equality of outcome, equality of respect, etc. — using specific problems of women (e.g., sexual harassment or pregnancy leave policy) for purposes of comparison and critique. P/NP or letter grading.

**M172. The Afro-American Woman in the 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 a large society and as members of their biological and ethnic group. P/NP or letter grading.

**M173. Interracial Work, Friendship, and Love Relationships of African American Men and Women. (4)** (Same as Afro-American Studies M175.) Seminar, three hours. Examination of factors that influence development, maintenance, and dissolution of interracial relationships of African Americans in three areas: work life, friendships, and intimate love relationships. P/NP or letter grading.

**M174. Sociology of the Family. (4)** (Same as Sociology M174.) Lecture, four hours. Theory and research dealing with the 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.

**M177. The Military and Society. (4)** (Same as Sociology M177.) Lecture, three hours; discussion, one hour. Examination of the military as an organization and profession: personnel issues such as family, class, race, gender, and sexual orientation and postmodern military issues such as civil/military relations, media coverage, peacekeeping operations, and the future of war. P/NP or letter grading.

**185. Special Topics in Women's Studies. (4)** (Formerly numbered 185A-185Z.) Lecture, three hours. Preparation: one prior women's studies course. Designed for juniors/seniors. Specialized or advanced study in an 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 Scandinavian Literature. (4)** (Same as Scandinavian CM186.) Discussion, three hours. Requisite: Scandinavian 5 or 15 or 25. Knowledge of a Scandinavian language 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.

**M187. Violence against Women. (4)** (Same as Social Welfare M108.) Lecture, three hours. Requisites: courses 10, 110A. 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.

**188. Women and Economic Development. (4)** Lecture, three hours. Requisite: course 10. Examination of effects of economic development on women, with primary focus on Third World and transition economies of Eastern Europe and former Soviet Union, including roles of women in policy and practice, disparate effects by economic sector, and socioeconomic groups. Letter grading.

**M190. Bilingual Writing Workshop. (4)** (Same as Chicana and Chicano Studies M190.) Seminar, four hours. Requisite: Chicana and Chicano Studies 10A or 10B. Writing sample required; access to course webpage mandatory. 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.

**M192. Philosophical Analysis of Issues in Feminist Theory. (4)** (Same as Philosophy M192.) 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 the new scholarship on women in philosophy. Critical study of concepts and principles which 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.

**M194. Women and the City. (4)** (Same as Urban Planning M194.) Lecture, three hours. 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.

**199. Special Studies in Women's Studies. (4)** Tutorial, to be arranged. Preparation: at least two upper division women's studies courses, minimum 3.0 grade-point average. Directed program of independent readings and/or research on a specific topic within women's studies. No more than 4 units may be applied toward Women's Studies major or minor. P/NP or letter grading.



**199HA-199HB. Directed Studies for Honors. (4-4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average overall, 3.0 grade-point average in major. Requisite: course 197. Limited to women's studies honors program students. Two-term sequence to research and write honors thesis under direction of faculty sponsor. In Progress and P/NP or letter grading.

## Graduate Courses

**201. Feminist Theories. (4)** Lecture/discussion, three hours. Introduction to field of feminist critical theories in humanities and social sciences disciplines. Concentration on European and U.S. theorists, including women of color. Examination of classic texts, such as creation story in Genesis and essays by Engels, Freud, and others, to analyze how feminist theories articulate counter-discourse to patriarchal intellectual traditions. Letter grading.

**202. Multicultural Perspectives on Women's Issues. (4)** Lecture/discussion, three hours. Requisite: course 201. Examination of issues facing women of color in the U.S. and women living outside Europe and North America today. Issues include reproductive rights, international division of labor, violence toward women, sexuality, women and colonialism, women in social movements, women and the state, feminist organizing throughout the world. 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.

**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, health care, 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.

**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.

**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.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Requisite or corequisite: course 495. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**495. Feminist Pedagogy. (2)** Seminar, two hours. Preparation: appointment as teaching assistant in Women's Studies Program. 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. 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.

**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.

## Related Courses

Check with the program office for additional course listings.

### Anthropology

M151. Marriage, Family, and Kinship

M155. Women's Voices: Their Critique of Anthropology of Japan

263P. Gender Systems

### Asian American Studies

115. Asian American Women

### Classics

150A. Origins of the Western View of Women: The Female in Greek Thought

150B. Origins of the Western View of Women: The Female in Roman and Early Christian Thought

### Communication Studies

M153. The Media and Aggression against Women

197K. Special Topics in Communication Studies: Communication Policy — Pornography and Evolution

### Community Health Sciences

230. Family and Sexual Violence

246. Women's Roles and Family Health

431. Research in Women's Health: Theories and Methods

433. Reproductive Health: Demographic Applications

### Comparative Literature

CM170. Alternate Traditions: In Search of Female Voices in Contemporary Literature

C270. Alternate Traditions: In Search of Female Voices in Contemporary Literature

271. Imaginary Women

### English

177. Special Topics in American Literature: Lesbian Writers

180X. Specialized Studies in Literature

### German (Germanic Languages)

118. Feminist Issues in German Literature and Culture

### Health Services

CM241. Women, Health, and Aging: Policy Issues

### History

137A-137B. History of Women in Europe

156C. History of Women in Colonial British America and Early U.S., 1600 to 1860

156D. History of Women in the U.S., 1860 to 1980

M191D. Focal Themes in Jewish History: Jewish Studies — Women

197A-197Z. Undergraduate Seminars (selected)

### Political Science

M107. Women and Politics

### Psychology

197A. Current Issues in Psychology: Social Psychology of the Lesbian Experience

231. Psychology of Gender

### Russian (Slavic Languages)

M127. Women in Russian Literature

### Sociology

285. Special Topics in Sociology: Sociology of Gender

### Spanish (Spanish and Portuguese)

151A. Women in Hispanic Literature: Spain

151B. Women in Hispanic Literature: Spanish American

# WORLD ARTS AND CULTURES

*School of the Arts and Architecture*

UCLA  
124 Kaufman Hall  
Box 951608  
Los Angeles, CA 90095-1608

(310) 206-1342, 825-3951  
<http://www.wac.ucla.edu/>

Christopher Waterman, Ph.D., *Chair*  
Allen Roberts, Ph.D., *Vice Chair*  
David Rousseve, B.A., *Vice Chair*

### Professors

Judith Baca, M.A.  
Irma Dosamantes Beaudry, Ph.D.  
Donald J. Cosentino, Ph.D.  
Michael O. Jones, Ph.D.  
Judy Mitoma, M.A.  
Peter Nabokov, Ph.D.  
Allen Roberts, Ph.D.  
Peter Sellars, B.A.  
Christopher Waterman, Ph.D.

### Professors Emeriti

Elsie Dunin, M.A.  
Pia Gilbert  
Carol Scotthorn, M.A.  
Marion Scott  
Doris Siegel  
Allegra Fuller Snyder, M.A.  
Emma Lewis Thomas, Ph.D.

### Associate Professors

Judith Alter, Ed.D.  
Angelia Leung, M.A., C.M.A.  
Victoria Marks, B.A.  
Colin Quigley, Ph.D.  
David Rousseve, B.A.  
Marta Savigliano, Ph.D.

### Assistant Professors

David H. Gere, Ph.D.  
Cheng-Chieh Yu, M.F.A.

### Lecturers

Shiva Rea Bailey, M.A.  
Mary Jo Dondlinger, M.F.A.  
Teresita Dome-Perez  
Ysamur Flores-Peña, Ph.D.  
Charles Tomlinson  
Liliana De Leon Torsiello, M.A.  
Shel Wagner Rasch  
Scott Wardinsky

### Adjunct Associate Professor

Doran Ross, Ph.D.  
Peter Tokofsky, Ph.D.

### Adjunct Assistant Professors

John Bishop, B.A.  
Judy Gantz-Siegel, M.A.

**Visiting Associate Professor**

Guillermo Gomez-Peña  
Viji Prakash

**Visiting Assistant Professors**

Michele Bloom, M.A.  
Lynn Dally, M.A.  
Dan Froot, M.F.A.  
Simone Forti, B.F.A.  
Rebecca Lazier, B.A.  
Patrick Polk, Ph.D.  
Keith Terry, B.A.

**Scope and Objectives**

Guided by an interdisciplinary faculty of artists, dance scholars, and ethnographers, the academic programs in the Department of World Arts and Cultures (WAC) are organized around three fundamental missions: (1) the formulation of critical and intercultural insights into the nature of human creativity, (2) the creation 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. The programs of teaching, research, and performance are unified around a shared concern with problems of cultural identity and differences, the meaning of tradition in contemporary societies, the forging of connections between critical theory and artistic practices, and the changing social roles and responsibilities of artists and scholars of the arts, both in the U.S. and worldwide.

The undergraduate program offers concentrations in dance and cultural studies. The graduate program offers a Master of Arts in Dance, a Master of Fine Arts in Dance, and a Master of Arts and Ph.D. in Culture and Performance. Students are encouraged to explore relationships among the different curricular emphases, including world arts practices, cultural studies, dance studies, and folklore, as a means to tailor a particular course of study to their professional goals.

Students in the World Arts and Cultures Department at UCLA study with faculty members of international standing engaged in both creative artistic work and research. Students from this unique department have gone on to pursue advanced degrees and/or careers in arts management, education, cultural policy, community outreach, architecture and urban planning, law, and various academic disciplines within the arts, humanities, and social sciences, as well as in the professional fields of dance.

**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 cultural studies. All students take a set of core courses designed to explore a wide range of artistic practices in cultural context. In addition, students selecting the dance concentration are required to study movement techniques of their choice four to five days a week for the first two years of the program, while those concentrating in cultural studies must select 12 units of arts practice electives in movement, music, theater, film, design, or visual art — either within or outside the department. At the end of the sophomore year, students propose a course of study from courses in and outside the department that leads to the senior project — in the form of an academic paper, a video, or a performance, with the student's imagination as the only limit — which serves as the culmination of the undergraduate coursework.

The *dance concentration* offers courses in a wide range of idioms from throughout the world, including special emphasis on modern/postmodern dance. 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. 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 *cultural studies concentration* provides students with an introduction to key issues, problems, and debates in the study of art and creativity in cultural context. Beyond the required set of core courses, students select from a range of courses offered in the World Arts and Cultures Department and in other departments. Students may also consider 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, 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 officers regarding program planning and major requirements should contact Wendy Temple at (310) 825-8537 or Sandra McKerroll at (310) 206-5467.

**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 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 February audition.

Current UCLA students who petition to change their major are required to meet with one of the student affairs officers prior to application. They are advised to take world arts and cultures courses 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 120 quarter units. Students interested in the cultural studies concentration may apply at the beginning of Fall and Spring Quarters. Those interested in the dance concentration may apply at the beginning of Winter Quarter and are expected to participate in an audition in early February.

**The Major**

The major consists of 97 units of coursework for the dance concentration and 85 units for the cultural studies concentration, including the 8-unit senior project.

*Required:* A core of 10 courses (32 units): World Arts and Cultures 1, 2 (taken twice), 3, 70, 90, 100A or 100B, 101, 102, 103.

Sixteen units of coursework in culture/performance studies are also required, selected from World Arts and Cultures 106B through 185C, 192 through 199, or outside the department subject to consent of the faculty adviser.

In addition, the following courses are required:

*Cultural Studies Concentration:* 12 units of arts practice electives selected from World Arts and Cultures 5 through 16 and 56 through 69 or from courses offered by other departments subject to consent of the faculty adviser; course 20; and 12 units selected from courses 120 through C142.

*Dance Concentration:* 24 units of movement techniques selected from World Arts and Cultures 5 through 16 and 56 through 69, including courses 16 and 67 or 69; course 45; and 12 units selected from courses 116 through 119 and C145 through C168.

World Arts and Cultures 190, 191A, and 191B (9 units total) are required. These courses are the culmination of the major and have three possible areas of focus — performance, applied research, or cultural studies research — as follows: (a) the performance project is a creative project leading to the production and public performance of original or traditional work; (b) the applied research focus implies an application of knowledge in a hands-on situation and includes projects in and with the community or campus; (c) the cultural studies focus involves students in independent ethnographic research in some aspect of the arts. The subject of study can be found in, but is not restricted to, the Los Angeles community. Field study includes the use of video, slides, and sound recordings.

## Graduate Study

For applicants, the following includes admissions information and a brief outline of the graduate degree program(s) offered. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu>. In many cases, even more detailed guidelines may be outlined in *Announcements* and other publications available from the schools, departments, and programs and included on their websites.

## Graduate Degrees

The Department of World Arts and Cultures offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Culture and Performance and Master of Arts (M.A.) and Master of Fine Arts (M.F.A.) degrees in Dance.

## Admission

### M.A./Ph.D. in Culture and Performance

Application to the M.A. and Ph.D. programs is restricted to Fall Quarter. All applicants are required to have a B.A. degree or its equivalent from a recognized college or university; applicants to the Ph.D. program also are normally expected to hold a master's degree or its equivalent from a recognized college or university.

Applicants for the Ph.D. program whose qualifications do not meet the requirements for the M.A. degree are required to complete the three core courses and any additional remedial coursework recommended by the program faculty.

A minimum grade-point average of 3.0 or its equivalent is required for the last two years of undergraduate work and for any post-baccalaureate work completed.

The application must be submitted by December 15 for consideration for Fall Quarter of the following year. The following support material must be submitted directly to the department: (1) official transcripts, in duplicate, from each college or university at which work was completed, (2) a statement of purpose, (3) three letters of recommendation, (4) a research or term paper (for the M.A. program) or master's thesis or substantial research paper (for the Ph.D. program), as well as evidence of other creative work relevant to the degree program, and (5) scores on the General Test of the Graduate Record Examination (GRE), sent by the testing agency.

### M.A. in Dance

The department is not currently accepting applications for admission to the M.A. program.

### M.F.A. in Dance

In addition to the *UCLA Application for Graduate Admission*, the department has its own screening procedure: three letters of recommendation, an audition, and a personal inter-

view. The audition evaluates applicants' creative potential and technical proficiency with consideration toward their primary focus.

Applicants to the M.F.A. program must demonstrate exceptional promise in either choreography or performance. Auditioners in choreography show three original works; auditioners in performance present three selections already in their repertory. Applicants are required to prepare a statement (no more than one page) describing the works shown.

Prospective students may contact the department for a brochure that provides additional information on the overall graduate program and the specific curriculum for the stated area of specialization.

## Master's Degrees

### M.A. in Culture and Performance

M.A. students may choose to develop specialized skills and knowledge in the fields of dance studies and folklore studies.

The M.A. degree is offered through the comprehensive examination and thesis plans. Ten courses are required, seven at the graduate level, including three core courses. Students specializing in dance studies or folklore studies complete a two-course sequence in the specialization; further specialized training in the fields may be accomplished through additional coursework in the department or in other departments.

There is a language requirement for this degree.

### M.A. in Dance

The M.A. degree is designed for students preparing to continue professionally as researchers and teachers. Unique interests in areas such as dance ethnology, education, history, philosophy and criticism, dance kinesiology, dance production, dance and media, computer-aided dance studies, and music for dance may be pursued with consent of the faculty academic advisers.

The M.A. degree is offered through the comprehensive examination and thesis plans and requires 36 units of coursework, 20 at the graduate level. Required coursework includes a required course in research methods and bibliography, four graduate courses in the department at the graduate level, and four courses in or outside the department at the upper division or graduate level. Specific concentrations within the M.A. may be designed under the direction of faculty advisers.

### M.F.A. in Dance

The M.F.A. degree is designed for students preparing to continue professionally as choreographers and/or performers.

The M.F.A. degree is offered through the comprehensive examination plan, which consists of a written proposal combined with a presentation of proposed works. Beyond basic requirements, course requirements vary for each pro-

gram and are determined under the direction of faculty advisers.

A total of 72 units of coursework is required, 32 at the graduate level. The required coursework includes courses in choreographic/performance training, studio technique, production, movement studies, cultural/critical studies, education, internship, field studies, practicum studies, and electives. Required courses are individually designed through advisement with the faculty academic adviser.

## Doctoral Degree

Ph.D. students may choose to develop specialized skills and knowledge in the fields of dance studies and folklore studies.

Eight graduate courses are required, four within the department. The three core courses for the M.A., or their equivalent, are required. Area studies and field language requirements vary widely among students, and requirements are determined in consultation with the adviser and committee.

Written and oral qualifying examinations are required. The written examination evaluates competence in the three main areas relevant to the dissertation topic: theoretical concepts and problems, the geocultural and/or historical field of specialization, and expressive genre(s) or media.

Following successful completion of the written examination, students take the University Oral Qualifying Examination, which is primarily a defense of the dissertation proposal.

There is a language requirement for this degree.

## World Arts and Cultures

### Lower Division Courses

**1. Introduction to World Arts and Cultures. (5)** (Formerly numbered 12.) 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. (4)** Seminar, three hours. In-depth investigations of variable topics, including the body in cultural context, music and soundscapes, material culture, visual imagery, oral genres, and realm of the spirit, as well as other subjects pertaining to broader discipline of world arts and cultures. May be repeated for credit without limitation. Letter grading.

**3. World Arts Forum. (1)** (Formerly numbered 50.) Lecture, 90 minutes. Introduction to major issues in discipline of world arts and cultures as well as various arts resources on campus. Presentations by faculty, curators, artistic directors, performers, scholars, national leaders in the arts, international guests. Specific presentations vary from term to term. May be repeated for a maximum of 4 units. P/NP 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, crosscultural 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 the 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 the 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 the 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 the 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)** (Formerly numbered 1A.) 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)** (Formerly numbered 5.) Lecture, one hour; laboratory, three hours. Introduction to creative exploration in movement through improvisational and compositional exercises that access and develop the imagination, find relationship between imagination and dance making, and enrich movement vocabulary. May be repeated once for credit. P/NP or letter grading.

**20. Introduction to Cultural Studies. (4)** Lecture, three hours. Limited to World Arts and Cultures majors. 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.

**M22. Introduction to American Folklore Studies. (4)** (Same as Folklore M15.) Lecture, four hours. Cultural/historical survey of role of folklore in development of American civilization and of influence of the American experience in shaping folklore in American society; attention also to representative areas of inquiry and analytical procedures. 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 the 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)** (Formerly numbered 70.) Studio, three hours. Introduction to dances and their movement characteristics in global context. 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, crosscultural 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 the 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.

**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 the 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.

**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 the 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)** (Formerly numbered 101A.) Studio, four hours. Technical training with emphasis on increasing skill. May be repeated twice for credit. P/NP or letter grading.

**67. Introduction to Dance Composition. (2)** (Formerly numbered 105.) Lecture, one hour; laboratory, three hours. Study of processes derived from a Western theatrical tradition by which movement is generated with specific consideration toward shaping/forming of movement materials. May be repeated twice for credit. P/NP or letter grading.

**69. Introduction to Intercultural Composition. (2)** Studio, four hours; outside study, two hours. Study of processes derived from interaction of Western theatrical tradition with non-Western forms, with specific consideration toward shaping/forming of movement materials. May be repeated twice for credit. P/NP or letter grading.

**70. Production. (1)** Laboratory, three 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. May be repeated once for credit. P/NP grading.

**90. 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 a whole. P/NP grading.

**96. Private Instruction in World Arts and Cultures. (2 to 4)** Studio, three to six hours. Designed for freshmen/sophomores. Private or semiprivate instruction in a world arts practice with a distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for a maximum of 24 units. P/NP or letter grading.

**99. Special Studies in World Arts and Cultures. (2 to 4)** Tutorial, to be arranged. Independent studies course for freshmen/sophomores to be arranged by students in consultation with a faculty member. A contract written during first week of term is basis for evaluating successful completion of course. Topics, readings, and written assignments to be arranged at discretion of sponsoring faculty member. May be taken for a maximum of 8 units. P/NP or letter grading.

## Upper Division Courses

**100A. Art as Social Action. (4)** (Formerly numbered 140A.) Lecture, four hours. Designed for juniors/seniors. Discussion of what constitutes an artist's social responsibility and in what ways art is qualified to engage in direct political action. Study of tension between the powers of this world and the powers of art. P/NP or letter grading.

**100B. Art as Moral Action. (4)** (Formerly numbered 140B.) Lecture, four hours. 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. (4)** Lecture, three hours. Requisite: course 90. Introduction to a range of contemporary critical theories applicable to analysis of performance, including gaze theory, postcolonial theory, queer theory, and intercultural theory. P/NP or letter grading.

**102. Seminar: Intercultural and Interdisciplinary Performance. (4)** (Formerly numbered 140C.) Seminar, four hours. Recent discussions of multiculturalism have demanded a 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 the Community. (4)** Lecture, four hours. Requisite: course 90. Following up on discussions of impoverishment of theatrical performance, many artists and scholars have turned attention to full engagement with communities in which they live. Investigation of practical application of those engagement strategies, culminating in a pilot community project. Letter grading.

**106B. Dance in Africa and African Diaspora. (4)** (Formerly numbered 182.) Lecture, four hours. Survey of dance in sub-Saharan cultures and their new world transformations, with consideration of role of dance in society, its cultural significance, and historical background. Emphasis on various African and African American cultures and genres. Letter grading.

**108B. Dance in Latin American Cultures. (4)** (Formerly numbered 183.) Lecture, four hours. Survey of dance in Latin America, with consideration of role of dance in society, its cultural significance, historical background, and relationship to other art forms. Emphasis on various Latin American cultures and dance genres. 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 the 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.

**C109B. Dance in Native American Cultures. (4)** (Formerly numbered C187.) Lecture, four hours. Survey of Native American dance; role of dance in society, its cultural significance, and historical background. Concurrently scheduled with course C209B. Letter grading.

**110B. Dance in East Asia. (4)** (Formerly numbered 181C.) Lecture, four hours. Survey of dances of Japan, China, and Korea and factors which 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)** (Formerly numbered 181D.) 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)** (Formerly numbered 181B.) Lecture, four hours. Survey of selected ritual, social, and court dances of Indonesia, Cambodia, Thailand, and the 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 the 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.

**C115. Advanced Modern/Postmodern Dance. (2)** (Formerly numbered C102A.) Studio, six hours. Requirement: 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)** (Formerly numbered 103.) 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.

**117. Advanced Topics in Choreography. (4)** (Formerly numbered 115.) Lecture, four hours; studio, two hours. Requisites: courses 16 and 67 or 69. Directed exploration in composition, with focus on developing theme-based choreographic works that are informed by theoretical engagement with selected topic 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. Requisites: courses 16 and 67 or 69. 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. Requisites: courses 16 and 67 or 69. 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)** (Formerly numbered 130.) 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 a specific term. May be repeated for credit without limitation. P/NP or letter grading.

**C121. Ethnography of Performance. (4)** (Formerly numbered C180A.) 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. Concurrently scheduled with course C221. P/NP or letter grading.

**M122. Introduction to Folklore. (4)** (Same as Folklore M101.) 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 the 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)** (Formerly numbered C164.) 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 the Mexican Mural: Beginning Muralism and Community Development. (4)** (Formerly numbered M166A.) (Same as Art M186A and Chicana and Chicano Studies M186A.) Studio/lecture, six hours. Corequisite: course M125AL. Investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a community. Students research, design, and work with community participants. P/NP or letter grading.

**M125AL-M125BL-M125CL. Beyond the Mexican Mural: Muralism and Community Laboratory. (2-2-2)** (Formerly numbered M166AL-M166BL-M166CL.) (Same as Art M186AL-M186BL-M186CL and Chicana and Chicano Studies M186AL-M186BL-M186CL.) Laboratory, two hours. Course M125AL is requisite to M125BL, which is requisite to M125CL. Mural and Digital Laboratory is an art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in a 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 a community setting. P/NP or letter grading. **M125AL.** Beginning; **M125BL.** Intermediate; **M125CL.** Advanced.

**M125B. Beyond the Mexican Mural: Intermediate Muralism and Community Development. (4)** (Formerly numbered M166B.) (Same as Art M186B and Chicana and Chicano Studies M186B.) Studio/lecture, six hours. Requisites: courses M125A, M125AL. Corequisite: course M125BL. Continuation of investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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 the Mexican Mural: Advanced Muralism and Community Development. (4)** (Formerly numbered M166C.) (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 a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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)** (Formerly numbered M167.) (Same as Art M188 and Chicana and Chicano Studies M188.) Lecture, four hours. Recommended corequisite: course M125A or M125B or M125C. Examination of public monuments in the U.S. as a basis for cultural insight and critique of American values from perspective of an artist. Use of urban Los Angeles as textbook in urban space issues such as who is the "public," what is "public space" at the end of the 20th century, what defines a neighborhood, and do different ethnic populations use public space differently. P/NP or letter grading.

**127. The City as a Work of Art. (4)** (Formerly numbered 141A.) Lecture, three hours. Designed for juniors/seniors. Interdisciplinary approach to complex physical, emotional, psychological, and spiritual dynamics that create and sustain urban life, with emphasis on artist's role in shaping the spaces which affect people's lives. Discussion of religious and social aspirations as expressed in music, poetry, dance, and visual arts, as well as architecture and city planning. P/NP or letter grading.

**CM129. Food Customs and Symbolism. (4)** (Formerly numbered CM168.) (Same as Folklore CM175.) 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 the American diet. Concurrently scheduled with course CM229. P/NP or letter grading.

**130. Living Vernacular. (4)** (Formerly numbered 163.) Lecture, three hours. Survey of array of spaces and places from a cross-cultural or comparative perspective and with a performance emphasis, which means 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 the world. P/NP or letter grading.

**M131. Folk Art and Aesthetics. (4)** (Formerly numbered M118.) (Same as Folklore M118.) 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.

**M132. Narrative and Oral Performance. (4)** (Same as Folklore M139.) 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 the World. (4)** (Formerly numbered 146.) 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.

**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. Urban Legend and Popular Culture. (4)** (Same as Folklore M138.) Lecture, four hours. Survey of modern belief tales about ghosts, Bigfoot, conspiracies, food contamination, corporate malfeasance, and crime, with attention to popularity of the genre, history of particular legends, meanings and functions of legend telling, and relationship between orally told legends and mass media. P/NP or letter grading.

**CM139. Afro-Caribbean Ritual Arts: Vodou and Santeria. (4)** (Formerly numbered CM109.) (Same as Folklore CM109.) Lecture, three hours. Designed for juniors/seniors. 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 CM239. P/NP or letter grading.

**CM140. Women Healers, Ritual, and Transformation. (4)** (Formerly numbered C140.) (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.

**CM141. Carnival and Festivity. (4)** (Same as Folklore CM136.) 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 the carnivalesque and politics of celebration. Concurrently scheduled with course CM241. 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.

**C145. Selected Topics in Dance Studies. (2 to 4)** (Formerly numbered C197.) 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 a 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.

**C147A-C147B. Movement Dynamics and Group Process. (2-2)** (Formerly numbered C160A-C160B.) Lecture, one hour; laboratory, three hours; outside study, two hours. Designed for juniors/seniors. Exploration of individual and group dynamics within context of an ongoing dance/movement therapy group. Courses must be taken in sequence. Concurrently scheduled with courses C247A-C247B. P/NP 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 the Multicultural U.S. (4)** (Formerly numbered 135.) Lecture, two hours; discussion, one hour; laboratory, one hour. Designed for juniors/seniors. Study of dance performance in the 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, the 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)** (Formerly numbered 134.) 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 the 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.

**CM154. Dance and Folklore. (4)** (Formerly numbered CM184.) (Same as Folklore CM184.) Lecture, four hours. Consideration of vernacular tradition as a 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 CM254. 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 a sense of self and emergence of creativity and subjective relatedness in different cultural contexts. Concurrently scheduled with course C255. 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 the U.S., with close attention to race, class, and sexuality. P/NP or letter grading.

**159. Movement Theories. (2)** (Formerly numbered 122.) 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)** (Formerly numbered 125.) Lecture, two hours; laboratory, two hours. Designed for juniors/seniors. Use of variable theoretical frameworks and techniques such as laban-analysis to emphasize culturally defined processes of observing, analyzing, and describing human movement. P/NP or letter grading.

**C164. Public Writing in the Arts. (4)** Lecture, four hours; outside study, eight hours. Survey of journalistic approaches to writing about the 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)** (Formerly numbered 151A.) 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)** (Formerly numbered 151B.) Lecture, two hours; laboratory, two hours. Prerequisite: course 46. Theoretical and practical aspects of teaching ethnic dance, especially in higher education. P/NP or letter grading.

**167. Creative Dance for Children. (4)** (Formerly numbered 153.) Lecture, three hours; laboratory, one hour. Introduction to movement concepts, skills, and principles for teaching children's dance; emphasis on dance as a creative medium of expression. P/NP or letter grading.

**C168. Beyond Academia: Making Art in the 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 the real world, including such practical issues as publicity and grant-writing. Concurrently scheduled with course C268. P/NP or letter grading.

**170. Advanced Production. (1)** Laboratory, three hours. Prerequisite: 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 grading.

**171. Lighting Design for Dance Theater. (4)** (Formerly numbered 141.) 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)** (Formerly numbered 144.) 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)** (Formerly numbered C120.) Lecture, three hours; studio, one hour; outside study, eight hours. Designed for juniors/seniors. Exploration of music, in search of the 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.

**CM175. Applied Folklore. (4)** (Same as Folklore CM145.) 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 CM275. P/NP or letter grading.

**176. Internship in World Arts and Cultures. (2 to 4)** (Formerly numbered 110.) Seminar, two to four hours; fieldwork in community settings, eight to 12 hours. Under faculty supervision, students volunteer at sites in greater Los Angeles where cultural policy is made or where arts are practiced. Required journal writing and final paper. May be taken for a maximum of 8 units. P/NP or letter grading.

**177A-177B. Service Learning. (2-4)** Seminar, two hours; outside study, four to 10 hours. Designed for juniors/seniors. Preparation for students to apply their training in world arts and cultures through outreach with community organizations and institutions. In Progress and P/NP or letter grading. **177A.** Students target an internship and set goals for their service. **177B.** Students volunteer at their selected sites and reflect on impact of their contribution.

**C180. Video Production in the Arts. (4)** (Formerly numbered C127.) Lecture, one hour; laboratory, three hours. Fundamentals of video production: conceptualization, field recording (camera, lighting, sound, coverage), and editing (organizing raw footage, constructing a 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 the Visual Media. (4)** (Formerly numbered 128.) Lecture, four hours. Examination of aesthetic differences between dance, film, and video and exploration of the new aesthetic when they are combined. Analysis of the record and documentary dance film, choreo-cinema, and impact of MTV, as well as integration of media with performance. Letter grading.

**CM183. Film and Folklore. (4)** (Formerly numbered CM129.) (Same as Folklore CM165.) 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 CM283. P/NP or letter grading.

**185A. Introduction to Museology: Museum Collections and Administration. (5)** (Formerly numbered 165A.) Lecture, six hours. Introduction to history and functions of museums, tracing development to the present. Collection, organization, management, and conservation of objects and legal and ethical issues surrounding these practices. P/NP or letter grading.

**185B. Introduction to Museology: Museum Exhibitions and Education. (5)** (Formerly numbered 165B.) Lecture, six hours. Requisite: course 185A. 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.

**185C. Introduction to Museology: Selected Topics. (4)** (Formerly numbered 165C.) Discussion, six hours; individual study, six hours. Requisites: courses 185A, 185B. Students pursue projects in an 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 a curator and director to examine cultural property issues as they pertain to contemporary museums, following a suggested reading list. P/NP or letter grading.

**190. Junior-Year Proposal. (1)** Lecture, 90 minutes. Requisite: course 90. Limited to World Arts and Cultures majors. Planning and execution of proposal for senior project, with attention to exploring resources of department and University as a whole. P/NP grading.

**191A-191B. Senior Project. (4-4)** (Formerly numbered 190A-190B.) Lecture, four hours. Requisite: course 190. 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 individual projects during second term. In Progress and letter grading.

**192. Repertory Dance Tour. (2 or 4)** (Formerly numbered 191.) Lecture, two hours; studio, four to six hours. Designed for World Arts and Cultures majors. Creation and performance of dance concerts in the community, with special emphasis on problems of touring dance company with a variable repertoire. May be repeated once. P/NP or letter grading.

**193. Projects in Dance. (2 to 4)** (Formerly numbered 192.) Laboratory, four to six hours (one or two hours may be individualized consultation). Individualized major projects in choreography, performance, production, media. May be repeated for credit. P/NP or letter grading.

**194. Performance Practicum. (1)** (Formerly numbered 149.) Laboratory, four hours. Rehearsal and performance in selected community-based or theatrical work. May be repeated for credit without limitation. P/NP grading.

**196. 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 a world arts practice with a distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for a maximum of 24 units. P/NP or letter grading.

**199. Special Studies in World Arts and Cultures. (2 to 8)** Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Designed for juniors/seniors. Individual studies for World Arts and Cultures majors. May be taken for a maximum of 8 units. P/NP or letter grading.

## Graduate Courses

**200. Proseminar: Study 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. Ethnography of Performance. (4)** 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.

**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. The Body. (4)** Seminar, three hours; outside study, nine hours. Cross-cultural and interdisciplinary perspectives on the human body. Topics include representations of the 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. S/U or letter grading.

**C209B. Dance in Native American Cultures. (4)** (Formerly numbered C287.) Lecture, four hours. Survey of Native American dance; role of dance in society, its cultural significance, and historical background. Concurrently scheduled with course C109B. Letter grading.

**211A-211F. Advanced Choreography. (4 each)** Lecture, two hours; laboratory, two hours. Theoretical aspects of advanced choreography for students who have reached the level of self-initiation of substantial creative works. Refinement and realistic self-evaluation; critical counsel by acknowledged choreographers. S/U or letter grading.

**M215. Legend as Folklore, Culture, and Behavior. (5)** (Same as Folklore M215.) Lecture, four hours. Designed for graduate students. Examination of folkloristic, psychological, and sociocultural approaches to legends with special attention to texts versus narrating performance, "truth" and "belief," and meanings and significance of legends and legend telling, as well as applications of legend study to civil society (race and ethnic relations and public policy). S/U or letter grading.

**M216. Analyzing Narrative and Oral Performance. (5)** (Same as Folklore M216.) 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 "the 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.

**C221. Ethnography of Performance. (4)** (Formerly numbered C279A.) 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. Concurrently scheduled with course C121. S/U or letter grading.

**222. Music for Dance. (4)** (Formerly numbered 221.) Lecture, four hours. Requisite: 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)** (Formerly numbered C264.) 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.

**224. Principles of Dance Kinesiology. (4)** (Formerly numbered 223.) Lecture, four hours. Scientific basis for movement for dance. Study of anatomical, kinesiological, and physical principles and demands of dance. Letter grading.

**225A-225B. Theories of Movement: Labananalysis. (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.

**226. Advanced Studies in Notation. (2)** Lecture, two hours. Selected problems in directing from notated repertoire; principles of teaching, comparative notation systems, writing projects. S/U or letter grading.

**CM229. Food Customs and Symbolism. (4)** (Formerly numbered CM268.) (Same as Folklore CM275.) 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 the American diet. Concurrently scheduled with course CM129. 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.

**231A. Basic Issues in Dance and Dance Theory. (4)** Lecture, four hours. Issues common to specialization areas in the field of dance: movement, presentation and transformation, composition, contexts (such as historical, ritual, social, educational, therapeutic), documentation (notation, film, video), production, etc. 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.

**235. History of Ballet. (4)** Lecture, four hours. Development of ballet from 19th-century Romanticism to the present. Stylistic differences in Italy, France, England, Denmark, and Russia. S/U or letter grading.

**236. Dance in the 20th Century. (4)** Lecture, four hours. Seminar in historical development of 20th-century dance. S/U or letter grading.

**CM239. Afro-Caribbean Ritual Arts: Vodou and Santeria. (4)** (Formerly numbered CM209.) (Same as Folklore CM209.) 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 CM139. S/U or letter grading.

**CM240. Women Healers, Ritual, and Transformation. (4)** (Formerly numbered C240.) (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.

**CM241. Carnival and Festivity. (4)** (Same as Folklore CM236.) 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 the carnivalesque and politics of celebration. Concurrently scheduled with course CM141. 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.

**243A. Production Arts Seminar. (4)** (Formerly numbered 240A.) Seminar, two hours; discussion, two hours; laboratory, two hours. Examination and research of dance and performer/audience relationships in various historic periods and cultural settings. Impact of different aesthetic/directorial approaches to theatrical production of dance. Exploration of selection of locale, style, aural and visual enhancements. Letter grading.

**243B. Production Arts Seminar. (4)** (Formerly numbered 240B.) Seminar, four hours; laboratory, to be arranged. Study of elements of design. Development of vocabulary for analysis of dance movement and choreography. Communication among collaborating artists. Conceptualizing and producing design and sound score for a dance production. Letter grading.

**243C. Production Arts Seminar. (4)** (Formerly numbered 240C.) Seminar, four hours; laboratory, to be arranged. Examination of contemporary art world, including arts organizations, funding sources, legal aspects of arts production, support groups, public relations and publicity. Letter grading.

**243D. Production Arts Seminar. (2)** (Formerly numbered 240D.) Seminar, three hours. Corequisites: courses 441, 490. Topics from current problems of students preparing M.F.A. concert productions. Letter grading.

**C245. Selected Topics in Dance Studies. (2 to 4)** (Formerly numbered C297.) 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 a 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.

**C247A-C247B. Movement Dynamics and Group Process. (2-2)** (Formerly numbered C260A-C260B.) Lecture, one hour; laboratory, three hours; outside study, two hours. Designed for graduate students. Exploration of individual and group dynamics within context of an ongoing dance/movement therapy group. Courses must be taken in sequence. Concurrently scheduled with courses C147A-C147B. S/U grading.

**C248. Dance as Healing and Therapy. (4)** (Formerly numbered 261C.) 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.

**251A-251D. Advanced Studies in Dance Education. (4 each)** Lecture, two hours; discussion, two hours. S/U or letter grading:

**251A.** Historical and Theoretical Framework for Dance Education. (4) Lecture, two hours; discussion, two hours. Preparation: previous teaching experience. Development of a framework for teaching/learning process in dance and application to varied settings and populations. S/U or letter grading.

**251B.** Theories and Methods. (4) Lecture, two hours; discussion, two hours. Preparation: previous teaching experience. Examination of current theories of artistic intelligence, body education systems, motor learning, and creativity and how they are related to teaching dance, including analysis of traditional models for developing alternative methodologies. S/U or letter grading.

**251C.** Curriculum Development in Varied Dance Settings. (4) Lecture, two hours; discussion, two hours. Preparation: previous teaching experience. Issues include course/program/materials planning, development, implementation, and evaluation, with emphasis on analyzing underlying educational values affecting decision-making process. S/U or letter grading.

**251D.** Dance Administration. (4) Lecture, two hours; discussion, two hours. Preparation: previous teaching experience. Relation of theories and practice to dance settings, clarifying issues of hierarchical structures, chains of command, staffing, facilities, and budget and why and how dance courses/programs succeed or fail. S/U or 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 post-modern dance that occurred in the 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.

**CM254. Dance and Folklore. (4)** (Formerly numbered CM284.) (Same as Folklore CM284.) Lecture, four hours. Consideration of vernacular tradition as a 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 CM154. S/U or letter grading.

**C255. Self and Culture. (4)** (Formerly numbered 261B.) 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 a sense of self and emergence of creativity and subjective relatedness in different cultural contexts. Concurrently scheduled with course C155. S/U or letter grading.

**C264. Public Writing in the Arts. (4)** Lecture, four hours; outside study, eight hours. Survey of journalistic approaches to writing about the 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 the 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 the 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)** (Formerly numbered C220.) Lecture, three hours; studio, one hour; outside study, eight hours. Designed for graduate students. Exploration of music, in search of the 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.

**CM275. Applied Folklore. (4)** (Same as Folklore CM245.) 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 folklife. Concurrently scheduled with course CM175. S/U or letter grading.

**C280. Video Production in the Arts. (4)** (Formerly numbered C227.) Lecture, one hour; laboratory, three hours. Fundamentals of video production: conceptualization, field recording (camera, lighting, sound, coverage), and editing (organizing raw footage, constructing a 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.

**281A-281B. Advanced Studies in Dance Ethnology. (4-4)** (Formerly numbered 280A-280B.) Lecture, four hours. Dance viewed as an aspect of culture and human behavior. S/U or letter grading. **281A.** Survey of literature of the field of dance ethnology and in related fields of anthropology, folklore, performance studies, and sociology. **281B.** Advanced studies in methodologies and theories to develop dance-focused ethnographic research.

**CM283. Film and Folklore. (4)** (Formerly numbered CM229.) (Same as Folklore CM265.) 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 CM183. S/U or letter grading.

**375. Teaching Apprentice Practicum. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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.

**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 the 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 the 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)** (Formerly numbered C402A.) Studio, six hours. Requirement: 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 a 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 the community school or other approved site. No more than 4 units may be applied toward M.A. degree requirements. S/U grading.

**460A-460B-460C. Clinical Internship Supervision. (4-4-4)** Lecture, two hours; discussion, two hours; outside study, eight hours. Practicum dealing with student internship: movement/observation, therapeutic goals, therapeutic process, and other clinical uses. 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 a presentation each term they are enrolled for credit. May be repeated for a 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 a maximum of 16 units. S/U or letter grading.

**496. 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 a distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for a maximum of 24 units. 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 a Hospital or Clinic. (2 to 8)** Tutorial, to be arranged. S/U grading.

**597. Preparation for Master's Comprehensive Examination. (2 to 8)** Tutorial, to be arranged. Preparation for M.A. or M.F.A. comprehensive 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.



# 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, disability, age, medical condition (cancer-related), ancestry, marital status, citizenship, sexual orientation, or status as a Vietnam-era veteran or special disabled veteran. 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. Speech- and hearing-impaired persons may call TTY (310) 206-6083.

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 Douglas A. Martin, Special Assistant to the Chancellor/Coordinator of ADA and 504 Compliance, A239 Murphy Hall, UCLA, Box 951405, Los Angeles, CA 90095-1405, voice (310) 825-2242, TTY (310) 206-3349; <http://www.saonet.ucla.edu/ada.htm>.

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/uwnews/aospol/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 comply with the general law, University policies, and campus regulations. For further information, refer to the *University of California Policies Applying to Campus Activities, Organizations, and Students* at <http://www.ucop.edu/ucophome/uwnews/aospol/toc.html> and the *UCLA Student Conduct Code* at <http://www.deanofstudents.ucla.edu/SCC-Table%20of%20Contents.htm>.

### A. Jurisdiction

The University shall have 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 shall have 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 item 1 above where the alleged misconduct involves

- a. Physical abuse, including but not limited to rape, sexual assault, sex offenses, and other physical assault; threats of violence; or conduct that threatens the health or safety of any person;
- b. Stalking (as defined in Section 102.10 of the *University of California Policies Applying to Campus Activities, Organizations, and Students*);
- c. Sexual harassment (as defined in Section 102.09 of the *University of California Policies Applying to Campus Activities, Organizations, and Students*);
- d. Hazing (as defined in Section 102.12 of the *University of California Policies Applying to Campus Activities, Organizations, and Students*).

In determining whether or not to exercise off-campus jurisdiction in cases under item 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 evidence, 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 on by any student charged under this section to create any rights, substantive or procedure.

## Salary and Employment Information, University of California

	DEGREE LEVEL OF GRADUATES		
	BACHELOR'S	MASTER'S	DOCTORATE
	AVERAGE MONTHLY SALARY*		
Engineering	\$4,007	\$4,705	\$6,031
Humanities	2,640	1,677	3,531
Life Sciences	2,382	3,120	2,996
Management	3,263	4,984	6,806
Physical Sciences	3,224	4,347	5,122
Social Sciences	2,520	3,167	3,698

\*Source: A national survey of a representative group of colleges conducted by the National Association of Colleges and Employers, representing the 80 percent range of offers for April 2001 throughout the country. It should be noted that a wide variation in starting salaries exists within each discipline based on job location, type of employer, personal qualifications of the individual, and employment conditions at the time of job entry.

dural, or as a basis for a challenge to the exercise of the University's jurisdiction.

## B. Grounds for Discipline

The chancellor may impose discipline for violation of, or an attempt to violate, any University policies or campus regulations. The lack of intent to commit a violation is not a factor in determining if a violation occurred; however, the lack of intent may be considered a mitigating factor in determining the appropriate sanction if it has been determined that a violation has occurred. Violations or attempted violations include, but are not limited to, the following types of misconduct (Sections 102.01 through 102.25 below are adapted from the *University of California Policies Applying to Campus Activities, Organizations, and Students*):

## C. 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 dishonesty. For the purposes of this 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; or helping another student commit an act of academic fraud; 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.

**102.02: 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 or to University officials acting in the performance of their duties.

**102.03: Forgery.** Forgery, alteration, or misuse of any University document, record, key, electronic device, or identification. Section 102.03 applies to any individual for whom the University maintains records, regardless of current student status.

**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 of the University or others stolen while on University premises or at official University functions.

**102.05: Computers.** Theft or other abuse of computing facilities or computer time, including but not limited to unauthorized entry into a file to use, read, or change the contents or for any other purpose; unauthorized transfer of a file; unauthorized use of another individual's identification or password; use of computing facilities to interfere with the work of another student, faculty member, or University official; use of computing facilities to interfere with a University computing system. Violation of the *University of California Electronic Communications Policy* (available at [www.ucop.edu/ucophome/policies/ec/](http://www.ucop.edu/ucophome/policies/ec/)), or of any UCLA acceptable or allowable use policy, is also considered a violation of Section 102.05.

**102.06: Unauthorized Conduct.** Unauthorized possession of, receipt of, duplication of, or use of the University's name, insignia, or seal. Unauthorized entry to, possession of, receipt of, or use of any University properties, equipment, resources, or services. Selling or distributing course lecture notes, handouts, readers, or other information provided by an instructor, or using them for any commercial purpose, without the express permission of the instructor. Selling commencement tickets.

**102.07: University-Owned Housing.** Violation of policies, regulations, or rules governing University-owned or operated housing facilities or leased housing facilities located on University property.

**102.08: Physical Abuse.** Physical abuse, including but not limited to rape, sexual assault, sex offenses, and other physical assault; threats of violence; or conduct that threatens the health or safety of any person.

**102.08a: Rape.** For the purposes of this Code, rape refers to "rape" as defined by the California Penal Code (as it may be amended from time to time). Among other acts, the Penal Code prohibits the following acts:

1. Sexual intercourse against a person's will accomplished by force or threats of bodily injury
2. Sexual intercourse against a person's will where the person has reasonable fear that

she (or he) or another will be injured if she (or he) does not submit to the intercourse

3. Sexual intercourse where the person is incapable of giving consent, or is prevented from resisting, due to alcohol or drugs, and this condition was known, or reasonably should have been known by the accused
4. Sexual intercourse where the person is incapable of resisting because she (or he), at the time, is unconscious or asleep, and this is known to the accused

**102.08b: Sexual Assault.** The act of sexual assault includes forced sodomy (anal intercourse); forced oral copulation (oral-genital contact); rape by foreign object (forced penetration by a foreign object, including a finger); and sexual battery (the unwanted touching of an intimate part of another person for the purpose of sexual arousal). These also include situations when the accused sexually assaults a complainant incapable of giving consent, including where the complainant is prevented from resisting due to alcohol or drugs and this condition was known, or reasonably should have been known by the accused. NOTE: For the purpose of this regulation, students should understand that

1. Forced intercourse or other unwanted sexual contact is defined as rape or sexual assault whether the assailant is a stranger or an acquaintance of the complainant
2. Intoxication of the assailant shall not diminish the assailant's responsibility for sexual assault

**102.09: Sexual Harassment.** Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment when

1. Submission to such conduct is made either explicitly or implicitly a term or condition of instruction, employment, or participation in other University activity;
2. Submission to or rejection of such conduct by an individual is used as a basis for evaluation in making academic or personnel decisions affecting an individual; or

3. Such conduct has the purpose or effect of unreasonably interfering with an individual's performance or creating an intimidating, hostile, or offensive University environment

In determining whether the alleged conduct constitutes sexual harassment, consideration shall be given to the record of the incident as a whole and to the totality of the circumstances, including the context in which the alleged incidents occurred.

**102.10: Stalking.** Stalking behavior in which an individual willfully, maliciously, and repeatedly engages in a knowing course of conduct directed at a specific person which reasonably and seriously alarms, torments, or terrorizes the person, and which serves no legitimate purpose.

**102.11: “Fighting Words.”** The use of “fighting words” by students to harass any person(s) on University property, on other property to which these policies apply, or in connection with official University functions or University-sponsored programs. “Fighting words” are those personally abusive epithets which, when directly addressed to any ordinary person are, in the context used and as a matter of common knowledge, inherently likely to provoke a violent reaction whether or not they actually do so. Such words include, but are not limited to, those terms widely recognized to be derogatory references to race, ethnicity, religion, sex, sexual orientation, disability, and other personal characteristics. “Fighting words” constitute “harassment” when the circumstances of their utterance create a hostile and intimidating environment which the student uttering them should reasonably know will interfere with the victim’s ability to pursue effectively his or her education or otherwise to participate fully in University programs and activities.

**102.12: Hazing.** Hazing or any method of initiation or preinitiation into a campus organization or any activity engaged in by the organization or members of the organization which causes, or is likely to cause, bodily danger, physical harm, or personal degradation or disgrace resulting in physical or mental 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.** 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 University official or other public official acting in the performance of their 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.

**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.

**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.

**102.21: Violation of Disciplinary Conditions.** Violation of the conditions contained in the terms of a disciplinary action imposed under this Code.

**102.22: Violation of Emergency or Interim Suspension Conditions.** Violation of the conditions contained in a written Notice of Emergency or Interim Suspension issued pursuant to Section IV of this Code.

**102.23: Violation of Campus Restraining Order.** Violation of the conditions contained in a written Campus Restraining Order issued pursuant to Section III.A.2.a.(1) of this Code.

**102.24: University Properties.** Using University properties for the purpose of organizing or carrying out unlawful activity.

**102.25. Violations of Law.** Violation of Federal, State, or local laws.

## Rape and Other Forms of Sexual Assault

UCLA does not tolerate sexual assault in any form, including rape, acquaintance rape, or date rape. Where there is probable cause to believe that the campus regulations prohibiting sexual assault have been violated, the campus pursues disciplinary actions which may include sanctions up to and including dismissal from the University.

A student charged with sexual assault can be prosecuted under California criminal statutes *and* disciplined under the campus student conduct policies and regulations. Even if the criminal justice authorities choose not to prosecute, the campus can pursue disciplinary action.

### Definitions

For explicit definitions of **rape** and **sexual assault**, refer to Sections 102.08a and 102.08b of the Student Conduct Policies listed above.

### If a Person Has Been Raped or Sexually Assaulted

Those who believe that they are the victims of rape or other forms of sexual assault should

1. **Immediately call the police department.** If possible, call 911 or the UCLA Police Department at (310) 825-1491
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 Santa Monica 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 the Center for Women and Men. RSCs have expertise in working with victims of rape or sexual assault. They can discuss options and alternatives, help identify the most appropriate support ser-

vices, 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 UCLA faculty, staff, and students regardless of where or when the assault occurred. For assistance, contact the Center for Women and Men at (310) 825-3945 or go to 2 Dodd Hall 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.

### Campus Discipline Process When the Assailant Is a Student

Those who believe that they are the victims of rape or other forms of sexual assault by a student on University properties or in conjunction with an official University function may file a complaint directly with the Office of the Dean of Students, 1206 Murphy Hall, <http://www.deanofstudents.ucla.edu/>.

Cases referred to the Office of the Dean of Students are treated under the hearing procedures set forth in the *UCLA Student Conduct Code* (<http://www.deanofstudents.ucla.edu/SCC-Table%20of%20Contents.htm>). Where the allegation is of rape or other forms of sexual assault, and the case is referred to the Student Conduct Committee, the following *additional* procedures shall apply:

1. The complainant shall be entitled, for support, to have up to two persons of the complainant’s choice accompany the complainant to the hearing. A support person may be called as a witness, and the fact that he or she is to act as a witness shall not preclude that person’s attendance throughout the entire hearing. If a support person is also a witness, the committee chair (or the hearing officer) may require him or her to testify prior to the complainant. Neither of these persons shall be entitled to represent or defend the complainant. Similar rights shall be afforded to the accused student.
2. The complainant shall have the right to be present during the entire hearing, notwithstanding the fact that the complainant is to be called as a witness.
3. Evidence of the complainant’s past sexual history, including opinion evidence, reputation evidence, and evidence of specific instances of the complainant’s sexual conduct, shall not be admissible by the accused student unless the committee chair or hearing officer makes a specific finding of relevance after an offer of proof by the accused student. Under no circumstances is past sexual history admissible to prove consent. The offer of proof must be made and resolved by the panel before the complainant testifies.
4. The hearing shall be closed to spectators.

## Harassment

### Sexual Harassment

Every member of the campus 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.

#### Definitions

For explicit definitions of **sexual harassment**, refer to Section 102.09 of the Student Conduct Policies 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 alleged offender's supervisor and/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. Academic Personnel, Assistant to the Vice Chancellor — Academic Personnel, 3109 Murphy Hall, (310) 794-4217
2. Campus Ombuds Office, 105 Strathmore Building, (310) 825-7627, or 924 Westwood Boulevard, Suite 540, (310) 794-6802 (for Medical Enterprises)
3. Center for Student Programming, Associate Director, 105 Kerckhoff Hall, (310) 825-7041
4. Center for Women and Men, Director, 2 Dodd Hall, (310) 825-3945
5. Office of the Dean of Students, Assistant Dean of Students, 1206 Murphy Hall, (310) 825-3871
6. Campus Human Resources/Employee and Labor Relations, Manager, 200 UCLA Wilshire Center, (310) 794-0860
7. Graduate Division, Office Manager, 1237 Murphy Hall, (310) 825-4383
8. Healthcare Human Resources, Employee Relations Manager, 924 Westwood Boulevard, Suite 200, (310) 794-0500
9. Neuropsychiatric Hospital, Administration/ Human Resources Associate Director, B7-370 NPI&H, (310) 206-5258
10. Office of Residential Life, Judicial Coordinator, Residential Life Building, (310) 825-3401
11. School of Dentistry, Assistant Dean, Student and Alumni Affairs, A3-042 Dentistry, (310) 825-7146; Student and Alumni Affairs Counselor, 23-087 Dentistry, (310) 8250-5248

12. School of Medicine, Human Resources Director, 924 Westwood Boulevard, Suite 540, (310) 794-6802; Senior Associate Dean of Student Affairs/Graduate Medical Education, 12-139 Center for the Health Sciences, (310) 825-6774; Dean's Office, Special Projects Director, 12-138 Center for the Health Sciences, (310) 794-1958
13. Staff Affirmative Action Office, Staff Affirmative Action Officer, 1103 Ueberroth Building, (310) 825-0751
14. Student Psychological Services, Director, 4223 Math Sciences, (310) 825-0768
15. UCLA Extension, Human Resources Director, 629 UNEX Building, (310) 825-4287; Student Services Director, 214 UNEX Building, (310) 825-2656
16. Santa Monica UCLA Medical Center, Healthcare Human Resources Manager, 1250 16th Street, Santa Monica 90404, (310) 319-4351

### Other Forms of Harassment

The University strives to create an environment which 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/uwnnews/aospol/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.deanofstu->

[dents.ucla.edu/](http://www.deanofstu-)), 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. Campus Ombuds Office, 105 Strathmore Building, (310) 825-7627, <http://www.sao-net.ucla.edu/ombuds/>
2. Center for Women and Men, 2 Dodd Hall, (310) 825-3945, <http://www.the-center.ucla.edu/>
3. Office of Residential Life, Residential Life Building, (310) 825-3401, <http://www.orl.ucla.edu/>
4. Office of International Students and Scholars, 106 Bradley Hall, (310) 825-1681, <http://www.intl.ucla.edu/home.htm>
5. Student Psychological Services, 4223 Math Sciences, (310) 825-0768, or A3-062 Center for the Health Sciences, (310) 825-7985, <http://www.saonet.ucla.edu/sps.htm>
6. Office of Fraternity and Sorority Relations, 105 Kerckhoff Hall, (310) 825-6322, <http://www.greeklife.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/apoweb/facultyhandbook/9.htm#9c>). Part IIA outlines faculty obligations to students and reads as follows:

### Teaching and Students

Ethical Principles: "As teachers, the professors encourage the free pursuit of learning in 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 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 Vietnam-era veteran or disabled veteran or, within the limits imposed by law or University regulations, because of age or citizenship or for other arbitrary or personal reasons.

Knowing violation of University policy, including the pertinent guidelines, applying to nondiscrimination against students on the basis of handicap.

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.

### 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 Campus Ombuds Office and a member of the Academic Senate Grievance and Disciplinary Procedures 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.

### Law 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 Orders of The Regents of the University of California. 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, or R. 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 resi-

dents or students were not enrolled in a regular session at any University of California campus prior to fall 1993, they are required to be financially independent in order to be a resident for tuition purposes. Their residence cannot be derived from their spouse 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, or 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 those years and the current year. *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: registering to vote and voting in California elections; designating California as their permanent address on all school and employment records, including military records if they are in the military service; obtaining a California driver's license or, if they do not drive, a California Identification Card; obtaining California vehicle registration; paying California income taxes as a resident, including taxes on income earned outside California from the date they establish residence; establishing a California residence in which they keep their personal belongings; and 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 which precludes them from establishing 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

Students 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

Students may be entitled to resident status if they are U.S. citizens or eligible aliens and they have lived continuously with an adult who is not their parent for at least two years prior to the residence determination date. The adult with whom they are living must have been responsible for their care and control for the entire two-year period and must have been residing in California during the one year immediately preceding the residence determination date.

## Exemptions from Nonresident Tuition

### Member of the Military

If students are members of the U.S. military stationed in California on active duty, unless they are assigned for educational purposes to a state-supported institution of higher education, they may be exempt from the nonresident tuition fees until they have lived in California long enough to become a resident. 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.

### Spouse or Other Dependents of Military Personnel

Students are exempt from payment of the nonresident tuition fee if they are a spouse or a natural or adopted child or stepchild who is a dependent of a member of the U.S. military stationed in California on active duty. The exemption is available until they have lived in California long enough to become a resident. 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.

### Child or Spouse of Faculty Member

To the extent funds are available, if students are an unmarried dependent child under age 21 or the spouse 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 or Spouse of University Employee

Students may be entitled to resident classification if they are an unmarried dependent child or the spouse of a full-time University employee whose assignment is outside California (e.g., Los Alamos Scientific Laboratory). Their parent's or spouse's employment status with the University must be ascertained each term.

### Child 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 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 until they have resided in California the minimum time necessary to become a resident, so long as continuous attendance is maintained at an institution.

## 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 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 that 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, Office of the Registrar, 1113 Murphy Hall, 405 Hilgard Avenue, Los Angeles, CA 90024-1429 (310-825-3447; <http://www.registrar.ucla.edu/faq/res.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 45 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.

### 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

This 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 57 units by the end of the sixth term, 90 units by the end of the ninth term, 123 units by the end of the twelfth term, 156 units by the end of the fifteenth term, and 180 units by the end of the seventeenth term.

After 17 terms of enrollment as a full-time student or the equivalent as a part-time student, no further need-based financial aid is granted.

The measurement of progress occurs at the end of the academic year. 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 11 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 57 units if they attended UCLA for six terms). They would then have only 11 terms of financial aid eligibility.

#### 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 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 Appeal Committee explaining the circumstances and how they affected their ability to meet the requirements. The committee 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 Appeal Committee.

### 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, the matter should first be taken up with the instructor. If the matter is not resolved, the student may go for counsel to the Campus Ombuds Office 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. 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 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 which could not reasonably be avoided. Accommodation for alternate examination dates will be 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 Campus Ombuds Office, 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 Campus Ombuds Office 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 reflect 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 which 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, the California Education Code, 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 the Federal and State Laws and the University Policies, (2) have withheld from disclosure, absent their prior consent for release, personally identifiable information from their student records, except as provided by the Federal and State Laws and the 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 the Federal Act.

UCLA, in accordance with the Federal and State Laws and the University Policies, has designated the following categories of personally identifiable information as "public information" which UCLA may release and publish without the student's prior consent: name, ad-



dress (local/mailling, permanent, and/or e-mail), telephone numbers, major field of study, dates of attendance, 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/mailling, 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 "public information" released and published may so indicate through URSA OnLine (<http://www.ursa.ucla.edu/>). To restrict the release and publication of the additional items in the category of "public information," complete the Decline to Release form available from Enrollment and Degree Services, 1113 Murphy Hall.

Student records which are the subject of the Federal and State Laws and the 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, and the offices of a student's college or school and major department. Students are referred to the *UCLA Campus and CHS Directory* 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 the Federal and State Laws and the University Policies. Inspection of student records maintained by the Registrar's Office is by appointment only and must be arranged 24 hours in advance. Call (310) 206-0482 or inquire at Academic Record Services, 1134 Murphy Hall.

A copy of the Federal and State Laws, the University Policies, and the *UCLA Campus and CHS Directory* may be inspected in the office of the Information Practices Coordinator, 600 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.

In addition to the public information described above, information related to students' Social Security number, sex, and marital status, and the name(s), address(es), and telephone number(s) of their parents or next of kin are made available to the UCLA External Affairs Department for use in alumni, development, and public relations activities. To restrict the release of this additional information, complete a Request for External Affairs Information Restriction form available from Enrollment and Degree Services, 1113 Murphy Hall.

## Undergraduate Retention, Graduation, and Time to Degree

Retention and graduation rates are currently the highest on record for UCLA and among the highest for public universities anywhere in the country. For undergraduates entering UCLA over three years from 1997 to 1999, more than 96 percent of new freshmen and 93 percent of new 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 entering freshmen averaged 43, 76, and 80 percent respectively. More than 81 percent of all freshmen entering from 1987 to 1994 have graduated from UCLA. Final graduation rates above 84 percent are projected for all freshmen cohorts arriving since 1995.

Over the past three years the two-year, three-year, and four-year graduation rates for entering transfer students have averaged 40, 75, and 82 percent respectively. More than 82 percent of all transfer students entering from 1990 to 1996 have graduated from UCLA. Final graduation rates above 84 percent are projected for all transfer cohorts arriving since 1997. The graduation rates listed above refer exclusively to degrees awarded by UCLA. Students who transfer and graduate from another UC campus or university are not included.

Time to degree for UCLA undergraduates has declined significantly over the past decade. In 1999-00 more than 3,600 baccalaureate degrees were awarded to students who entered directly from high school. The average number of quarters registered at UCLA was 12.95, down from an average of 13.59 quarters for similar graduates in 1990-91. Among recent graduates, 57 percent were registered for 12 quarters or less (i.e., four years or less), 65 percent for 13 quarters or less, 73 percent for 14 quarters or less, and 93 percent for 15 quarters or less (i.e., five years or less).

In 1999-00 more than 2,000 baccalaureate degrees were awarded to students who entered as transfers. The average number of quarters registered at UCLA was 7.42, down from an average of 8.31 quarters for similar graduates in 1990-91. Among recent graduates, 45 percent were registered for six quarters or less (i.e., two years or less), 61 percent for seven quarters or less, 70 percent for eight quarters or less, and 89 percent for nine quarters or less (i.e., three years or less).

Additional information is available at <http://www.apb.ucla.edu>.

## Campus Security Information

### UCLA Police Department

The UCLA Police Department (310-825-1491; <http://www.ucpd.ucla.edu>), located at Westwood Plaza and Circle Drive South, has 56

sworn California State Police Officers 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 city attorney's office.

### Incident Reporting

UCLA police officers have primary jurisdiction over the UCLA campus, Center for the Health Sciences, and University Apartments South. The City of Los Angeles Police Department does not handle calls for service on campus. All requests for police service should be made to the UCLA Police Department. All crime occurring on campus and in the Center for the Health Sciences 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.

Police, fire, or medical EMERGENCIES can be reported by dialing **911** from any telephone on campus. All 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.

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://www.ucpd.ucla.edu/ucpd/clery.htm>.

### Community Service Officers

The UCLA Police Department employs approximately 125 student community service officers (CSOs; [http://www.ucpd.ucla.edu/ucpd/services\\_escort.html](http://www.ucpd.ucla.edu/ucpd/services_escort.html)) who are the "eyes and ears" (trained observers) of the department and act as nonintervention 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, or 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 operates every day of the year from dusk to 1 a.m. Individuals requesting the service call the Communications Center; 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 provides a safe and convenient mode of transportation around campus at night 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://www.ucpd.ucla.edu/ucpd/services\\_crimeprev.html](http://www.ucpd.ucla.edu/ucpd/services_crimeprev.html)) 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 rape 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. The Center for Women and Men 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, pornography, 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. The Center for Women and Men 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. The center 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 which pose a potential threat to the campus are brought immediately to the attention of the community through *Campus Alert Bulletins* ([http://www.ucpd.ucla.edu/ucpd/bulletin\\_crime.html](http://www.ucpd.ucla.edu/ucpd/bulletin_crime.html)).

### 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 behav-

ioral problems. Therefore, UCLA makes available to every student a variety of alcohol and substance abuse awareness programs which are designed to discourage the use of illicit substances and to educate students on the merits of legal and responsible alcohol consumption. Student Psychological Services (310-825-7985; <http://www.saonet.ucla.edu/sps.htm>) 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 has been designated drug free, 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 18,000 students. Housing facilities range from apartments designed for students with children to multi-student apartment complexes to high-rise student residence halls. The UCLA Police Department 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 common-sense 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 sta-

tioned 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 the UCLA Police Department. 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.

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## APPENDIX B: UNIVERSITY ADMINISTRATIVE OFFICERS

Terms of Regents (<http://www.ucop.edu/regents/>) appointed by the Governor expire March 1 of the year in parentheses. The Student Regent (Tracy M. Davis) 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*  
Gray Davis  
*Lieutenant Governor of California*  
Cruz M. Bustamante  
*Speaker of the Assembly*  
Robert M. Hertzberg  
*State Superintendent of Public Instruction*  
Delaine Eastin  
*President of the Alumni Association of the University of California*  
Jeffrey A. Seymour  
*Vice President of the Alumni Association of the University of California*  
Robert C. Morrison  
*President of the University*  
Richard C. Atkinson

### Appointed Regents

William T. Bagley (2002)  
Ward Connerly (2005)  
John G. Davies (2004)  
Judith L. Hopkinson (2009)

Odessa P. Johnson (2012)  
 S. Sue Johnson (2002)  
 Joanne C. Kozberg (2010)  
 Sherry L. Lansing (2010)  
 David S. Lee (2006)  
 George Marcus (2012)  
 Velma Montoya (2005)  
 John J. Moores (2009)  
 Gerald L. Parsky (2008)  
 Peter Preuss (2008)  
 Tom Sayles (2006)  
 Tracy M. Davis, Student Regent (2002)

#### **Faculty Representatives to the Board of Regents**

Michael Cowan  
 Chand Viswanathan

#### **Officers of The Regents**

*President of The Regents*  
 Gray Davis  
*Chair of The Regents*  
 S. Sue Johnson  
*Vice Chair of The Regents*  
 Sherry L. Lansing  
*General Counsel*  
 James E. Holst  
*Secretary*  
 Leigh Trivette  
*Treasurer*  
 David H. Russ

#### **Office of the President**

*President of the University*  
 Richard C. Atkinson  
*Provost and Senior Vice President — Academic Affairs*  
 C. Judson King  
*Senior Vice President — Business and Finance*  
 Joseph P. Mullinix  
*Senior Vice President — University and External Relations*  
 Bruce B. Darling  
*Vice President — Agriculture and Natural Resources*  
 W.R. Gomes  
*Vice President — Budget*  
 Lawrence C. Hershman  
*Vice President — Clinical Services Development*  
 William H. Gurtner  
*Interim Vice President — Educational Outreach*  
 Manuel Gomez

*Vice President — Financial Management*  
 Anne C. Broome  
*Vice President — Health Affairs*  
 Michael V. Drake

#### **Chancellors of the Campuses**

*Chancellor at Berkeley*  
 Robert M. Berdahl  
*Chancellor at Davis*  
 Larry N. Vanderhoef  
*Chancellor at Irvine*  
 Ralph J. Cicerone  
*Chancellor at Los Angeles*  
 Albert Carnesale  
*Chancellor at Merced*  
 Carol Tomlinson-Keasey  
*Chancellor at Riverside*  
 Raymond L. Orbach  
*Chancellor at San Diego*  
 Robert C. Dynes  
*Chancellor at San Francisco*  
 J. Michael Bishop  
*Chancellor at Santa Barbara*  
 Henry T. Yang  
*Chancellor at Santa Cruz*  
 M.R.C. Greenwood

#### **University Professors, UCLA**

Donald J. Cram, *University Professor Emeritus*, Los Angeles, Chemistry and Biochemistry  
 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*  
 Albert Carnesale, Ph.D.  
*Executive Vice Chancellor*  
 Wyatt R. Hume, B.D.S., Ph.D., D.D.Sc.  
*Administrative Vice Chancellor*  
 Peter W. Blackman, J. D.  
*Vice Chancellor — Academic Personnel*  
 Norman Abrams, J.D.  
*Vice Chancellor — External Affairs*  
 Michael C. Eicher, B.S.  
*Vice Chancellor — Finance and Budget*  
 Steven A. Olsen, M.P.P.  
*Vice Chancellor — Graduate Studies and Dean of Graduate Division*  
 Claudia Mitchell-Kernan, Ph.D.  
*Vice Chancellor — Legal Affairs*  
 Joseph D. Mandel, LL.B.

*Vice Chancellor — Research Programs*  
 Roberto Peccei, Ph.D.  
*Vice Chancellor — Student Affairs*  
 Winston C. Doby, Ed.D.  
*Provost — Letters and Science*  
 Brian P. Copenhagen, Ph.D.  
*Provost — Medical Sciences*  
 Gerald S. Levey, M.D.  
*University Librarian*  
 Gloria S. Werner, M.L.  
*Dean of University Extension*  
 Robert Lapiner, Ph.D.

#### **Deans/Provosts of UCLA Colleges and Schools**

*School of the Arts and Architecture*  
 Daniel Neuman, Ph.D.  
*School of Dentistry*  
 No-Hee Park, D.M.D., Ph.D.  
*Graduate School of Education and Information Studies*  
 Aimée Dorr, Ph.D.  
*School of Engineering and Applied Science*  
 A.R. Frank Wazzan, Ph.D.  
*School of Law*  
 Jonathan D. Varat, J.D.  
*College of Letters and Science*  
*Provost*  
 Brian P. Copenhagen, Ph.D.  
*Division of Humanities*  
 Pauline R. Yu, Ph.D.  
*Division of Life Sciences*  
 Frederick A. Eiserling, Ph.D.  
*Division of Physical Sciences*  
 Roberto Peccei, Ph.D.  
*Division of Social Sciences*  
 Scott L. Waugh, Ph.D.  
*John E. Anderson Graduate School of Management*  
 Bruce G. Willison, M.B.A.  
*School of Medicine*  
 Gerald S. Levey, M.D.  
*School of Nursing*  
 Marie J. Cowan, R.N., Ph.D.  
*School of Public Health*  
 Linda Rosenstock, M.D.  
*School of Public Policy and Social Research*  
 Barbara J. Nelson, Ph.D.  
*School of Theater, Film, and Television*  
 Robert Rosen, M.A.

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## 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," which support the educational and research activities of distinguished members of the faculty.

As this catalog goes to press, UCLA has 169 endowed chairs which have been approved by the Office of the President of the University of California, as follows. (Asterisks indicate new chairs which have been approved by the Office of the President since publication of the 1999-01 *UCLA General Catalog*.)

### School of the Arts and Architecture

S. Charles Lee Chair in Architecture and Urban Design  
Harvey S. Perloff Chair  
UCLA Art Council Professorship of Art

### School of Dentistry

\*Tarrson Family Endowed Chair in Periodontics

### Graduate School of Education and Information Studies

Allan Murray Cartter Chair in Higher Education  
George F. Kneller Chair in Education and Anthropology  
George F. Kneller Chair in Education and Philosophy  
\*Presidential Chair in Educational Equity

### Henry Samueli School of Engineering and Applied Science

L.M.K. Boelter Chair in Engineering  
Roy and Carol Doumani Chair in Biomedical Engineering  
Norman E. Friedmann Chair in Knowledge Sciences  
Hughes Aircraft Company Chair in Electrical Engineering  
Hughes Aircraft Company Chair in Manufacturing Engineering  
Levi James Knight, Jr., Chair in Engineering  
Nippon Sheet Glass Company Chair in Materials Science  
Northrop Chair in Electrical Engineering/Electromagnetics  
Ralph M. Parsons Chair in Chemical Engineering  
Ben Rich Lockheed Martin Chair in Aeronautics  
Rockwell International Chair in Engineering  
\*William Frederick Seyer Term Chair in Materials Electrochemistry  
TRW Chair in Electrical Engineering

### School of Law

Harry Graham Balter Chair in Law  
Connell Professorship of Law  
Richard C. Maxwell Chair in Law  
Arjay and Frances Fearing Miller Chair in Law  
David G. and Dallas P. Price Chair in Law  
Security Pacific Bank Chair

William D. Warren Chair in Law

### College of Letters and Science

Armen A. Alchian Chair in Economic Theory  
Maurice Amado Chair in Sephardic Studies  
Armenian Educational Foundation Chair in Modern Armenian History  
\*RBSL Bergman Foundation Chair in Business Economics  
Henry J. Bruman Chair in German History  
Ralph Bunche Chair in International Studies  
Edward W. Carter Chair in Netherlandish Art  
James S. Coleman Chair in International Development Studies  
Courtaulds Chair in Chemistry  
Norman Cousins Endowed Chair in Psychoneuroimmunology  
Navin and Pratima Doshi Chair in Premodern Indian History  
Mr. and Mrs. C.N. Flint Professorship of Philosophy  
Evan Frankel Endowed Chair in English  
Gloria and Paul Griffin Chair in Philosophy  
Marvin Hoffenberg Chair in American Politics and Public Policy  
\*Robert Michaels Chair in Behavioral Neuroscience  
\*Robert and Sherry Michaels Chair for Excellence in Psychology  
Franklin D. Murphy Chair in Italian Renaissance Studies  
Narekatsi Chair in Armenian Studies  
"1939" Club Chair  
President's Chair in Developmental Immunology  
Hans Reichenbach Chair in Scientific Philosophy  
\*Musa Sabi Chair in Iranian Studies  
David S. Saxon Presidential Chair in Physics  
Louis B. Slichter Chair in Geophysics and Planetary Physics  
Charles Speroni Chair in Italian Literature and Culture  
\*Staglin Family Chair in Psychology  
\*Steinmetz Chair in Classical Archaeology and Material Culture  
\*Paul I. Terasaki Chair in U.S.-Japanese Relations  
UCLA Alumni and Friends of Japanese Ancestry Chair in Japanese American Studies  
UCLA Foundation Chair  
Eugen Weber Chair in Modern European History  
Alexander von Humboldt Endowed Chair in Geography  
Saul Winstein Chair in Organic Chemistry

### John E. Anderson Graduate School of Management

Allstate Chair in Insurance and Finance  
Andersen Worldwide Chair in Management  
John E. Anderson Chair in Management  
Marion Anderson Chair in Management  
California Chair in Real Estate and Land Economics  
Edward W. Carter Chair in Business Administration  
William M. Cockrum Professorship in Entrepreneurial Finance  
James A. Collins Chair in Management  
Warren C. Corder Chair in Money and Financial Markets

Ernst and Young Chair in Accounting  
Henry Ford II Chair in International Management  
\*Lee and Seymour Graff Endowed Professorship  
Goldyne and Irwin Hearsh Chair in Money and Banking  
IBM Chair in Computers and Information Systems  
Joseph Jacobs Chair in Entrepreneurial Studies  
Neil Jacoby Chair in Management  
Betsy Wood Knapp Professorship for Innovation and Creativity  
Bud Knapp Professorship  
Harry and Elsa Kunin Chair in Business and Society  
William E. Leonhard Chair in Management  
Chauncey J. Medberry Chair in Management  
Howard Noble Chair in Management  
Paine Chair in Management  
Price Waterhouse Chair in Accounting  
George Robbins Chair in Management  
Sanford and Betty Sigoloff Chair in Corporate Renewal  
Times Mirror Chair in Management Strategy and Policy  
Ho-Su Wu Chair in Management

### School of Medicine

William S. Adams, M.D., Chair in Medicine  
Louis D. Beaumont Chair in Surgery  
Jerome L. Belzer Chair in Medical Research  
\*Bing Professorship of Urologic Research  
Bowyer Professorship of Medical Oncology  
Judson Braun Chair in Biological Psychiatry  
Rubin Brown Chair in Pediatric Neurology  
Joseph Campbell Chair in Child Psychiatry  
Iris Cantor Chair in Breast Imaging  
Edward W. Carter Chair in Internal Medicine  
Castera Chair in Cardiology  
Tony Coelho Chair in Neurology  
Norman Cousins Endowed Chair in Psychoneuroimmunology  
Crump Chair in Medical Engineering  
M. Philip Davis Chair in Microbiology and Immunology  
\*Roy and Carol Doumani Chair in Urological Oncology  
Dumont-UCLA Chair in Transplantation Surgery  
Max Factor Family Foundation Chair in Nephrology  
Charles Kenneth Feldman Chair in Ophthalmology  
Laraine and David Gerber Chair in Ophthalmology  
\*Joan S. and Ralph N. Goldwyn Chair in Immunobiology and Transplantation  
Dolly Green Chair in Ophthalmology  
Maud Cady Guthman Chair in Cardiology  
Stefan Hatos Endowed Chair in Psychiatry and Biobehavioral Sciences  
Ronald S. Hirschberg Chair in Translational Pancreatic Cancer Research  
Ronald L. Katz, M.D., Endowed Chair in Anesthesiology  
Chizuko Kawata Chair in Cardiology  
\*Karl Kirchgessner Foundation Chair in Vision Science  
George F. Kneller Chair in Family Medicine  
Grace and Walter Lantz Endowed Chair  
Eleanor I. Leslie Chair in Neuroscience

William P. Longmire, Jr., Chair in Surgery  
Gordon and Virginia MacDonald Distinguished  
Chair in Human Genetics  
Charles H. Markham Chair in Neurology  
Della Martin Chair in Psychiatry  
David May II Chair in Ophthalmology  
\*Henry Alvin and Carrie L. Meinhardt Chair in  
Kidney Cancer Research  
Sherman M. Mellinkoff Distinguished Professor  
in Medicine Endowed Chair  
James H. Nicholson Chair in Pediatric  
Cardiology  
\*Helga and Walter Oppenheimer Endowed  
Chair in Orthopaedic Oncology  
Albert F. and David H. Parlow-Soloman Chair  
for UCLA Program on Aging  
Samuel J. Pearlman, M.D., and Della Z.  
Pearlman Chair in Head and Neck Surgery  
\*Carl M. Pearson, M.D., Endowed Chair in  
Rheumatology  
Thomas P. and Katherine K. Pike Chair in  
Alcohol Studies  
Elizabeth R. and Thomas E. Plott Chair in  
Gerontology  
Edith Agnes Plumb Endowed Chair in  
Neurobiology  
\*Harold and Pauline Price Term Endowed  
Chair  
Revlon Chair in Women's Health  
Leo G. Rigler Chair in Radiological Sciences  
Augustus S. Rose Chair in Neurology  
\*Carol and Saul Rosenzweig Endowed Chair  
in Cancer Therapies Development  
Bernard G. Sarnat, M.D., Endowed Chair in  
Craniofacial Biology  
Jennifer Jones Simon Chair in Radiation  
Oncology  
Norton Simon Chair in Biophysics  
Norman F. Sprague Chair in Molecular  
Oncology  
Fran and Ray Stark Foundation Chair in  
Digestive Diseases  
Fran and Ray Stark Foundation Chair in  
Urology  
Frances and Ray Stark Chair in  
Ophthalmology  
Frances Stark Chair in Neurology  
Jules Stein Chair in Ophthalmology  
W. Eugene Stern Chair in Neurosurgery  
Ruth and Raymond H. Stotter Chair in  
Neurosurgery  
Bradley R. Straatsma, M.D., Endowed Chair in  
Ophthalmology  
Dorothy and Leonard Straus Chair in  
Gastroenterology in Memory of Gussie  
Borun  
Streisand Chair in Cardiology  
Leon J. Tiber, M.D., and David S. Alpert, M.D.,  
Chair in Medicine  
Vernon O. Underwood Family Chair In  
Ophthalmology  
\*Variety Club-D. Barry Reardon Endowed  
Chair in Pediatric Hematology/Oncology  
Richard D. and Ruth P. Walter Chair in  
Neurology  
Wasserman Professor of Ophthalmology

**School of Nursing**  
Lulu Wolf Hassenplug Chair in Nursing  
\*Audrienne H. Moseley Chair in Biological  
Nursing Science  
Audrienne H. Moseley Chair in Nursing

\*Audrienne H. Moseley Chair in Women's  
Health

### School of Public Health

Fred H. Bixby Chair in Population Policy  
Fred W. and Pamela K. Wasserman Chair in  
Health Services

### School of Public Policy and Social Research

Marjorie Crump Chair in Social Welfare  
Harvey S. Perloff Chair

### School of Theater, Film, and Television

\*Lew and Pamela Hunter/Jonathan Zakin  
Chair in Screenwriting

## APPENDIX D: DISTINGUISHED TEACHING AWARDS

### Academic Senate Recipients

Each year the UCLA Alumni Association pre-  
sents Distinguished Teaching Awards to five  
Academic Senate faculty members. The highly  
prized awards are presented at the annual  
UCLA Alumni Association Awards Ceremony,  
and selection of recipients is based on recom-  
mendations of the Academic Senate Commit-  
tee on Teaching. Nominations are solicited  
from academic departments during Fall Quar-  
ter.

The Luckman Distinguished Teaching Awards  
Program was established in late 1991 after re-  
ceipt of a generous gift from Harriet and  
Charles Luckman. Awards given for 1992  
through 1997 were named the Luckman Distin-  
guished 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 Cortinez (*Spanish and Portuguese*)  
Wayne A. Dollase (*Earth and Space Sciences*)  
Jayne E. Lewis (*History*)  
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*)  
Efrain 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*)
- 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, utilizing 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*)  
Stuart Slavin (*Pediatrics*)  
Sung-Ock Sohn (*East Asian Languages and  
Cultures*)

**1998**

Paul Frymer (*Political Science*)  
George Gadda (*UCLA Writing Programs*)  
Julie Giese (*English*)

**1999**

Patricia Gilmore-Jaffe (*UCLA 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 (*UCLA Writing Programs*)  
L. Jean Perry (*Molecular, Cell, and  
Developmental Biology*)

## 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 \$400,000. 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 two years 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*)

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# Index

## A

Absence and Readmission Policies, 66  
Academic Advancement Program (AAP), 50, 74  
Academic and Research Excellence, Center for, 46  
Academic Counseling, 22, 49  
Academic Credit, 63  
Academic Dismissal, 69  
Academic Excellence, Undergraduate, 51  
Academic Policies, 63  
Academic Probation, Undergraduate, 69  
Academic Publishing. *See* Lecture Notes and Course Readers, 23  
Academic Research Courses, 46  
Academic Residence, 61, 75, 99, 124  
Academic Senate, 596  
Academic Senate. *See* University of California System, 10  
Academic Technology Services, 19  
Academic Transcript, 67  
Academic Workshops, 50  
Academics in the Commons, 49, 74  
ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, 55  
Accommodations, 26  
Accounting Minor, 387  
Accreditation of UCLA, 2  
ACT Test, 34  
Add/Drop Courses. *See* Enrolling in Classes, 39  
Address/Name Change, 69  
Administrative Officers, University, 593  
Admission to the University  
  As a Freshman, 34  
  As a Graduate Student, 53  
  As a Transfer Student, 35  
  As an International Student, 35, 54  
  Resident and Nonresident Status, 588  
  Schools of Dentistry, Law, and Medicine, 55  
Advanced Placement Test Credit  
  Arts and Architecture, 105  
  Engineering and Applied Science, 37, 90, 92  
  Letters and Science, 36, 77, 85  
  Theater, Film, and Television, 127  
Advanced Technologies, 19  
Advancement to Candidacy, 72  
Advising and Academic Assistance, 49  
Aerospace Engineering Major, 409  
Aerospace Studies, 528  
African American Studies, Center for, 13  
  Library. *See* Cultural Center Collections, 18  
African Languages Major, 381  
African Studies (Interdepartmental Program), 130  
African Studies Center, Coleman, 14  
African Studies Minor, 130  
Afrikaans, 327  
Afro-American Studies (Interdepartmental Program), 132  
Afro-American Studies Minor, 134  
AIDS Institute, UCLA. *See* Specialized Research Centers, Laboratories, and Institutes, 15  
AIDS Research and Education, Center for Clinical. *See* Specialized Research Centers, Laboratories, and Institutes, 15  
Air Force ROTC. *See* Aerospace Studies, 528  
Alpha Lambda Delta, 52  
Alumni Association, UCLA, 29  
  Scholarships, 42  
American College Test (ACT), 34  
American Cultures, Institute of, 13

American History and Institutions, 45  
American Indian Studies (Interdepartmental Program), 136  
American Indian Studies Center, 13  
  Library. *See* Cultural Center Collections, 18  
American Indian Studies Minor, 136  
American Literature and Culture Major, 283  
American Politics and Public Policy. *See* Quarter in Washington, D.C., 46  
Anatomy and Cell Biology. *See* Neurobiology, 451  
Ancient Near Eastern Civilizations Major, 443  
Anderson Graduate School of Management, John E., 96  
Anesthesiology Department, 137  
Anthropology Department, 138  
Anthropology Minor, 139  
Appendix, 584  
Applied Developmental Psychology Minor, 511  
Applied Linguistics and Teaching English as a Second Language Major, 147  
Applied Mathematics Major, 401  
Applying for Admission  
  Graduate, 53  
  Undergraduate, 33  
Aquatic Center, UCLA Marina, 32  
Arabic and Islamic Studies Minor, 444  
Arabic Major, 443  
Archaeology, Cotsen Institute of, 13  
Archaeology Department, 154  
Architecture and Urban Design Department, 156  
Architecture, School of the Arts and, 98  
Archive Research and Study Center (ARSC). *See* Film and Television Archive, 19  
Archives and Collections, Special, 18  
Armenian Studies Minor, 444  
Army ROTC. *See* Military Science, 529  
Art Department, 160  
Art Galleries and Museums  
  Fowler Museum of Cultural History, 16  
  Grunwald Center for the Graphic Arts, 16  
  Murphy Sculpture Garden, 16  
  UCLA Hammer Museum, 16  
  Wight Art Building, 16  
Art History Department, 162  
Articulated Degree Programs, 8  
Artificial Intelligence Laboratory. *See* Specialized Research Centers, Laboratories, and Institutes, 15  
Arts and Architecture Department, 167  
Arts and Architecture, School of the, 98  
Arts Library, 17  
Ashe Student Health and Wellness Center, Arthur, 23  
Asian American Studies (Interdepartmental Program), 167  
Asian American Studies Center, 13  
  Reading Room. *See* Cultural Center Collections, 18  
Asian American Studies Minor, 168  
Asian Humanities Major, 247  
Asian Humanities Minor, 247  
Asian Religions Major, 247  
ASK Peer Counselors, 49  
Assigning a Grade, 591  
Assistantships, Graduate Student, 59, 60  
Associated Student Services, 24  
Astronomy. *See* Physics and Astronomy, 481  
Astrophysics Major, 482  
ASUCLA. *See* Associated Student Services, 24

Athletic Facilities, 31  
Athletics, 31  
Atmospheric and Oceanic Sciences Minor, 172  
Atmospheric, Oceanic, and Environmental Sciences Major, 172  
Atmospheric Sciences Department, 171

## B

Bachelor's Degree Requirements. *See* Degree Requirements, Undergraduate  
Banking, 27  
Belt Library of Vinciana. *See* Arts Library, 17  
Biochemistry Major, 198  
Biological Chemistry Department, 176  
Biological Collections, 20  
Biology Department. *See* Organismic Biology, Ecology, and Evolution Department, 466  
Biology Major, 467  
Biomathematics Department, 178  
Biomedical Engineering (Interdepartmental Program), 181  
Biomedical Library, Louise Darling, 17  
Biomedical Physics Department, 184  
Biostatistics Department, 186  
Botanical Garden, Mathias, 20  
Brain Research Institute, 12  
Broadcast Media, Publications and, 25  
Bruin OnLine, 22  
BruinCard, UCLA, 29  
*BruinLife*. *See* UCLA Yearbook, 25  
Budgets, Estimated Annual  
  Graduate, 58  
  Undergraduate, 39  
Business Economics Major, 258  
Business Forecasting Project, 15, 96  
Business Law Program, 109

## C

Cafeterias. *See* UCLA Restaurants, 25  
Cal Grants A and B, 42  
California Census Research Data Center, 119  
California Student Aid Commission Grants, 41, 42  
California, University of, 10  
Campus Escort Service, 593  
  *See also* Student Safety and Security, 24  
Campus Events Commission, 25  
Campus Ombuds Office, 27  
Campus Photo Studio. *See* Other Services and Enterprises, 26  
Campus Police, 592  
  *See also* Student Safety and Security, 24  
Campus Safety and Security Information, 592  
Campus Visits Program. *See* Life on Campus, 11  
Cancellation of Registration, 66  
Career Center, 30  
Carter Japanese Garden, Hannah, 20  
Centers  
  Academic and Research Excellence, 46  
  African American Studies, 13  
  American Indian Studies, 13  
  American Politics and Public Policy. *See* Quarter in Washington, D.C., 46  
  Ashe Student Health and Wellness, 23  
  Asian American Studies, 13  
  California Census Research Data, 119  
  Center X, 88  
  Chicano Studies Research, 13  
  Child and Family Policy Research, 120



- Clean Technology. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Clinical AIDS Research and Education. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Coleman African Studies, 14
- Communication Policy, 120
- Communication Policy. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Doris Stein Eye Research, 15
- Entrepreneurial Leadership Clearinghouse on Entrepreneurship Education 89
- Entrepreneurial Studies, Harold Price, for, 97
- European and Russian Studies, 14
- Experiential Education and Service Learning, 47
- Fernald Child Study. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Globalization and Policy Research, 120
- Grunwald Center for the Graphic Arts, 16
- Health Care Management, 97
- Health Policy Research, 114
- Health Promotion and Disease Prevention, 114
- Health Services Management, 114
- Healthier Children, Families, and Communities, 115
- Human Nutrition, 115
- International Business Education and Research, 97
- International Science, Technology, and Cultural Policy, 120
- International Student, Dashew, 28
- Jonsson Comprehensive Cancer. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Labor Research and Education, 120
- Latin American, 14
- Lesbian, Gay, Bisexual, and Transgender Resource Center, 28
- Los Angeles Tennis. *See* Athletic Facilities, 31
- Marine Science, 20
- Medieval and Renaissance Studies, 12
- Mental Retardation Research, 15
- Morgan Intercollegiate Athletics. *See* Athletic Facilities, 31
- North American Integration and Development, 121
- Occupational and Environmental Health, 115
- Ocean Discovery, UCLA, 20
- Operations and Technology Management, 97
- Policy Research on Aging, 121
- Pollution Prevention Education and Research, 117
- Public Health and Disaster Relief, 116
- Reed Neurological Research. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Regional Policy Studies, Lewis Center for, 121
- Seventeenth- and Eighteenth-Century Studies, 12
- Southern California Environmental Health Sciences, 117
- Southern California Injury Prevention Research, 117
- Southern California NIOSH Education and Research, 118
- Southern California Particle Center and Supersite, 118
- Student Programming (CSP), 30
- Study of Evaluation, 88
- Study of Evaluation. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Study of Urban Poverty. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Study of Women, 13
- Sunset Canyon Recreation. *See* Facilities, 32
- UCLA Career, 30
- UCLA Marina Aquatic, 32
- Urban Education Studies, 89
- von Grunebaum Center for Near Eastern Studies, 14
- Women and Men, 27, 586, 593
- Wooden Recreation and Sports. *See* Facilities, 32
- Central Ticket Office, 27
- Certificate of Resident Study for International Students, 68
- Change of Address/Name, 69
- Changing Majors  
Graduate, 62  
Undergraduate, 44
- Chávez Center for Chicana and Chicano Studies, César E., 189
- Chemical Engineering Department, 192
- Chemistry and Biochemistry Department, 196
- Chemistry/Materials Science (Interdepartmental Program), 204
- Chicana and Chicano Studies Major and Minor, 189, 190
- Chicano Studies Research Center, 13  
Library. *See* Cultural Center Collections, 18
- Child and Family Policy Research, Center for, 120
- Child Care, 27
- Chinese Major, 247
- Civil and Environmental Engineering Department, 205
- Clark Memorial Library, 12, 18
- Class Levels, 63
- Classical Civilization Major, 210
- Classical Civilization Minor, 211
- Classics Department, 209  
English/Greek Major, 210  
English/Latin Major, 210  
Greek and Latin Major, 210  
Greek Major, 210  
Greek Minor, 211  
Latin Major, 210  
Latin Minor, 211
- Clean Technology, Center for. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Clinic for the Behavioral Treatment of Children, 512
- Clinical AIDS Research and Education, Center for. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Clinical Program, School of Law, 108
- Clubs and Organizations, 30
- Cognitive Science Major, 509
- Cognitive Science Minor, 511
- Coleman African Studies Center, 14
- College and School Advisers, 49
- College Honors, 86
- College Library, 17
- College of Letters and Science, 73
- Collegium of University Teaching Fellows, 48
- Commencement, 72
- Committees  
Doctoral, 62  
Master's Thesis, 62
- Communication Policy, Center for, 15, 120
- Communication Studies (Interdepartmental Program), 215
- Community Health Sciences Department, 218
- Community Programs Office, 30
- Commuter Assistance-Ridesharing, 28
- Comparative Literature Department, 222
- Comparative Literature Minor, 223
- Complaints  
Grades, 591
- Complaints —  
And Grievances, Student, 584, 587, 588, 591
- Composition and ESL Tutorials, 50
- Composition Requirement. *See* Writing Requirement
- Comprehensive Examination, Master's, 62
- Computer Science Department, 228
- Computer Support, 19
- Computing, Program in. *See* Mathematics
- Computing Specialization  
Anthropology, 139  
Chemistry and Biochemistry, 198  
Cybernetics, 235  
Economics, 260  
Geography, 321  
Linguistics, 381  
Mathematics, 402  
Mathematics/Economics, 408  
Molecular, Cell, and Developmental Biology, 428  
Psychology, 511  
Sociology, 542
- Concurrent Degree Programs, 8
- Concurrent Enrollment, 40  
Arts and Architecture, 105  
Theater, Film, and Television, 127
- Conduct  
Faculty, 588  
Student, 584
- Confidentiality of Student Records, 591
- Continuous Registration Policy, Graduate Student, 59, 67
- Correction of Grades, 65, 591
- Counseling Assistants, 49
- Counseling Services, Undergraduate, 49–51  
Arts and Architecture, 105  
Engineering and Applied Science, 92  
Letters and Science, 74  
Theater, Film, and Television, 128
- Courses, Classification of  
Concurrent and Multiple Listings, 129  
Extension, UCLA, 129  
Graduate, 129  
Individual Special Studies, 129  
Lower Division, 129  
Undergraduate, 129  
Upper Division, 129
- Covel Tutorials. *See* Academics in the Commons, 49
- CPR and Basic Emergency Care Courses. *See* Student Safety and Security, 24
- Credit by Examination, 35, 63
- Credit for Advanced Placement Tests  
Engineering and Applied Science, 90  
Theater, Film, and Television, 127
- Credit for Work Taken at Other Colleges. *See* Transfer Credit
- Credit Limitations  
Arts and Architecture, 105  
Engineering and Applied Science, 92  
Letters and Science, 85  
Theater, Film, and Television, 127
- Crime Statistics, 592
- Crump Institute for Molecular Imaging, 13
- Cultural and Recreational Affairs, Department of. *See* UCLA Recreation, 32
- Culture and Performance Graduate Degrees, 578
- Curricula and Courses, 129, 584
- Cybernetics (Interdepartmental Program), 234
- D**
- Daily Bruin*, 25
- Dance Graduate Degrees, 578
- Dance. *See* World Arts and Cultures, 576
- Dashew International Student Center, 28
- Dean of Students, Office of, 28
- Dean's Honors List, 51  
Arts and Architecture, 105  
Engineering and Applied Science, 93  
Nursing, 460

- Theater, Film, and Television, 128
- Declaration of Candidacy
- Graduate Students, 72
- Undergraduate, 71
- Declaring a Major, 44
- Deferred Report (DR) Grades, 65
- Degree Policies
- Graduate 71
- Undergraduate, 69
- Degree Audits, 72
- Degree Checks, 70
- Degree Date, 72
- Degree Progress Report. *See* Progress toward the Degree, 85
- Degree Requirements
- Graduate, 61
- Undergraduate, 44
- Arts and Architecture, 98
- Engineering and Applied Science, 91
- Letters and Science, 74
- Nursing, 459
- Theater, Film, and Television, 123
- Degrees, UCLA Majors and, 7
- Dental Research Institute, 13
- Dentistry Department, 235
- Dentistry, School of, 106
- Oral Biology, 465
- Departmental Honors, 51, 86
- Departmental Scholar Program, 51
- Arts and Architecture, 106
- Engineering and Applied Science, 93
- Letters and Science, 87
- Theater, Film, and Television, 128
- Design | Media Arts Department, 236
- Development Studies. *See* International Development Studies, 359
- Developmental Disabilities Immersion Program, 505, 511
- See also* Service Learning, 47
- Diplomas, 72
- Disabilities and Computing Program, 19
- Disabilities, Office for Students with, 28
- Disclosure of Student Records, 591
- Dismissal, Academic, 69
- Distinguished Teaching Awards, 596
- Diversified Liberal Arts (Certificate Program), 239
- Diversified Liberal Arts Program, 48
- Doctoral Committee, 62
- Doctoral Degrees,
- Doctor of Education, 266
- Doctor of Environmental Science and Engineering, 291, 294
- Doctor of Medicine, 110
- Doctor of Musical Arts, 435
- Doctor of Philosophy. *See* UCLA Majors and Degrees Chart, 6–8
- Doctor of Public Health, 522
- Juris Doctor, 108, 375
- Doris Stein Eye Research Center, 15
- Drake Stadium. *See* Athletic Facilities, 31
- Drew/UCLA Medical Education Program, 110
- Drop/Add Courses. *See* Enrolling in Classes, 59
- Dropping Out. *See* Withdrawal, 66
- Duplication of Graduate Degrees, 56
- E**
- Earth and Space Sciences Department, 239
- Earth Sciences Major, 240
- East Asian Languages and Cultures Department, 246
- Chinese, 247, 249
- East Asian Languages and Cultures, 250
- Indic 251
- Japanese, 247, 251
- Korean, 247, 253
- South and Southeast Asian Languages and Cultures, 255
- East Asian Languages Minor, 248
- East Asian Library, Rudolph, 18
- East Asian Studies (Interdepartmental Program), 256
- Easton Softball Stadium. *See* Athletic Facilities, 31
- Ecology, Behavior, and Evolution Major, 467
- Economics Department, 257
- Economics/International Area Studies Major, 259
- Education Abroad Program, 21
- Education and Information Studies, Graduate School of, 87
- Education Department, 265
- Education Studies Minor, 48, 265
- Electrical Engineering Department, 274
- Emergency Educational Loans, 43
- Employment Assistance, 30
- Endowed Chairs, 595
- Engineer Degree, 95, 281
- Engineering and Applied Science, Henry Samueli School of, 89
- Engineering Schoolwide Programs, 281
- English as a Second Language Placement Examination (ESLPE), 35, 54
- English Composition (Writing Programs), 290
- English Composition Requirement. *See* Writing Requirement
- English Department, 282
- English Minor, 284
- English Reading Room. *See* Cultural Center Collections, 18
- English/Greek Major, 210
- English/Latin Major, 210
- Enrolling in Classes
- Graduate, 59
- Undergraduate, 39
- Entrance Requirements, Undergraduate, 33
- Entrepreneurial Studies, Harold Price Center for, 97
- Environment, Health, and Safety (E&HS), Office of. *See* Student Safety and Security, 24
- Environmental Health Sciences Department, 291
- Environmental Science and Engineering (Interdepartmental Program), 294
- Epidemiology Department, 295
- Escort Service, Campus, 593
- See also* Student Safety and Security, 24
- ESL Tutorials, 50
- Ethnomusicology Archive. *See* Other Collections, 19
- Ethnomusicology Department, 298
- European and Russian Studies, Center for, 14
- European Studies (Interdepartmental Program), 303
- Evaluation, Center for the Study of. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Evening Van Service, 593
- See also* Student Safety and Security, 24
- Examinations
- Advanced Placement, 90, 105, 127
- American College Test (ACT), 34
- Credit by Examination, 63
- English as a Second Language Placement Examination (ESLPE), 35, 54
- Final, Undergraduate, 591
- Graduate Record (GRE), 54
- Master's Comprehensive, 62
- Scholastic Assessment Test (SAT), 34
- SPEAK, 55
- Test of English as a Foreign Language (TOEFL), 35, 54
- Test of Spoken English (TSE), 55
- University Oral Qualifying, 62
- Executive M.B.A. Program, 388
- Expenses, 38, 57
- Experiential Education and Service Learning, Center for. *See* Service Learning, 47
- EXPO Internship and Study Abroad Services, 47
- Extension, UCLA, 22
- Transfer Credit, 70
- F**
- Faculty Code of Conduct, 588
- Faculty. *See* Teaching, 9
- FAFSA. *See* Free Application for Federal Student Aid, 41
- Family Education Loan Program, Federal, 43
- Family Medicine Department, 306
- Federal Work Study, 43
- Fees
- Course Materials, 38
- Graduate, 57
- Miscellaneous, 38, 57
- Refunds, 39, 58
- Resident/Nonresident, 588
- Student Health Insurance Plan, 38, 57
- Undergraduate, 38
- Fellowships, 60
- Fernald Child Study Center. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Filing Fee, Graduate Students, 58
- Film and Television Archive, 18, 122
- Film and Television Major, 307
- Film, Television, and Digital Media Department, 306
- Final Examinations, Undergraduate, 591
- Financial Aid Minimum Progress Standards, 590
- Financial Aid Office, 41, 60
- Financial Support
- Graduate, 57, 60
- Undergraduate, 38, 41
- Folklore and Mythology (Interdepartmental Program), 312
- Foreign Language Requirements
- Arts and Architecture, 99
- For Graduate Degrees, 61
- For Undergraduate Admission, 34
- Letters and Science, 76
- Theater, Film, and Television, 124
- Foreign Literature in Translation Department, 315
- Fowler Museum of Cultural History, 16
- Fraternities, 30
- Fraternity and Sorority Relations, 30
- Free Application for Federal Student Aid (FAFSA), 41
- French and Francophone Studies Department, 316
- French Minor, 317
- Full-Time Graduate Program, 59
- Fully Employed M.B.A. Program, 388
- G**
- Gameroom. *See* Other Services and Enterprises, 26
- Geffen Playhouse, 122
- General Chemistry Major, 198
- General Education Clusters, 83, 319
- General Education Requirements
- Arts and Architecture, 99, 101
- Engineering and Applied Science, 92
- Letters and Science, 77, 79
- Theater, Film, and Television, 124, 125
- General Mathematics Major, 402
- General Physics Major, 482
- Geochemistry Minor, 241
- Geography Department, 320
- Geography Minor, 321
- Geography/Environmental Studies Major, 321
- Geography/Environmental Studies Minor, 322
- Geology Major, 240
- Geology Minor, 241
- Geology/Engineering Geology Major, 240
- Geology/Paleobiology Major, 240
- Geophysics and Planetary Physics, Institute of,

- 14  
 Geophysics and Planetary Physics Minor, 241  
 Geophysics/Applied Geophysics Major, 240  
 Geophysics/Geophysics and Space Physics Major, 240  
 German Major, 326  
 German Minor, 327  
 Germanic Languages Department, 326  
 Afrikaans, 327  
 Dutch, 328  
 German, 328  
 Old Norse Studies, 330  
 Germanic Languages Minor, 327  
 Gerontology (Interdepartmental Program), 331  
 Gerontology Minor, 331  
 Gold Shield Faculty Prize, 598  
 Golden Key, 52  
 Government, Student, 24  
 Grade Points 64  
 Grades and Grading Regulations, 591  
 Appealing a Grade, 591  
 Grade Changes, 591  
 Grade Complaints, 591  
 Grade Policies, 64  
 Graduate Admission, 53  
 Graduate Division, 54  
 Graduate Adviser, 54  
 Graduate Council, 54  
 Student Support, 60  
 Graduate Mentor Program (GMP), 50  
 Graduate Record Examination (GRE), 54  
 Graduate School of Education and Information Studies, 87  
 Graduate Student Researchers, 59, 60  
 Graduate Students Association, 24  
 Graduation from UCLA, 71  
 Graduation Rates, 592  
 Graduation-Related Products and Services. *See* Other Services and Enterprises, 26  
 Grants, 42, 60  
 Greek and Latin Major, 210  
 Greek Major, 210  
 Greek Minor, 211  
 Grievances, Student Complaints and, 584, 587, 588, 591  
 Grunwald Center for the Graphic Arts, 16  
 GSHIP. *See* Student Health Insurance Plan, 57
- H**  
 Hammer Museum, UCLA, 16  
 Handicap Services. *See* Office for Students with Disabilities, 28  
 Hannah Carter Japanese Garden, 20  
 Harassment, 587  
 Health and Safety, Services for, 23  
 Health Care Management, Center for, 97  
 Health Policy Research, Center for, 114, 120  
 Health Promotion and Disease Prevention, Center for, 114  
 Health Services Department, 331  
 Health Services Management, Center for, 114  
 Healthier Children, Families, and Communities, Center for, 115  
 Hebrew and Jewish Studies Minor, 444  
 Hebrew Major, 443  
 Helpline, UCLA Peer, 24  
 Henry Samueli School of Engineering and Applied Science, 89  
 Hepatitis B Vaccination Requirement, 39  
 Hispanic Languages and Literatures, 550  
 History Department, 335  
 History of Science and Medicine Minor, 336  
 History/Art History (Interdepartmental Program), 345  
 Honors and Undergraduate Programs Division, Letters and Science, 74  
 Honors Collegium, 346  
 Honors Programs, Letters and Science, 74  
 Honors, Undergraduate, 51–52  
 Arts and Architecture, 105  
 Engineering and Applied Science, 93  
 Honor Societies, 52  
 Letters and Science, 86  
 Theater, Film, and Television, 128  
 Housing. *See* Accommodations, 26  
 Human Genetics Department, 350  
 Human Nutrition, Center for, 115  
 Human Resources Round Table, 97  
 Humanities Division, Letters and Science, 73
- I**  
 In Absentia Graduation, 72  
 In Progress (IP) Grades, 65  
 Incomplete (I) Grades, 65  
 Individual Majors, 44, 100, 127  
 Indo-European Studies (Interdepartmental Program), 352  
 Industrial Relations, Institute of, 14, 121  
 Infant Development Program, 512  
 Information Studies Department, 353  
 Information Systems Research Program, 97  
 In-Person Enrollment, 40, 59  
 Institute of the Environment, 357  
 Institutes  
 American Cultures, 13  
 Archaeology, 13  
 Brain Research, 12  
 Crump Institute for Molecular Imaging, 13  
 Cyberspace Law and Policy, UCLA Online, 89  
 Dental Research, 13  
 Geophysics and Planetary Physics, 14  
 Industrial Relations, 14, 121  
 Jules Stein Eye, 15  
 Molecular Biology, 15  
 Neuropsychiatric, 15, 111  
 Plasma and Fusion Research, 14  
 Social Science Research, 14  
 Transportation Studies, 121  
 UCLA AIDS. *See* Specialized Research Centers, Laboratories, and Institutes, 15  
 Instructional Credential. *See* Single Subject Credential  
 Instructional Credential. *See* Teaching Opportunities, 48  
 Instructional Media Library, 18  
 Insurance, Student Health Insurance Plan  
 Graduate (SHIP), 57  
 Undergraduate (USHIP), 38  
 Integrated Manufacturing Engineering (Interdepartmental Program), 359  
 Intercampus Transfer, 35  
 Intercampus Visitor Program 40  
 Intercollegiate Sports, 32  
 International Business Education and Research, Center for, 97  
 International Development Studies (Interdepartmental Program), 359  
 International Relations, Specialization in, 360  
 International Science, Technology, and Cultural Policy, Center for, 120  
 International Students  
 Admission, Graduate, 54  
 Admission, Undergraduate, 35  
 Dashew International Student Center, 28  
 English Proficiency Tests, 35, 54  
 Office of International Students and Scholars, 28  
 Services, 28  
 Special Examination in English for, 35, 54  
 Subject A Requirement Applied to, 44  
 International Studies and Overseas Programs, 14  
 Internships, 46  
 Intersegmental GE Transfer Curriculum, 77, 100, 124  
 Intramural and Club Sports, 32  
 Islamic Studies (Interdepartmental Program), 361
- Italian and Special Fields Major, 363  
 Italian Department, 363  
 Italian Minor, 365
- J**  
 Japanese Garden, Hannah Carter, 20  
 Japanese Major, 247  
 Jewish Studies Major, 443  
 Jonsson Comprehensive Cancer Center. *See* Specialized Research Centers, Laboratories, and Institutes, 15  
 Jules Stein Eye Institute, 15  
 Juris Doctor Degree, 108
- K**  
 KLA Radio, 25  
 Korean Major, 247
- L**  
 Labor and Workplace Studies, Interdepartmental Specialization in, 367  
 Labor Research and Education, Center for, 120  
 Laboratory Animal Medicine, Division of, 20  
 Laboratory of Structural Biology and Molecular Medicine, UCLA-DOE, 15  
 Language Courses  
 Afrikaans, 327  
 Akkadian, 449  
 Amharic, 382  
 Arabic, 446  
 Aramaic, 449  
 Armenian, 446  
 Azeri, 450  
 Bambara, 382  
 Bantu, 382  
 Bashkir, 450  
 Berber, 447  
 Bulgarian, 535  
 Chagatay, 450  
 Chichewa, 382  
 Chinese, 249  
 Coptic, 445  
 Czech, 535  
 Danish, 532  
 Dutch, 328  
 Egyptian, 445  
 French, 318  
 German, 328  
 Gothic, 330  
 Greek, 213  
 Hausa, 382  
 Hebrew, 447  
 Hindi, 255  
 Hungarian, 535  
 Icelandic, 330  
 Indic, 251  
 Indonesian, 255  
 Iranian, 448  
 Irish, 288  
 Italian, 365  
 Japanese, 251  
 Korean, 253  
 Kurdish, 448  
 Latin, 214  
 Norwegian, 532  
 Old Norse, 330  
 Pali, 251  
 Persian, 448  
 Phoenician, 449  
 Polish, 535  
 Portuguese, 551  
 Prakrits, 251  
 Quechua, 382  
 Romanian, 535  
 Russian, 535  
 Sanskrit, 251  
 Serbian/Croatian, 537  
 Setswana, 382  
 Slavic 537

- Slavic, 537  
 Spanish, 552  
 Sumerian, 445  
 Swahili, 382  
 Swedish, 532  
 Syriac, 449  
 Tagalog, 255  
 Thai, 255  
 Tigrinya, 382  
 Turkish, 450  
 Ugaritic, 449  
 Ukrainian, 537  
 Ukranian, 537  
 Uzbek, 450  
 Vedic, 251, 448  
 Vietnamese, 255  
 Welsh, 288  
 Wolof, 382  
 Yiddish, 289  
 Yoruba, 382  
 Zulu, 382
- Language, Interaction, and Culture Minor, 148
- Languages  
 For Graduate Degrees, 61  
 For Undergraduate Admission, 34
- Late Payment of Fees. *See* Miscellaneous Fees, 38, 57
- Latin American Center, 14
- Latin American Studies (Interdepartmental Program), 367
- Latin American Studies Minor, 371
- Latin Honors, 51  
 Arts and Architecture, 105  
 Engineering and Applied Science, 93  
 Letters and Science, 87  
 Theater, Film, and Television, 128
- Latin Major, 210
- Latin Minor, 211
- Law Department, 374
- Law Library, Hugh and Hazel Darling, 17
- Law, School of, 107
- Lecture Notes and Course Readers, 23
- Legal Services, Student, 29
- Lesbian, Gay, Bisexual, and Transgender Resource Center, 28
- Lesbian, Gay, Bisexual, and Transgender Studies Minor, 376
- Letters and Science, College of, 73
- Letters and Science Counseling Services, 74
- Letters of Recommendation/Verification, 54
- Liberal Arts, Diversified (Certificate Program), 239
- Libraries, 16–18  
 Archives and Collections, Special, 18  
 Arts, 17  
 College, 17  
 Hugh and Hazel Darling Law, 17  
 Louise Darling Biomedical, 17  
 Music, 18  
 Rosenfeld Management, 17  
 Rudolph East Asian, 18  
 Science and Engineering (SEL), 18  
 William Andrews Clark Memorial Library, 12  
 Young Research, 17
- Life Sciences Core Curriculum, 377
- Life Sciences Division, Letters and Science, 73
- Linguistics Department, 378  
 African Languages, 382  
 Indigenous Languages of the Americas, 382  
 Linguistics, 383
- Linguistics Minor, 381
- Living Expenses  
 Graduate, 58  
 Undergraduate, 39
- Loans, 43, 60
- Los Angeles Tennis Center. *See* Athletic Facilities, 31
- Lower Division Programs, 48
- Lower Division Seminars, 49
- M**
- Major Regulations  
 Arts and Architecture, 100  
 Engineering and Applied Science, 92  
 Letters and Science, 84  
 Nursing, 459  
 Theater, Film, and Television, 127
- Majors, Change of, 62
- Management Department, 386
- Management, John E. Anderson Graduate School of, 96
- Management Library, Rosenfeld, 17
- Marine Biology Major, 468
- Marine Science Center, 20
- Master's Comprehensive Examination, 62
- Master's Degrees,  
 Master of Architecture, 156, 157  
 Master of Arts. *See* UCLA Majors and Degrees Chart, 6–8  
 Master of Business Administration, 388  
 Master of Education, 266  
 Master of Engineering, 95, 281, 359  
 Master of Fine Arts, 160, 161, 237, 559, 578  
 Master of Laws, 376  
 Master of Library and Information Science, 354  
 Master of Music, 435  
 Master of Public Health, 520  
 Master of Public Policy, 494  
 Master of Science. *See* UCLA Majors and Degrees Chart, 6–8  
 Master of Social Welfare, 538
- Master's Thesis, 62
- Materials Engineering Major, 396
- Materials Science and Engineering Department, 396
- Mathematics Department, 399  
 Applied Mathematics Major, 401  
 General Mathematics Major, 402  
 Mathematics Minor, 402  
 Mathematics of Computation Major, 401  
 Mathematics/Applied Science Major, 401  
 Program in Computing, 407
- Mathematics/Economics (Interdepartmental Program), 408
- Mathematics/Education Program, 48
- Mathematics/Sciences Tutorials, College, 50
- Mathias Botanical Garden, 20
- Mechanical and Aerospace Engineering Department, 409
- Mechanical Engineering Major, 410
- Medicine Department, 416
- Medicine, School of, 109
- Medieval and Renaissance Studies, Center for, 12
- Men's Intercollegiate Sports, 32
- Mental Health Services, 24
- Mental Retardation Research Center, 15
- Microbiology and Immunology Department, 417
- Microbiology and Molecular Genetics Department, 419
- Military Science, 529
- Minimum Progress, 70  
 Arts and Architecture, 105  
 Engineering and Applied Science, 92  
 Letters and Science, 85  
 Theater, Film, and Television, 127
- Minimum Progress Standards, Financial Aid, 590
- Minimum Scholarship, 69
- Minimum Scholarship Requirements, 62, 70
- Minimum Standards for Graduate Degrees, 61
- Minors, Undergraduate, 8
- Molecular and Medical Pharmacology Department, 423
- Molecular Biology (Interdepartmental Program), 424
- Molecular Biology Institute, 15
- Molecular, Cell, and Developmental Biology Department, 426
- Molecular, Cellular, and Integrative Life Sciences, UCLA ACCESS to Programs in, 55
- Molecular, Cellular, and Integrative Physiology (Interdepartmental Program), 432
- Molecular Imaging, Crump Institute, 13
- Molecular Toxicology (Interdepartmental Program), 433
- Morgan Intercollegiate Athletics Center, 31
- Mortar Board, 52
- Murphy Sculpture Garden, 16
- Museum Studies Minor, 163
- Museums  
 Fowler Museum of Cultural History, 16  
 Grunwald Center for the Graphic Arts, 16  
 Murphy Sculpture Garden, 16  
 UCLA Hammer Museum, 16  
 Wight Art Building, 16
- Music Department, 434
- Music History Major and Minor, 440
- Music Library, 18
- Musicology Department, 439
- MyUCLA, 23
- N**
- Name/Address Change, 69
- National Merit Scholarships, 42
- Natural Reserve System (NRS), UC. *See* Stunt Ranch Santa Monica Mountains Reserve, 20
- Natural Science Resources, Parks, Reserves, and, 20
- Naval Science, 530
- Naval Science Minor, 530
- Near Eastern Languages and Cultures Department, 442  
 Ancient Near East, 445  
 Arabic, 443, 446  
 Armenian, 446  
 Berber, 447  
 Hebrew, 443, 447  
 Iranian, 448  
 Islamics, 448  
 Jewish Studies, 449  
 Near Eastern Languages, 444, 449  
 Semitics, 449  
 Turkic Languages, 450
- Near Eastern Languages and Cultures Minor, 444
- Near Eastern Studies (Interdepartmental Program), 450
- Near Eastern Studies, von Grunebaum Center for, 14
- Neurobiology Department, 451  
 Medical History Division, 453
- Neurology Department, 453
- Neuropsychiatric Institute, 15, 111
- Neuroscience (Interdepartmental Program), 454, 456
- Neuroscience Minor, 455
- Newsmagazines, 25
- No Degree Objective, 56
- Nondiscrimination, 584
- Nonresident Students  
 Definition of, 588  
 Reduced Fee Programs, 39, 58  
 Tuition, 38, 57
- North American Integration and Development Center, 121
- Nursery School, University Parents, 28
- Nursing Department, 459
- Nursing Loans, Federal, 43
- Nursing, School of, 111
- O**
- Obstetrics and Gynecology Department, 465
- Occupational and Environmental Health, Center for, 115
- Ocean Discovery Center, UCLA, 20

- 604** Off-Campus Housing, 26
- INDEX** Office for Students with Disabilities, 28
- Office of Executive Education, 97
- Office of International Students and Scholars, 28
- Office of Public Health Practice, 117
- Ombuds Office, Campus, 27
- On-Campus Housing, 26
- Ophthalmology Department, 465
- Oral Biology (Dentistry), 465
- Oral Qualifying Examination, University, 62
- Organismic Biology, Ecology, and Evolution Department, 466
- Biology Major, 467
- Ecology, Behavior, and Evolution Major, 467
- Marine Biology Major, 468
- Plant Biology Major, 468
- Organizational Studies, Interdepartmental Specialization in, 474
- Organized Research Units, 12
- Orientation, 40, 49
- Orthopaedic Surgery Department, 474
- Outdoor Adventures, 32
- Outstanding Senior Award, 52
- P**
- Parent Loans for Undergraduate Students, Federal, 43
- Parents Nursery School, University, 28
- Parking and Commuter Services, 28
- Parks, Reserves, and Natural Science Resources, 20
- Part-Time Study (Undergraduate). *See* Reduced Fee Programs, 39
- Passed/Not Passed (P/NP) Grades, 65
- Pathology and Laboratory Medicine Department, 474
- Pauley Pavilion. *See* Athletic Facilities, 31
- Pediatrics Department, 476
- Peer Helpline, UCLA, 24
- Pell Grants, Federal, 42
- Performing Arts
- Department Events, 31
- UCLA Performing Arts, 31
- Perkins Loans, Federal, 43
- Petitions, 70
- Pharmacology Department. *See* Molecular and Medical Pharmacology
- Phi Beta Kappa, 52
- Phi Eta Sigma, 52
- Philosophy Department, 476
- Philosophy Minor, 477
- Photo Studio, Campus. *See* Other Services and Enterprises, 26
- Physical Sciences Division, Letters and Science, 74
- Physics and Astronomy Department, 481
- Physiological Science Department, 487
- Physiology Department, 492
- Plant Biology Major, 468
- Plasma and Fusion Research, Institute of, 14
- Police Department, UCLA, 592
- See also* Student Safety and Security, 24
- Policy Research on Aging, Center for, 121
- Policy Studies Department, 494
- Political Science Department, 498
- Political Science Minor, 499
- Pollution Prevention Education and Research Center, 117
- Portuguese Major and Minor, 549
- Post Offices, 29
- Powell Library. *See* College Library, 17
- Preprofessional Advising, 74
- Probation, Undergraduate Academic, 69
- Professional Schools Seminar Program (PSSP), 49
- Program in Computing, 407
- Program Leading to Undergraduate Success (PLUS), 51
- Progress toward the Bachelor's Degree, 69
- Letters and Science, 85
- Provost's Honors, Letters and Science, 51, 86
- Psychiatry and Biobehavioral Sciences Department, 504
- Psychobiology Major, 510
- Psychological Counseling Services. *See* Mental Health Services, 24
- Psychology Clinic, UCLA, 512
- Psychology Department, 508
- Public Health and Disaster Relief, Center for, 116
- Public Health, School of, 113, 520
- Public Health Schoolwide Programs, 520
- Public Interest Law and Policy, Program in, 108
- Public Policy and Social Research, School of, 119, 523
- Public Policy Minor, 523
- Publications and Broadcast Media, 25
- Q**
- Qualifying Examinations, Written and Oral, 62
- Quantitative Reasoning Requirement, 76
- Quarter in Washington, D.C., 46
- R**
- Radiation Oncology Department, 523
- Radiological Sciences Department, 523
- Rape and Other Forms of Sexual Assault, 586
- Rape Prevention and Education Services, 593
- Readmission Policies, 66
- Graduate, 56
- Undergraduate, 66
- Recreation Class Programs, 32
- Recreation Facilities, 32
- Reduced Fee Programs, 39, 58
- Reed Neurological Research Center. *See* Specialized Research Centers, Laboratories, and Institutes, 15
- Regents, Board of, 593
- See also* University of California System, 10
- Regents Scholarships, 42
- Regional Policy Studies, Lewis Center for, 121
- Registration
- Graduate, 57
- Undergraduate, 38
- Registration in the Final Term (Graduate), 59
- Regulations and Policies, 584
- Religion, Study of (Interdepartmental Program), 524
- Repetition of Courses, 63
- Research Programs, 12
- Reserve Officers' Training Programs. *See* ROTC Programs, 48
- Residence, Academic, 61, 99, 124
- Residence for Tuition Purposes, 588
- Resident Study, Certificate of, 68
- Retention Rates, UCLA, 592
- Riordan Programs, 97
- Robinson Stadium, Jackie. *See* Athletic Facilities, 31
- Romance Linguistics and Literature (Interdepartmental Program), 525
- Romanian, 535
- Rosa Parks Program, 51
- Rose Bowl. *See* Athletic Facilities, 31
- ROTC Programs, 42, 48, 528
- Aerospace Studies, 528
- Military Science, 529
- Naval Science, 530
- Scholarships, 42, 528
- Russian Language and Literature Major, 533
- Russian Language Minor, 534
- Russian Literature Minor, 534
- Russian Studies Major and Minor, 534
- S**
- Safety and Security
- Campus Information, 592
- Student Resources, 24
- Salary and Employment Information, 584
- Satisfactory/Unsatisfactory (S/U) Grades, 65
- Scandinavian Languages Major, 531
- Scandinavian Minor, 531
- Scandinavian Section, 531
- Scholarship Resource Center, 74
- Scholarship Standards (Graduate), 62
- Scholarships, 42
- Scholastic Assessment Test (SAT), 34
- School of Dentistry, 106
- School of Engineering and Applied Science, Henry Samuelli, 89
- School of Medicine, 109
- School of Nursing, 111
- School of Public Health, 113
- School of Public Policy and Social Research, 119
- School of the Arts and Architecture, 98
- School of Theater, Film, and Television, 122
- Science and Engineering Library (SEL)
- Chemistry Collection, 18
- Engineering and Mathematical Sciences Collection, 18
- Geology-Geophysics Collection, 18
- Physics Collection, 18
- Security Information, Campus Safety and, 592
- Security, Student Safety and, 24
- Seeds University Elementary School Library, 19
- Serbian/Croatian, 537
- Services for Students with Disabilities, 28
- Seventeenth- and Eighteenth-Century Studies, Center for, 12
- Sexual Assault, Rape and Other Forms of, 586
- Sexual Violence Prevention. *See* Student Safety and Security, 24
- Simultaneous UC Enrollment, 41
- Single Subject Credential
- German, 327
- Science, 482
- Social Science, 336
- Subject Matter Preparation Program
- English, 283
- Mathematics, 402
- Slavic Languages and Literatures Department, 533
- Bulgarian, 535
- Czech, 535
- Hungarian, 535
- Polish, 535
- Romanian, 535
- Russian, 535
- Serbian/Croatian, 537
- Slavic, 537
- Ukrainian, 537
- Social Science Research, Institute for, 14
- Data Archive Library, 19
- Social Sciences Division, Letters and Science, 74
- Social Security Services, Veterans Affairs and, 23
- Social Welfare Department, 538
- Sociology Department, 542
- Sororities, 30
- South and Southeast Asian Languages and Cultures, 255
- Southern California Environmental Health Sciences Center, 117
- Southern California Injury Prevention Research Center, 117
- Spanish and Linguistics Major, 549
- Spanish and Portuguese Department, 548
- Spanish and Portuguese Major, 549
- Spanish Linguistics Minor, 550
- Spanish Major and Minor, 549
- SPEAK Examination, 55
- Specializations, Undergraduate, 8
- Speech, 554
- Sports and Athletics, 31
- Stafford Loans, Federal, 43
- State University Grants, 42
- Statistics Department, 554

- Statistics Minor, 555  
 Stein Eye Institute, 15  
 Stein Eye Research Center, 15  
 Structural Biology and Molecular Medicine, UCLA-DOE Laboratory of, 15  
 Student Activities, 30  
 Student Athletes, College Tutorials for, 50  
 Student Complaints and Grievances, 584, 587, 588, 591  
 Student Conduct, 584  
 Student Government, 24  
 Student Health, 23  
 Student Health Insurance Plan  
   Graduate, 57  
   Undergraduate, 38  
 Student Legal Services, 29  
 Student Loan Obligations, 43  
 Student Programming (CSP), Center for, 30  
 Student Psychological Services, 24  
 Student Records, 69  
 Student Records, Disclosure of, 591  
 Student Research Program (SRP), 46  
 Student Safety and Security, 24  
 Student Services, 22–32  
 Study List  
   Arts and Architecture, 105  
   Changes to, 40  
   Definition of, 40, 59  
   Engineering and Applied Science, 92  
   Letters and Science, 84  
   Theater, Film, and Television, 127  
 Study of Religion. *See* Religion, Study of, 557  
 Stunt Ranch Santa Monica Mountains Reserve, 20  
 Subject A, 44, 290  
 Summer Sessions, 21, 56  
 Sunset Canyon Recreation Center, 32  
 Supplemental Educational Opportunity Grants, Federal, 42  
 Supplementary Educational Programs, 21  
 Surgery Department, 557
- T**  
 Teacher Education, 557  
 Teachers for Tomorrow, 51  
 Teaching Assistants, 60  
 Teaching Awards, Distinguished, 596  
 Teaching English as a Second or Foreign Language Minor, 148  
 Teaching Opportunities, 48  
 Television Archive, Film and, 122  
 Test of English as a Foreign Language (TOEFL), 35, 54  
 Test of Spoken English (TSE), 55
- Theater Department, 557  
 Theater, Film, and Television, School of, 122  
 Thesis, Master's, 62  
 Tickets. *See* Central Ticket Office, 27  
 Time to Degree, 592  
 Tours, 33  
 Transcripts and Records, 67  
 Transfer Credit, 35, 70  
   Summer Sessions, 70  
 Transfer Students  
   Admission, 35  
   Credit from Other Institutions, 35  
 Transfer to Other UC Campuses, 35  
 Transportation Studies, Institute of, 121  
 Transportation. *See* Parking and Commuter Services, 28  
 Tutorial Services  
   AAP, 51  
   Academics in the Commons, 49  
   Composition and ESL, 50  
   Mathematics/Sciences, 50  
   Student Athletes, 50
- U**  
 UCLA AIDS Institute. *See* Specialized Research Centers, Laboratories, and Institutes, 15  
 UCLA Alumni Association, 29  
 UCLA BruinCard, 29  
 UCLA Career Center, 30  
 UCLA Extension, 22  
   Transfer Credit 70  
 UCLA Hammer Museum, 16  
 UCLA Marina Aquatic Center, 32  
 UCLA Peer Helpline, 24  
 UCLA Performing Arts, 31  
 UCLA Police Department, 592  
 UCLA Police Department. *See* Student Safety and Security, 24  
 UCLA Policy Forum, 121  
 UCLA Restaurants, 25  
 UCLA Store, 25  
 UCLA-DOE Laboratory of Structural Biology and Molecular Medicine, 15  
 UCR/UCLA Biomedical Sciences Program, 110  
 Undeclared Majors, 44  
 Undergraduate Admission, 33  
 Undergraduate Admissions and Relations with Schools, Office of, 33  
 Undergraduate Degree Requirements. *See* Degree Requirements, Undergraduate  
 Undergraduate Majors and Degrees, 6  
 Undergraduate Minors and Specializations, 8  
 Undergraduate Research, 46  
 Undergraduate Research Centers, 74
- Undergraduate Research Scholars Program, 46  
 Undergraduate Students Association, 25  
 Unit Policies, 63  
 University Administrative Officers, 593  
 University Oral Qualifying Examination, 62  
 University Parents Nursery School, 28  
 University Records System Access (URSA), 23, 40, 59  
 University Requirements, Undergraduate Degrees, 44  
 Urban Planning Department, 566  
 Urban Poverty, Center for the Study of. *See* Specialized Research Centers, Laboratories, and Institutes, 15  
 Urban Studies, Interdepartmental Specialization in, 571  
 Urology Department, 571  
 URSA (University Records System Access), 23, 59  
 USHIP. *See* Student Health Insurance Plan, 38
- V**  
 Vaccination Requirement, Hepatitis B, 39  
 Verification Transcript, 68  
 Veterans Affairs and Social Security Services, 23, 59  
 von Grunebaum Center for Near Eastern Studies, 14
- W**  
 Wight Art Building, 16  
 Withdrawal from the University, 66  
 Women and Men, Center for, 586, 593  
 Women, Center for the Study of, 13  
 Women in Engineering, 93  
 Women's Intercollegiate Sports, 32  
 Women's Studies (Interdepartmental Program), 571  
 Women's Studies Minor, 573  
 Wooden Recreation and Sports Center, 32  
 Work-Study Program, 43  
 World Arts and Cultures Department, 576  
 Writing Requirement  
   Arts and Architecture, 99  
   Engineering and Applied Science, 91  
   Letters and Science, 75  
   Theater, Film, and Television, 124
- Y**  
 Yearbook, BruinLife, 25  
 Young Research Library, 17  
 Youth and Family Programs, 32

# Online Directory

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**University of California, Los Angeles**

Los Angeles, CA 90095-1361

Main campus telephone: (310) 825-4321

Speech- and hearing-impaired access: TTY (310) 825-2833

# Academic Calendars

## UCLA 2001 – 2002

### Fall Quarter 2001

Quarter begins . . . . .	September 24
Instruction begins . . . . .	September 25
Veteran's Day holiday . . . . .	November 12
Thanksgiving holiday . . . . .	November 22-23
Instruction ends . . . . .	December 7
Final examinations . . . . .	December 10-14
Quarter ends . . . . .	December 14
Christmas holiday . . . . .	December 24-25
New Year's holiday . . . . .	December 31- January 1

### Winter Quarter 2002

Quarter begins . . . . .	January 2
Instruction begins . . . . .	January 7
Martin Luther King, Jr. holiday . . . . .	January 21
Presidents' Day holiday . . . . .	February 18
Instruction ends . . . . .	March 15
Final examinations . . . . .	March 18-22
Quarter ends . . . . .	March 22
Administrative holiday (closed) . . . . .	March 25

### Spring Quarter 2002

Quarter begins . . . . .	March 27
Instruction begins . . . . .	April 1
Memorial Day holiday . . . . .	May 27
Instruction ends . . . . .	June 7
Final examinations . . . . .	June 10-14
Quarter ends . . . . .	June 14
Commencement weekend . . . . .	June 15-16

### Online Publications

The UCLA General Catalog is available online 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 2002 – 2003

### Fall Quarter 2002

Quarter begins . . . . .	September 23
Instruction begins . . . . .	September 26
Veteran's Day holiday . . . . .	November 11
Thanksgiving holiday . . . . .	November 28-29
Instruction ends . . . . .	December 6
Final examinations . . . . .	December 9-13
Quarter ends . . . . .	December 13
Christmas holiday . . . . .	December 24-25
New Year's holiday . . . . .	December 31- January 1

### Winter Quarter 2003

Quarter begins . . . . .	January 2
Instruction begins . . . . .	January 6
Martin Luther King, Jr. holiday . . . . .	January 20
Presidents' Day holiday . . . . .	February 17
Instruction ends . . . . .	March 14
Final examinations . . . . .	March 17-21
Quarter ends . . . . .	March 21
Administrative holiday (closed) . . . . .	March 24

### Spring Quarter 2003

Quarter begins . . . . .	March 26
Instruction begins . . . . .	March 31
Memorial Day holiday . . . . .	May 26
Instruction ends . . . . .	June 6
Final examinations . . . . .	June 9-13
Quarter ends . . . . .	June 13
Commencement weekend . . . . .	June 14-15

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