

UNIVERSITY OF
CALIFORNIA

Bulletin



General Catalogue

Departments at Los Angeles

Fall and Spring Semesters

1956-1957

JULY 20, 1956

Price Twenty-five Cents

General Catalogue

LOS ANGELES

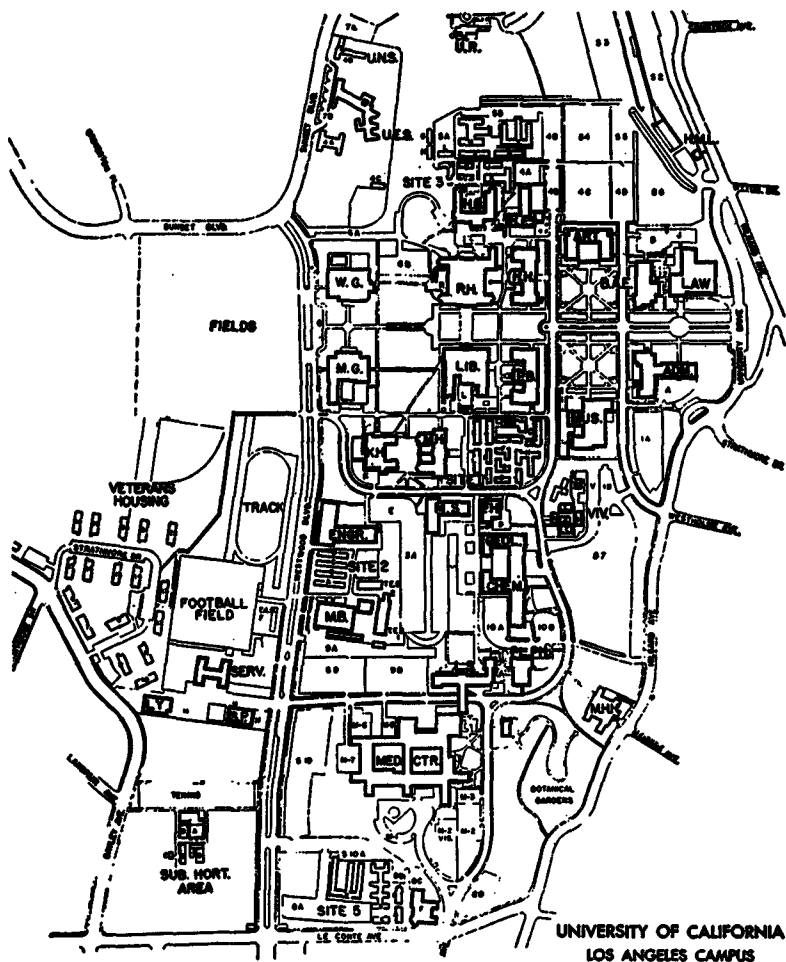
General Catalogue

DEPARTMENTS AT LOS ANGELES

**Fall and Spring Semesters
1956-1957**

JULY 20, 1956

UNIVERSITY OF CALIFORNIA, LOS ANGELES



UNIVERSITY OF CALIFORNIA
LOS ANGELES CAMPUS

- Adm Administration Building
- Art Art Building
- BAE Business Administration-
Economics Building
- Chem Chemistry Building
- Engr Engineering Building
- FH Franz Hall
- Geol Geology Building
- HB Humanities Building
- HE Home Economics Building
- HH Haines Hall
- HML Home Management Laboratory
- KH Kerckhoff Hall
- Law School of Law Building
- Lib Library
- LS Life Sciences Building
- MB Mechanics Building

- Med Ctr Medical Center
- MG Men's Gymnasium
- MH Moore Hall
- MS Mathematical Sciences Building
- Mus Music Building
- PE Physics-Biology Building
- PI Ph Plant Physiology Building
- RH Royce Hall
- TEB 1 } Temporary Engineering
- TEB 2 } Buildings
- URS University Elementary School
- UNS University Nursery School
- Viv Vivarium
- WG Women's Gymnasium
- 5A, 5B, } University Extension
- 5C }

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CALENDAR, 1956-1957

FALL SEMESTER

1956

- Aug. 1, Wednesday Applications for admission to graduate standing in the fall semester, with complete credentials, must be filed on or before this date. (For Engineering and Nursing the deadline is July 15 but it is recommended that applications for Engineering be filed by June 15.)
- Aug. 1, Wednesday Last day to file applications for readmission in graduate standing by students returning after an absence.
- *Aug. 15, Wednesday Applications for admission to undergraduate standing in the fall semester, with complete credentials, must be filed on or before this date (April 24 for the College of Engineering, and July 15 for the registered nurses' program in the School of Nursing).
- Aug. 22, Wednesday Last day to file applications for readmission in undergraduate standing by students returning after an absence (August 15 for students in the College of Engineering).
- Sept. 4, Tuesday }
Sept. 8, Saturday } Counseling of students.
- Sept. 5, Wednesday }
Sept. 5, Wednesday } Examination in Subject A.
Sept. 5, Wednesday } Examination in English for foreign students.
- Sept. 10, Monday Fall semester begins.
- Sept. 10, Monday }
Sept. 10, Monday } Registration of all students who did not register by mail. For
Sept. 12, Wednesday } details, see *Registration Circular* and official bulletin boards.
- Sept. 14, Friday Special examination in Subject A.
- Sept. 17, Monday Instruction begins.
- Sept. 27, Thursday Last day to file applications for foreign language screening tests to be given October 18.
- Sept. 28, Friday Last day to file registration books or to change study lists *without fee*.
- Oct. 1, Monday Last day to file applications for advancement to candidacy for the master's degree to be conferred in January, 1957.
- Oct. 2, Tuesday Last day to add courses to study lists.
- Oct. 2, Tuesday Last day to file registration book without penalty of lapse in status as a student in the University.
- Oct. 13, Saturday Foreign language screening tests.
- Oct. 20, Saturday Last day to file *without fee notice* of candidacy for the bachelor's degree to be conferred in January, 1957.
- Oct. 22, Monday }
8:00 p.m. } Last day to drop courses from study lists without penalty of grade F (failure).
- Nov. 10, Saturday End of mid-term period.
- Nov. 22, Thursday }
Nov. 23, Friday } Thanksgiving holiday—academic and administrative holiday.
- Nov. 22, Thursday }
Nov. 24, Saturday } Fall recess.
- Nov. 26, Monday Last day to file in final form with the committee in charge theses for the doctor's degree to be conferred in January, 1957.
- Dec. 8, Saturday Last day to file notice of candidacy for the bachelor's degree to be conferred in January, 1957.
- Dec. 19, Wednesday }
Jan. 1, Tuesday } Christmas recess.
- Dec. 24 and 25, }
Monday and Tuesday } Christmas holiday—academic and administrative holiday.
- Dec. 31 and Jan. 1, }
Monday and Tuesday } New Year's holiday—academic and administrative holiday.

* April 14, Saturday, qualifying examinations for admission to the College of Engineering in the fall semester, 1956.

1957

Jan. 2, Wednesday	Classes resume.
Jan. 2, Wednesday	Last day to file in final form with the committee in charge theses for the master's degree to be conferred in January, 1957.
Jan. 12, Saturday	Instruction ends.
Jan. 14, Monday	} Final examinations, fall semester.
Jan. 23, Wednesday	
Jan. 24, Thursday	Fall semester ends.

1956

SPRING SEMESTER

Dec. 1, Saturday	Applications for admission to graduate standing in the spring semester, with complete credentials, must be filed on or before this date.
Dec. 1, Saturday	Last day to file applications for readmission in graduate standing by students returning after an absence.

1957

Jan. 9, Wednesday	Last day to file applications for readmission in undergraduate standing by students returning after an absence.
Jan. 10, Thursday	Last day for resident students to file applications for undergraduate scholarships for the academic year 1957-1958.
*Jan. 15, Tuesday	Applications for admission to undergraduate standing in the spring semester, with complete credentials, must be filed on or before this date (December 18 for the College of Engineering, and January 1 for the registered nurses' program in the School of Nursing).
Jan. 21, Monday	} Counseling of students.
Jan. 26, Saturday	
Jan. 26, Saturday	} Examination in Subject A. } Examination in English for foreign students.
Jan. 28, Monday	
Jan. 29, Tuesday	} Registration of all students who did not register by mail. For details, see <i>Registration Circular</i> and official bulletin boards.
Jan. 30, Wednesday	
Feb. 1, Friday	Special examination in Subject A.
Feb. 4, Monday	Instruction begins.
Feb. 7, Thursday	Last day to file applications for foreign language screening tests to be given February 23.
Feb. 15, Friday	Last day to file registration books or to change study lists <i>without fee</i> .
Feb. 18, Monday	Last day to file applications for advancement to candidacy for the master's degree to be conferred in June or in August, 1957.
Feb. 19, Tuesday	Last day to add courses to study lists.
Feb. 19, Tuesday	Last day to file registration book without penalty of lapse in status as a student in the University.
Feb. 20, Wednesday	Last day to file applications for fellowships and graduate scholarships tenable at Los Angeles for 1957-1958.
Feb. 22, Friday	Washington's Birthday—academic and administrative holiday.
Feb. 23, Saturday	Foreign language screening tests.
Mar. 1, Friday	Last day for entering students to file applications for undergraduate scholarships or for Alumni Association scholarships for the academic year 1957-1958.
Mar. 11, Monday 3:00 p.m.	} Last day to drop courses from study lists without penalty of grade F (failure).
Mar. 16, Saturday	
Mar. 23, Saturday	Last day to file <i>without fee</i> notice of candidacy for the bachelor's degree to be conferred in June, 1957.
Apr. 5, Friday	End of mid-term period.
Apr. 18, Thursday	} Last day to file in final form with the committee in charge theses for the doctor's degree to be conferred in June, 1957.
Apr. 20, Saturday	
	} Spring recess.

* December 8, 1956, Saturday, qualifying examinations for admission to the College of Engineering in the spring semester, 1957. For admission in the fall semester, 1957, these examinations will be held on April 13, 1957, Saturday.

Apr. 29, Monday	Last day to file with the committee in charge theses for the master's degree to be conferred in June, 1957.
May 4, Saturday	Last day to file notice of candidacy for the bachelor's degree to be conferred in June, 1957.
May 22, Wednesday	Instruction ends.
May 23, Thursday	Last day to file with the Dean of the Graduate Division completed copies of theses for the master's degree to be conferred in June, 1957.
May 24, Friday	} Final examinations, spring semester.
June 4, Tuesday	
May 30, Thursday	Memorial Day—academic and administrative holiday.
June 5, Wednesday	Spring semester ends.

THE REGENTS OF THE UNIVERSITY

REGENTS EX OFFICIO

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Governor of California and President
of the Regents
State Capitol, Sacramento 14

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Lieutenant-Governor of California
State Capitol, Sacramento 14

LUTHER H. LINCOLN
Speaker of the Assembly
4000 Redwood rd, Oakland 19

ROY E. SIMPSON, M.A., Litt.D.
State Superintendent of Public
Instruction
721 Capitol av, Sacramento 14

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Agriculture

902 River lane, Santa Ana
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President of the Mechanics' Institute
804 Mechanics' Institute bldg,
San Francisco 4

CYRIL O. NIGG, A.B.
President of the Alumni Association of
the University of California
500 Muirfield rd, Los Angeles

**ROBERT GORDON SPROUL, B.S., LL.D.,
Litt.D.**
President of the University
250 Administration bldg, Berkeley 4
208 Administration bldg, Los Angeles 24

APPOINTED REGENTS

The term of the appointed Regents is sixteen years, and terms expire March 1 of the years indicated in parentheses. The names are arranged in the order of original accession to the Board.

EDWIN W. PAULEY, B.S. (1970)
717 N Highland av, Los Angeles 88

BRODIE E. AHLPORT, A.B. (1972)
5657 Wilshire Blvd, Los Angeles 86

EDWARD H. HELLER, A.B. (1958)
100 Montgomery st, San Francisco 4

VICTOR R. HANSEN, LL.B. (1962)
Superior Court, Courthouse,
Los Angeles 12

EARL J. FENSTON, A.B. (1964)
504 Helm bldg, Fresno 1

CORNELIUS J. HAGGERTY (1966)
995 Market st, Room 810,
San Francisco 8

JESSE H. STEINHART, A.B., LL.B. (1962)
111 Sutter st, San Francisco 4

**DONALD H. MOLAUGHELIN, B.S., M.A.,
Ph.D., D.Eng. (1966)**
100 Bush st, San Francisco 4

GUS OLSON, B.S. (1960)
Clarksburg

GERALD H. HAGAR, A.B., J.D. (1964)
First Western Bank bldg,
14th and Broadway, Oakland 12

**HOWARD C. NAFFZIGER, B.S., M.S., M.D.
(1968)**
University of California Medical Center,
San Francisco 22

EDWARD W. CARTER, A.B., M.B.A. (1968)
401 S Broadway, Los Angeles 18

MRS. DOROTHY B. CHANDLER (1970)
202 W First st, Los Angeles 58

THOMAS M. STORKE, A.B. (1960)
Santa Barbara News-Press,
De La Guerra plaza, Santa Barbara

MRS. CATHERINE HEARST (1958)
2855 Ralston av, Hillsborough

SAMUEL B. MOSHER, B.S. (1972)
811 W Seventh st, Los Angeles 17

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240 Administration bldg, Berkeley 4

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Business Affairs

250 Administration bldg, Berkeley 4

James M. Miller, B.S.
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Business Affairs

250 Administration bldg, Berkeley 4

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George E. Stevens, Assistant Controller

401 Administration bldg, Berkeley 4

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UNIVERSITY OF CALIFORNIA

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Roy M. Dorcus, Ph.D., *Divisional Dean of Life Sciences, College of Letters and Science.*
C. Martin Duke, M.S., *Assistant Dean for Undergraduate Students, College of Engineering.*
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J. A. C. Grant, Ph.D., *Divisional Dean of Social Sciences, College of Letters and Science.*
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Robert W. Hodgson, M.S., *Dean of the College of Agriculture.*
Donald S. Howard, Ph.D., *Dean of the School of Social Welfare.*
David F. Jackey, Ph.D., *Dean of the College of Applied Arts.*
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Cyril J. O'Donnell, Ph.D., *Assistant Dean for Student Affairs, School of Business Administration.*
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William G. Young, Ph.D., *Division Dean of Physical Sciences, College of Letters and Science.*

THE UNIVERSITY OF CALIFORNIA

FOUNDED 1868

THE UNIVERSITY OF CALIFORNIA is composed of academic colleges, professional schools, divisions, departments of instruction, museums, libraries, research institutes, bureaus and foundations, and the University of California Press, situated on eight different campuses throughout the State, namely: Berkeley, Los Angeles, San Francisco, Davis, Riverside, Mount Hamilton, La Jolla, and Santa Barbara. A list of the divisions on each campus follows*:

I. AT BERKELEY

The Colleges of

Letters and Science

Agriculture

Architecture

Chemistry

Engineering

Pharmacy (first year of the B.S. curriculum)

The Schools of

Business Administration

Criminology

Education

Forestry

Law

Librarianship

Medicine (first year)

Nursing (in part)

Optometry

Public Health (in part)

Social Welfare

The Graduate Division (Northern Section)

University Extension (offering instruction wherever classes can be formed, or anywhere in California by correspondence, and providing lectures, recitals, moving pictures, and other material for visual instruction)

The Agricultural Extension Service

The Agricultural Experiment Station (in part)

The Giannini Foundation of Agricultural Economics

The California Museum of Vertebrate Zoology

The Museum of Paleontology

The Anthropological Museum

The Heller Committee for Research in Social Economics

The Institute of Child Welfare

The Institute of East Asiatic Studies

The Institute of Engineering Research

The Institute of Experimental Biology

The Institute of Geophysics (in part)

*General information about instruction at Berkeley may be obtained by addressing the Registrar, University of California, Berkeley 4; for information about instruction at Los Angeles, address the Office of Admissions, University of California, Los Angeles 24; for information about instruction at Santa Barbara College, address the Registrar, University of California, Santa Barbara College, Goleta; for information about instruction at Davis, address the Registrar, University of California, Davis; for information about instruction at Riverside, address the Registrar, University of California, Riverside; information concerning the schools and colleges in San Francisco may be obtained by addressing the deans in charge. University publications available to inquirers are listed on page 8 of the cover of this bulletin.

The Institute of Industrial Relations (in part)
 The Institute of Slavic Studies (in part)
 The Institute of Transportation and Traffic Engineering (in part)
 The Bureau of Business and Economic Research (in part)
 The Bureau of International Relations
 The Bureau of Public Administration
 The William H. Crocker Radiation Laboratory
 The University Art Gallery
 The University of California Press
 The University Library

II. AT LOS ANGELES

The Colleges of
 Letters and Science
 Engineering
 Applied Arts
 Agriculture
 Pharmacy (first year of the B.S. curriculum)
 The Schools of
 Business Administration
 Business Administration, Graduate
 Education
 Law
 Medicine
 Nursing
 Public Health (in part)
 Social Welfare
 The Graduate Division (Southern Section)
 The Agricultural Experiment Station (in part)
 The Bureau of Governmental Research
 The Bureau of Business and Economic Research (in part)
 The Institute of Geophysics (in part)
 The Institute of Industrial Relations (in part)
 The Institute of Slavic Studies (in part)
 The Institute of Transportation and Traffic Engineering (in part)
 The University Library
 The Senator William Andrews Clark Memorial Library

III. AT SAN FRANCISCO

School of Medicine (second, third, and fourth years, including the University Hospital and Langley Porter Clinic)
 School of Nursing (in part)
 School of Public Health (in part)
 The George Williams Hooper Foundation (for medical research)
 College of Dentistry
 School of Pharmacy
 California School of Fine Arts
 Hastings College of the Law

IV. AT DAVIS

The College of Agriculture, including the University Farm, the School of Veterinary Medicine, and certain departments of the Department of Agriculture and of the Agricultural Experiment Station
 The College of Letters and Science

V. AT RIVERSIDE

The College of Agriculture, including the Citrus Experiment Station
 The College of Letters and Science

VI. AT MOUNT HAMILTON

The Lick Astronomical Department (Lick Observatory)

VII. AT LA JOLLA

The Scripps Institution of Oceanography

VIII. AT SANTA BARBARA

Santa Barbara College

ELSEWHERE

In addition to the principal divisions named above, the University maintains several field stations of the Agricultural Experiment Station in various parts of the State.

ADMINISTRATION

The Regents of the University of California, by authority vested in them by the State constitution, created an academic administrative body called the Academic Senate. The Senate, subject to the approval of the Regents, determines the conditions for admission, for certificates, and for degrees. It authorizes and supervises all courses of instruction in the academic and professional colleges and schools. It recommends to the Regents all candidates for degrees in course and has general supervision of the discipline of students. The dean or director of a school, college, or other division of the University is entrusted with the duty of assisting the President in the administration of the University, with special reference to the welfare of the particular school, college, or other division concerned, and of the students therein.

UNIVERSITY OF CALIFORNIA, LOS ANGELES

HISTORY AND DEVELOPMENT

IN MARCH, 1881, the legislature of California created the Los Angeles State Normal School. Five acres of ground were donated at the corner of Fifth Street and Grand Avenue—the present site of the Los Angeles City Library. Instruction was begun in August, 1882, with a faculty of three teachers and an enrollment of sixty-one students.

Following a legislative appropriation in 1911, a new site of twenty-five acres on North Vermont Avenue was obtained for the Normal School. The School was moved into its new quarters in September, 1914, where it existed without change in name until the summer of 1919.

Through legislative action made effective by the Governor's signature on July 24, 1919, the grounds, buildings, and records of the Los Angeles State Normal School were transferred to The Regents of the University of California. In September of that year, university instruction was begun under the name Southern Branch of the University of California. The educational facilities were expanded to include the freshman and sophomore years in Letters and Science beginning with September, 1919; the third and fourth years with September, 1923 and 1924, respectively. In 1922 the teacher-training courses were organized as a Teachers College.

On February 1, 1927, the name of the institution was changed to UNIVERSITY OF CALIFORNIA AT LOS ANGELES.

The University now occupies a new physical plant upon a campus of three hundred and eighty-four acres which was bought and presented to the University by the cities of Santa Monica, Venice, Beverly Hills, and Los Angeles. The removal to the new site from North Vermont Avenue took place in August, 1929, and instruction in all departments was begun in the new buildings on September 23, 1929.

By action of the Regents, work in the College of Agriculture was established at Los Angeles in November, 1930. The College of Business Administration was established in June, 1935, with instruction beginning in September, 1936; the College of Applied Arts and the School of Education were established July 1, 1939.

On August 8, 1933, graduate study at the University of California, Los Angeles, leading to the degrees of Master of Arts and Master of Science, and to the Certificate of Completion for the general secondary and junior college teaching credentials was authorized by the Regents. Beginning in September, 1936, candidates were accepted for the Ph.D. degree. In September, 1941, candidates for the degree of Doctor of Education were accepted.

Since that date there have been established a College of Engineering, Schools of Law, Medicine, Nursing, Public Health, Social Welfare, and a Graduate School of Business Administration.

SITE OF THE CAMPUS—CLIMATE

The Los Angeles campus of the University of California is situated on the lower south slope of the Santa Monica Mountains which overlook Hollywood and the western part of Los Angeles; the Pacific Ocean, visible from the grounds, is five miles distant in a direct line. The warmest month of the year is August, with a mean temperature of about 68°; the coolest is January, with a mean temperature of 49°; the annual rainfall, which falls mostly between December and March, is about 15 inches. Proximity to the ocean insures an even temperature without extremes; the daily range of variation is about fifteen degrees.

The University campus is within the corporate limits of the city of Los Angeles, west of Beverly Hills. It extends along the south side of Sunset Boulevard from Hilgard Avenue to Veteran Avenue, and is bounded on the south by LeConte and Gayley avenues; automobiles should turn south from Sunset Boulevard at Hilgard Avenue, or north from Wilshire Boulevard at Westwood Boulevard.

The campus may be reached by bus as follows: from *Los Angeles* business district (Fifth and Hill streets), Metropolitan Coach Lines, via Wilshire Boulevard, and Metropolitan Coach Lines Beverly-Sunset boulevards University bus line. From *Los Angeles*, western terminus of Pico car line, Santa Monica Municipal Bus Lines, via Pico and Westwood boulevards. From *Hollywood* (North Vermont Avenue and Hollywood Boulevard), Metropolitan Coach Lines, via Hollywood and Sunset boulevards. From *Santa Monica*, Metropolitan Coach Lines, via Wilshire Boulevard, and Santa Monica Municipal Bus Lines, via Santa Monica Boulevard.

Students coming to Los Angeles by rail may ordinarily obtain tickets and check baggage to West Los Angeles without additional cost if done at the time the railroad ticket is purchased. The cost of carfare and baggage transfer from Los Angeles is thereby considerably reduced.

SURVEY OF CURRICULA

Instruction at the University of California, Los Angeles, is offered in (a) the College of Letters and Science, with curricula leading to the degree of Associate in Arts, Bachelor of Arts, and Bachelor of Science; also, the following preprofessional curricula: prebusiness, precriminology, pre dental, pre dental hygiene, premedical, and prepharmacy; (b) the College of Applied Arts, with curricula leading to the degrees of Associate in Arts, Bachelor of Arts, and Bachelor of Science; also, the following preprofessional curricula: prenursing, preoccupational therapy, preoptometry, and prepublic health; (c) the College of Engineering, with curricula leading to the degree of Bachelor of Science; (d) the College of Agriculture, with curricula leading to the degree of Bachelor of Science; (e) the College of Pharmacy, offering the first year of the B.S. curriculum; (f) the School of Business Administration, with curricula leading to the degree of Bachelor of Science; (g) the School of Public Health, with curricula leading to the degree of Bachelor of Science; (h) the School of Nursing, with curricula leading to the degree of Bachelor of Science; (i) the School of Law, with a curriculum leading to the degree of Bachelor of Laws; and (j) the School of Medicine with a curriculum leading to the degree of Doctor of Medicine. Students electing certain curricula in the College of Agriculture may register at Los Angeles for the first two years and then transfer to Berkeley or Davis to complete the requirements for the degree. The School of Education at Los Angeles supervises curricula leading to the Certificate of Completion for the various elementary and secondary teaching credentials, and for the administrative credential. Graduate study, leading to the degrees of Master of Science, Master of Arts, Master of Business Administration, Master of Education, and Master of Social Welfare, and to the degrees of Doctor of Philosophy and Doctor of Education, also is available at the University of California, Los Angeles.

THE UNIVERSITY LIBRARY

The University Library has approximately 1,175,000 accessioned volumes and regularly receives about 14,750 periodicals and newspapers.

In the Main Library, books, except for bound periodicals, circulate for a three-week period. Circulation rules are posted in the library. All graduate students have access to the book stacks on presentation of registration cards.

Undergraduate honor students are admitted to the stacks on presentation of registration cards properly stamped by the Registrar's Office.

An open-shelf collection of materials of interest primarily to undergraduate students is available in the Undergraduate Library in the Main Library Building.

The Graduate Reading Room provides special study facilities for graduate students, and assigned seats are available here to a limited number of students; application should be made to the librarian in charge of the room.

The Main Library's Department of Special Collections contains rare books and rare and early pamphlets, maps, manuscripts, the University Archives, and back files of newspapers.

The Government Publications Room in the Main Library is a depository for the official publications of the United States Government, the United Nations and certain of its specialized agencies, and the State of California, and also maintains extensive supplementary collections of official publications.

Branch libraries in Agriculture, Art, Biomedicine, Chemistry, Education, Engineering, English, Geology, Home Economics, Industrial Relations, Meteorology, Music, Physics, Theater Arts, and the University Elementary School are housed in the quarters of their respective departments. The Biomedical Library, situated in the east wing of the Medical Center, serves the schools of Medicine, Nursing, and Public Health and the departments of Bacteriology and Zoology. Hours are posted and also listed in the library handbook, *Know Your Library*. Branch libraries serve primarily the schools and departments in which they are situated, but their resources are available to all students and faculty of the University.

The Law Library is housed in the Law Building and serves all students and faculty of the University. Hours of service are the same as those of the University Library.

Supplementing the University Library is the William Andrews Clark Memorial Library* of about 66,000 books, pamphlets, and manuscripts, featuring English culture of the seventeenth, eighteenth, and nineteenth centuries, and the history of Montana. Materials in the library do not circulate, and admission is by card only, application for which should be made to the University Librarian. Leaflets descriptive of the Clark Library are available upon application to the University Librarian.

UNIVERSITY EXTENSION

University Extension, as the community service agency of the University, offers classes, conferences and services to the people of the State who wish some form of higher education but cannot take up residence at the University.†

An increasing number of Extension courses are offered for persons who wish to advance themselves professionally. Of special interest are classes and conferences in the fields of medicine, dentistry, engineering, law, business administration, education and industrial relations.

In addition, University Extension gives a large number of courses designed primarily for intellectual and cultural interest in the arts, social sciences, and other fields. A special program of discussion groups in the liberal arts is currently available.

Veterans may use the educational benefits available to them under Federal and State laws to enroll in University Extension courses, provided the classes

* This library is not on the University campus but is situated at 2205 West Adams Boulevard (Telephone RE 3-5925). From the Los Angeles campus, it may be reached by Metropolitan Coach Lines bus to Western Avenue transferring to the "34" bus of the Los Angeles Transit Lines; from downtown, by the "11" bus of the Los Angeles Transit Lines. The library is open Mondays through Saturdays from 8:00 A.M. to 5:00 P.M.

† For information concerning admission to the University through Extension courses given on the Los Angeles and Berkeley campuses, see page 12 C.

are part of their prescribed and recognized objectives approved by the Veterans Administration.

University Extension provides six major services:

1) **Class Instruction.** Classes are organized in any community of the State where a sufficient number of persons indicate interest in a particular subject. The state-wide Extension organization offers courses in over 40 fields. These include art, business administration, economics, education, engineering, geography, history, languages, law, literature, mathematics, medicine, music, political science, psychology, real estate, science, speech and many others. Applicants for admission to the University may remove entrance deficiencies by means of a program of Extension courses approved in advance by the Director of Admissions (see page 12 C).

2) **Correspondence Instruction.** Courses prepared by faculty members of the University are given by mail in a wide variety of subjects.

3) **Lectures.** Lectures, singly or in series, may be arranged for community organizations and clubs.

4) **Visual Instruction.** Motion pictures, from the large library of 16 millimeter educational films maintained by University Extension, are available for loan to all persons in the State, either individuals or groups. Educational and documentary films produced under the supervision of the Department of Theater Arts may be purchased through the Educational Film Sales Department.

5) **Conferences.** Workshops, institutes and conferences, for periods ranging from one day to several weeks, provide intensive instruction for groups interested in pursuing specialized knowledge under the leadership of experts in theory and practice.

6) **Vocational Counseling.** Persons who wish guidance in choosing a vocation, or in changing their work, may take advantage of University Extension's Counseling and Testing Services, now available to the general public.

For detailed information, write or telephone to University Extension, University of California, Los Angeles 24 (BRadshaw 2-6161 or GRanite 3-0971, extension 721), or 813 South Hill Street, Los Angeles 14 (TUcker 6123); or University Extension, University of California, Berkeley 4.

ADMISSION TO THE UNIVERSITY

STUDENT STATUS

THE STUDENTS who are admitted to the University of California, Los Angeles, fall into two groups: undergraduates, and graduate students.

The undergraduates fall again into two groups: the regular students, and the special students.

The regular students are persons who have met all the requirements for admission to the University as set forth below. Regular students normally are pursuing, within the University, programs of study that comply with the established rules and regulations and lead to the degrees of Associate in Arts, Bachelor of Arts, or Bachelor of Science. An irregular program must be approved by the dean of the student's college.

The special students are those persons twenty-one years of age or over who have not had the opportunity to fulfill the requirements laid down for the admission of regular students. Each student in this group is admitted only after special consideration. (See page 16 C.)

Graduate students are of two designations: those in regular graduate status, and those in unclassified graduate status. Regular graduate students are graduates of this University or of other institutions with equivalent requirements for graduation, who are carrying on advanced (graduate) work for higher degrees or teaching credentials. Unclassified graduates are those who have received a recognized degree and who wish to complete preparation necessary for acceptance in regular graduate status; students so designated may take undergraduate courses only. Detailed information concerning admission to each student status is given on the following pages.

ADMISSION IN UNDERGRADUATE STATUS

An applicant who wishes to enter the University must fulfill the requirements for admission, as set forth below. (These requirements apply for the Los Angeles, Berkeley, Davis, and Riverside campuses of the University.) Application blanks may be obtained from the Office of Admissions, 100 Administration Building, University of California, Los Angeles 24. The application should be filed during the semester preceding that for which the applicant wishes to register and must be filed not later than August 15 for the fall semester, or January 15 for the spring semester. Every applicant for admission is required to pay a fee of \$5 when the first application is filed. Remittance by bank draft or money order should be made payable to The Regents of the University of California.

A satisfactory certificate of vaccination must be presented by each accepted applicant at the time he appears for the required physical examination before registration. A suitable form will be provided by the Office of Admissions. The Regents of the University permit no exceptions to this requirement, except deferment for a short period because of illness. Requests for such deferment should be made to the Student Health Service.

The University of California bases its entrance requirements on two principles: first, that the best guarantee of success in the University is high quality of scholarship in previous work, and second, that the study of certain specified subjects will give to the student both good preparation for the work of the University and reasonable freedom of choice of a major field of study after his entrance. These principles apply to admission in either freshman or advanced standing.

ADMISSION IN FRESHMAN STANDING

An applicant who has attended a junior college, four-year college, university, extension division of college level, or any comparable institution is subject to regulations governing admission in advanced standing (see page 13 C). Such college attendance may not be disregarded, whether or not any courses were completed.

Admission on the Basis of the High School Record

The applicant must file with the Admissions Office a regular application, on or before the last date for the receipt of applications for the semester desired (see above), and must have the secondary schools he has attended send to the Admissions Office complete transcripts of record of all studies undertaken in such schools. The transcripts must show that the applicant has been graduated from an accredited high school.* The Admissions Office will then evaluate the high school record, and the applicant will be eligible for admission if he qualifies under any one of the methods given below. (There are additional requirements for out-of-state students, and for applicants to the College of Engineering. See pages 14 C and 15 C.)

Method I.

Subject Requirements:

- (a) History 1 unit. —This requirement must be satisfied by one unit of United States history or one unit of United States history and civics.
- (b) English 3 units.—These may consist of any six semesters that give preparation in written and oral expression and in the reading and study of literature. Reading and study of contemporary literature may be included. The requirement in English must be satisfied by credit designated "English."
- (c) Mathematics 2 units.—These must consist of two semesters of elementary or advanced algebra; and two semesters of plane geometry, or solid geometry and trigometry.
- (d) Science (with laboratory) . . . 1 unit. —This may consist of a year course in one field of science, namely, biology, botany, chemistry, physics, physical science, physiology, or zoology. The science selected must be an advanced (eleventh or twelfth grade) laboratory science, and the two semesters must be in the same subject field.
- (e) Foreign language 2 units.—These must be in one language.

* An accredited high school in California is one that has been officially designated by the Board of Regents of the University as a school from which students will be admitted to the University without examination on the basis of the record of subjects completed and scholarship attained. The list of accredited schools is published by the University annually in the month of June or July. Accreditation by the University refers to the college preparatory function of the high school and implies no judgment regarding the other educational functions of the school. For information concerning the accrediting of schools, principals may communicate with the Director of Relations with Schools, Berkeley or Los Angeles. For schools outside California, regional or other accrediting agencies are consulted; the University makes the final decision regarding acceptability.

If the high school from which the applicant graduated is not accredited, the Office of Admissions will, upon request, instruct the student regarding the procedure he should follow.

(f) Advanced course chosen from one of the following:

- 1 (or 2) units.—1. Mathematics, a total of 1 unit (second-year algebra, $\frac{1}{2}$ or 1 unit; solid geometry, $\frac{1}{2}$ unit; trigonometry, $\frac{1}{2}$ unit);
2. Foreign language, either 1 additional unit in the same foreign language offered under (e), or 2 units of a different foreign language;
3. One unit of either chemistry or physics, with laboratory, in addition to the science offered under (d) above.

Additional elective units to complete a minimum of 15 standard entrance units.

Scholarship Requirement:

An average grade of B, based on the marking system of four passing grades, in those of the (a) to (f) subjects listed above which were taken in the tenth, eleventh, and twelfth grades. Repetitions of courses passed in the ninth year are not used in computing this average.

Courses taken in the ninth grade and courses used as elective units need show passing grades only.

An A grade in one course will balance a C grade in another. A course, completed after the ninth year, in which a grade of D is received may not be counted either in reckoning the required scholarship or in satisfaction of a subject requirement. Grades are considered on a semester basis, except from schools that give only year grades. Only courses used to meet the (a) to (f) requirements are used in computing the grade average.

Courses originally taken in the tenth, eleventh, or twelfth years and in which a grade of C or lower is received may be repeated to raise grades when approved by the principal of an accredited high school, in an amount not to exceed 2 units of the (a) to (f) pattern. Only the first repetition of a subject will be used to satisfy scholarship requirements although additional repetitions are allowed for the purpose of satisfying a subject requirement.

Method II.

Achieve a scholarship rank in the highest tenth of his graduating class, with a substantial academic preparation, although he need not complete the exact pattern of subjects (a) to (f) listed above.

Method III.

Complete not less than 12 high school units of grade A or B in the work of the tenth, eleventh, and twelfth years with not more than two subject deficiencies in the required list (a) through (f), above.*

Method IV.

Complete not less than 12 high school units with no grade lower than C in work taken in the tenth, eleventh, and twelfth years; and not less than 6 high school units of grade A or B selected from the following 10 units of academic subjects:*

Third- and fourth-year English.

Third- and fourth-year mathematics.

Third- and fourth-year laboratory science.

Third- and fourth-year foreign language.

Third- and fourth-year history or social science of which one must be United States history.

* Grades earned in courses such as physical education, study period, work experience, military science, R.O.T.O., and religion are not to be counted under this method.

Method V.**Experimental Plans of Admission:**

(a) Agricultural Experimental Plan (applicable September, 1952, through September, 1958). Applicants for admission to the College of Agriculture will be admitted on a program in which two years of science and/or mathematics additional to those used in satisfaction of the (c), (d) and (f) requirements of Plan I or two years' credit in high school agriculture or home economics may be substituted for the foreign language requirements. Under this plan, A grades received in agriculture or home economics may not be used to balance C grades in other required subjects. A student admitted under this plan must realize that if, after registration in the College of Agriculture, he wishes to transfer to another college of the University, he must meet the admissions requirements of that college.

(b) Experimental Plan of Admission (applicable September, 1953, through September, 1959). University authorities believe that high school students who follow the regular (a) to (f) pattern of subjects outlined above, together with the additional subjects recommended for particular majors will be well prepared for work in the University. However, the University does not wish to exclude a student who has followed a program of university preparatory studies recommended to him by his high school and will therefore admit an applicant on a grade B or higher average scholarship in a different program of University preparatory studies provided such a program has been previously filed with, and approved by, the Board of Admissions and Relations with Schools.

In addition to the foregoing methods, the Board of Admissions and Relations with Schools authorizes from time to time experimental programs to test the validity of suggested procedures. Information about these programs is communicated promptly to school authorities in California by the Director of Relations with Schools. Also the Director of Admissions is charged by the Board with the authority and responsibility of waiving minor deficiencies when justification is evident in the form of unusual academic transcripts of record or recommendations.

Responsibility of High School Authorities

The responsibility for the granting of certificates to high school students lies with the high school authorities, and students naturally will be guided by their respective principals in making their preparation for entrance to the University.

Upon the high school authorities rests also the responsibility for determining the scope and content of courses preparatory to admission to the University and for certifying each course to the University.

Preparation for University Curricula

In addition to those subjects required for admission to the University (outlined, beginning on page 9C), certain preparatory subjects are recommended for each University curriculum which, if included in the high school program, will give the student a more adequate background for his chosen field of study. In some cases, lack of a recommended high school course will delay graduation from the University. Details of these recommendations will be found in the circular, **PREREQUISITE AND RECOMMENDED SUBJECTS**, which may be obtained from the Director of Relations with Schools, University of California, Los Angeles 24.

Admission by Examination†

The University of California does not itself offer entrance examinations, but accepts on all campuses the results of examinations given by the Educational

† Admission by examination, except in the case of mature persons, is not open to those who have not graduated from high school.

Testing Service for the College Entrance Examination Board. Information about dates and places of examination may be secured from the Educational Testing Service, P. O. Box 592, Princeton, New Jersey, or P. O. Box 27896, Los Feliz Station, Los Angeles 27, California. Definite arrangements to take the tests must be made with the Board at least four weeks previous to the date of the tests. If the applicant has completed all of the subjects in the (a) to (f) list with grades of C or better, but is deficient in the scholarship average, he may clear his admission requirements by a satisfactory score on the Scholastic Aptitude Test and on three achievement tests in subject fields. If the (a) to (f) list of subjects has not been completed with grades of C or better, the applicant should consult the Admissions Office in regard to the tests he must take. If the high school from which the applicant graduated was unaccredited, he may offer an approved pattern of examinations, and he should consult the Admissions Office regarding the tests he should take.

Removal of High School Admission Deficiencies

Deficiencies in high school scholarship or subject requirements must be removed by examination (see above) or additional studies before admission is approved.

The applicant whose only deficiency arises from not having studied a required subject may remove the deficiency by a satisfactory grade in a course acceptable for that purpose taken in an accredited junior college or four-year college (regular or summer session), in University Extension or Summer Session, or by means of postgraduate high school courses. A satisfactory scholarship average must be maintained in other courses pursued in the meantime. Subject shortages may also be cleared by College Entrance Examination Board Examinations assigned in individual cases by the Admissions Office. As an alternative to making up high school subject deficiencies, an applicant from a California junior college or state college may be admitted on the basis of a record showing completion of at least 60 units of college-level work of at least C average, in which are included all the subjects required for junior standing in a school or college of the University.

The applicant whose deficiency is caused by low scholarship, or by a combination of low scholarship and incomplete subject preparation, may remove his deficiencies as follows:

1. By college courses of appropriate content and amount completed with satisfactory scholarship in junior colleges,* or state colleges of California, or in other approved colleges. (See note below on approved Extension courses outside the University of California.) The applicant must include in the units presented courses acceptable for removing his subject shortages, and present either:

- (a) Fifteen units or more of transfer courses with a grade-point average of at least 1.5, or
- (b) Thirty units or more of transfer courses with a grade-point average of at least 1.3, or
- (c) Without necessarily including courses to remove his subject shortages, 60 units or more of transfer courses which include all the published requirements for junior standing in a college or school of the University, with an average grade of at least C.

2. By college courses in one of the three following divisions of the University of California:

- (a) *University Extension*: University Extension offers both class and correspondence courses. At Berkeley and at Los Angeles special programs of class courses are offered for students attempting to remove admis-

* After a student has earned 70 units acceptable toward a degree, from any source whatever, no further unit credit will be granted for courses completed at a junior college.

sion deficiencies. Only students with 5 units or less of scholarship deficiencies in their high school records are eligible for the special programs. Other courses, class or correspondence, are not restricted, but the applicant should have all courses he undertakes approved in advance by the Office of Admissions to insure that they will be acceptable. To make up deficiencies in scholarship, grades received in this program must be definitely above the grade C average, and must serve, not merely as specific make-up deficiencies, but also as a demonstration of ability to do college work successfully.

(b) *Combination Program of the College of Agriculture at Davis.*—For high school graduates with not more than three subject deficiencies, among which algebra or geometry may not be included, a Combination Program is offered at the College of Agriculture of the University of California at Davis. Students cannot remove entrance deficiencies in the Two-Year Curriculum (nondegree courses). See PROSPECTUS OF THE COLLEGE OF AGRICULTURE.

(c) *Summer Session:* For students with only one or two deficiencies, a six-week summer session or an eight-week summer session of the University of California or of an approved university, college, or junior college may be used to make up shortages, providing the record is received in time for clearance. Summer session programs should be approved in advance by the Office of Admissions.

3. By postgraduate courses in an accredited high school, if the deficiency is due to omission of subject matter but not if the deficiency is due to poor scholarship.

4. By College Entrance Examination Board Examination (see previous section under Admission by Examination).

ADMISSION IN ADVANCED STANDING

(Nonresidents see "Limitation of Enrollment of Out-of-State Applicants," page 15 C.)

(1) An applicant for admission to the University in advanced standing who was eligible for admission in freshman standing or whose only deficiency arose from not having studied one or more required subjects must present evidence that:

(a) He has satisfied, through either high school or college courses, the subjects required for admission of high school graduates in freshman standing.

(b) His advanced work, in institutions of college level, has met the minimum scholarship standard required of transferring students (namely an average of grade C or higher in all college courses undertaken, including at least a C average in the last institution attended).

(c) He is entitled to return as a student in good standing to the last college attended.

(2) If an applicant for admission to the University in advanced standing was ineligible at the time of high school graduation because of low scholarship or a combination of low scholarship and incomplete subject preparation, see section "Removal of Admission Deficiencies" above.

As an integral part of the system of public education of California, the University of California accepts at full value approved transfer courses completed with satisfactory grades in the public junior colleges of the State; students who intend to complete their advanced studies at the University will frequently find it to their advantage to complete the first two years of their college course in one of the many excellent California public junior colleges.

The student should bear in mind, however, that after he has earned 70 units

acceptable on a degree (except credit allowed for military service and training), no further unit credit will be granted for courses completed at a junior college. Courses for which credit is, for this reason, not granted may be used to satisfy admission requirements or to satisfy lower division subject requirements of a college or school of the University, but this situation obviously should be avoided if possible.

College credit for appropriate courses completed in fully accredited institutions of collegiate grade is acceptable at full value by the University of California. However, no applicant may receive transfer credit in excess of an average of 18 units per semester.* In all cases, final authority regarding the granting of advanced standing credit rests with the Board of Admissions and Relations with Schools and each college or school of the University determines what advanced standing allowed may actually be used to satisfy requirements for the degree.

An applicant may not disregard his college record and apply for admission in freshman standing; he is subject without exception to the regulations governing admission in advanced standing. He should ask the registrars of all preparatory schools and colleges he has attended to forward complete official transcripts direct to the Office of Admissions. A statement of honorable dismissal from the last college attended must also be sent.

Extension courses at other institutions. Extension courses taken through some institution other than the University of California may not be acceptable. The decision as to their acceptability rests with the Office of Admissions. It is wise to have such a program approved in advance by the Office of Admissions, if the intention is to apply such courses toward a degree at the University of California.

Subject A: English composition. Credit for Subject A (English composition) is given upon certificate to those students who enter the University with credentials showing the completion elsewhere of the required training in composition or with a satisfactory score in the College Entrance Examination Board Achievement Test in English Composition. Of all other students, an examination by this University, at Los Angeles or at other centers of instruction, is required (see further statement, page 22 C). The Subject A requirement need not be satisfied prior to admission.

Surplus matriculation credit. There is no provision for advanced standing in the University on the basis of surplus high school credit.

Credit for experience. No university credit is given for experience, even though the work may have been closely related to University courses. No University credit is given for teaching experience. Students presenting evidence of successful teaching experience may substitute approved courses in education for part or all of the regular requirements in supervised teaching upon the recommendation of the Director of Training.

Removal of Scholarship Deficiencies by Applicants from Other Colleges

Applicants otherwise eligible who seek to transfer from other institutions of collegiate rank but whose college records fail to show a satisfactory scholarship average may be admitted only when the deficiency has been removed by additional work completed with grades sufficiently high to offset the shortage of grade points. This may be accomplished by work in other approved higher institutions, in Summer Sessions, or in University Extension, except in the Admissions Program. (Attendance in the Admissions Program is limited to those whose scholarship warrants it.)

SPECIAL REQUIREMENTS FOR ENGINEERING AND BUSINESS ADMINISTRATION

Engineering. An engineering qualifying examination must be taken by all applicants for admission to the College of Engineering at either the freshman

* Transfer credit from a summer session is similarly restricted in proportion to the length of the session.

or junior level. The lower division test is primarily an aptitude test, but presumes that the student has had the required subjects in high school, particularly those in mathematics through trigonometry, physics or chemistry, mechanical drawing, and English. No preparation beyond successful completion of the high school courses is required. One unit of high school mechanical drawing or the equivalent is required for admission to the College of Engineering.

The upper division examination is based on the subject matter of the pre-engineering and engineering courses given in the first two years and presumes the completion of mathematics through integral calculus, general college chemistry, general college physics, descriptive geometry, English, and engineering drawing.

Out-of-state applicants are permitted to use the engineering examination both for the engineering requirement and for the nonresident examination requirement (see below).

Business Administration. To be admitted to the School of Business Administration, students must have attained junior standing, and at least a C average in one of the colleges of the University of California, or the equivalent elsewhere. After July 1, 1957, applicants should be prepared to meet a minimum grade-point average for admission of 1.1 in courses taken in the University of California or the equivalent in courses taken elsewhere. Applicants must file both the regular application for admission to the University and the application for acceptance by the School of Business Administration.

LIMITATION OF ENROLLMENT OF OUT-OF-STATE APPLICANTS

It has been necessary to place some limitation on the enrollment of non-residents of California and only those of exceptional promise will be eligible for admission. In addition to the normal admission requirements (see sections on Admission on the Basis of High School Records and Admission in Advanced Standing), the following special regulations apply to nonresident applicants. (Children of alumni of the University of California and residents of Hawaii are not subject to the special nonresident requirements for admission.)

Lower Division: Applicants directly from high school or with less than 60 semester units of acceptable college credits may be admitted to the freshman or sophomore class if they meet the following out-of-state scholarship requirement and present a satisfactory score on one of the scholastic aptitude tests.

1. Out-of-State Scholarship Requirement:

A. High School:

2.3 average in the subjects required for admission, if taken in secondary schools accredited by a state university or a regional association.

2.5 average in the subjects required for admission, if taken in secondary schools accredited by other agencies.

B. Advanced Standing:

A scholarship record of not less than 1.7 is required on any college work undertaken if the applicant is in advanced standing (has done college work) but presents less than 60 semester units of acceptable college credits (1 unit of A counts 3 grade points, 1 unit B counts 2 grade points, 1 unit C counts 1 grade point, D and F no grade points). An applicant who has completed less than 15 quarter or 12 semester units of college work must, in addition, meet the minimum high school scholarship as stated above.

2. Out-of-State Examination: A properly certified record of standing must be presented on one of the following examinations:

A. College Entrance Examination Board Scholastic Aptitude Test:

Arrangements to take the C.E.E.B. test must be made through the

Educational Testing Service, Box 592, Princeton, New Jersey, or Box 27896, Los Feliz Station, Los Angeles 27, California.

B. American Council on Education Psychological Examination, College Level:

Arrangements to take the college level ACE Examination may be made either through the applicant's own school or through the Office of Admissions of the University of California. In contacting the Office of Admissions, please submit the name and address of a responsible school official who has agreed to administer the examination. Please do not attempt to make arrangements to take the examination through the University until your formal Application for Admission to the University is on file.

Upper Division: Applicants who present 60 or more semester units of acceptable college credits, according to the evaluation by the Office of Admissions, are classified as juniors or seniors. Junior and senior applicants who have satisfied the high school scholarship (page 10 C) requirement must present a college scholarship average of at least 1.0. If the high school scholarship average has not been satisfied the applicant must present a college scholarship average of at least 1.3 unless he meets the requirement for upper division standing in a college or school of the University.

ADMISSION OF RETURNING MEMBERS OF THE ARMED FORCES

Some exceptions in the subject requirements for admission will be made for men and women who were for at least one year members of the armed forces of the United States, during or since World War II. Such exceptions will apply, however, only when the scholarship record is high enough to indicate probable success in the University. Veterans whose scholastic records are good, whose high school subject deficiencies total not more than three units, are encouraged to make application, even though they may not have all of the usual requirements. Such a veteran with a good scholarship record but with a limited number of subject deficiencies, may, if he is over 21 years of age, be classified as a special student until deficiencies are removed, or until all the requirements for junior standing in the college of his choice have been completed.

Veterans who apply and are not eligible for admission to either regular or special status will, upon request, be given programs of work in University Extension or in junior college designed to prepare them for University work.

ADMISSION OF SPECIAL STUDENTS

Special students are students of mature years who have not had the opportunity to complete a satisfactory high school program, but who, by reason of special attainments, may be prepared to undertake certain courses in the University. The conditions for the admission of each applicant under this classification are assigned by the Associate Director of Admissions. Ordinarily, a personal interview is required before final action can be taken.

Regulations regarding admission of veterans to special status are given above.

A nonveteran applicant will be admitted to special status only if he has a definite and restricted objective, requiring courses not available elsewhere, and if the Associate Director of Admissions, the college, and the department or departments concerned are satisfied that he can profitably undertake the courses he desires. Admission of a nonveteran to special status is rarely granted for more than one semester and is never granted for the purpose of making up deficiencies for admission to regular status. Such deficiencies must be made up as provided for in the sections entitled, respectively, Removal of High School Admission Deficiencies (page 12 C) and Removal of Scholarship Deficiencies by Applicants from Other Colleges (page 14 C).

Students are not admitted to special status for the sole purpose of taking elementary courses in art, music, theater arts, or in a foreign language. A nonveteran special student cannot be a candidate for a degree. He may, of course, attain the status of regular student by satisfying all the matriculation requirements for admission to the University as provided above.

Transcripts of record from all schools attended beyond the eighth grade must be submitted. An applicant for special status may be required to take an aptitude test and the examination in Subject A. The Office of Admissions will supply, upon request, the forms of application for admission and for transcripts of high school record.

No person under the age of 21 years will be admitted as a special student, but the mere attainment of any given age is not in itself a qualification for admission.

A nonveteran applicant will not be admitted directly from high school to the status of special student. Graduates of high schools are expected to qualify for admission in accordance with the usual rules.

Students in regular status, if not candidates for degrees, may, if the approval of the proper study-list officer can be secured, pursue elective or limited programs.

The University has no "special courses"; all courses are organized for regular students. A special student may be admitted to those regular courses for which, in the judgment of the instructor, he has satisfactory preparation. *A special student will seldom be able to undertake the work of the engineering and professional colleges or schools until he has completed the prerequisite subjects.*

ADMISSION FROM SCHOOLS AND COLLEGES IN FOREIGN COUNTRIES

The credentials of an applicant for admission from a foreign country, either in undergraduate or graduate standing, are evaluated in accordance with the general regulations governing admission. An application and official certificates and detailed transcripts of record should be submitted to the Office of Admissions several months in advance of the opening of the semester in which the applicant hopes to gain admittance. This will allow time for exchange of necessary correspondence relative to entrance and, if the applicant is admitted, will be of assistance to him in obtaining the necessary passport visa.

An applicant from a foreign country whose education has been conducted in a language other than English may be admitted only after demonstrating that his command of English is sufficient to permit him to profit by instruction in this University. This regulation applies to both undergraduate and graduate foreign students. An applicant's knowledge of English is tested by an oral and written examination given by the University of California. The admission of an applicant who fails to pass this examination will be deferred until such time as he has gained the required proficiency in English.

Language credit for a foreign student. College credit for the mother tongue of a foreigner and for its literature is given only for courses taken in native institutions of college level, or for upper division or graduate courses actually taken in the University of California, or in another English-speaking institution of approved standing.

College of Engineering. Any applicant for admission to the College of Engineering who wishes to satisfy the entrance examination requirement before coming to this country, should take the verbal and mathematical sections of the Scholastic Aptitude Test and the three achievement tests of English composition, intermediate mathematics, and physics, of the College Entrance Examination Board.

Special advisers have been appointed by the President of the University to

assist foreign students in all matters pertaining to their attendance at the University. Every student from another country is urged, upon his arrival at the University, to consult the Foreign Student Adviser, Administration Building.

ADMISSION IN GRADUATE STANDING

As indicated on page 8 C, graduate students may be admitted as regular graduates or as unclassified graduates.

Applications for admission to regular graduate status will be received from graduates of recognized colleges and universities who propose to work for the degree of Master of Arts, Master of Science, Master of Education, Master of Business Administration, Master of Public Administration, or Master of Social Welfare, for the degree of Doctor of Education, or for the degree of Doctor of Philosophy, for the Certificate in Social Welfare or for the certificates of completion leading to the general secondary or junior college teaching credentials, and the supervision and administration credentials. Completed applications with supporting documents *in duplicate* must be in the hands of the Dean of the Graduate Division not later than August 1, 1956, for the fall semester, and not later than December 1, 1956, for the spring semester. Corresponding days will be set for subsequent semesters. Because of the time required to process an application and to prepare the registration forms, applications and/or transcripts received after the deadline date will be considered only as time permits, and in the order received.

The basis of admission to regular graduate status is the promise of success in the work to be undertaken, evidenced largely by the previous college record. In general the minimum requirement is an undergraduate scholarship record equivalent to a 1.5 grade-point average (half way between grades C and B) at the University of California, Los Angeles, in all courses taken in the junior and senior years and in all junior and senior courses in the applicant's proposed major. Notification of acceptance or rejection is sent to each applicant as soon as possible after the receipt of his application. *Applicants are warned not to make definite arrangements for attending the University, on the assumption that they will be accepted for admission, until they have received notification of acceptance.*

An applicant who fails to qualify for regular graduate status may, at the discretion of the Dean of the Graduate Division, be admitted as an *unclassified* graduate student. Unclassified graduate status is considered to be temporary or transitory in character, and will be granted only when the record of the applicant gives promise that his unclassified status can be terminated within a reasonable period of time, either through qualification for regular graduate status or through completion of the objectives stated in his application.

Application is to be made upon the form provided by the Dean of the Graduate Division, and must be accompanied by the application fee (see below); transcripts of previous work must be submitted in accordance with the instructions on the application form.

An application fee of \$5 is required of every student applying for admission to graduate status, even though he may have been in previous attendance at the University in other than graduate status.

GENERAL REGULATIONS

CERTAIN GENERAL REGULATIONS govern residence and study in the academic departments. These regulations, unless otherwise stated, concern both graduate and undergraduate students.

REGISTRATION

Each student registers in the University of California, Los Angeles, at times appointed for this purpose, at the beginning of each semester. Registration covers the following steps: (1) filling out address card, paying fees, and receiving in exchange a card showing that the applicant has been enrolled in the University; (2) enrolling in courses according to instructions which will be posted on the University bulletin boards. All old students, except reentrants, will have an opportunity to register by mail.

Admission and Registration

The student or prospective student should consult the University calendar and acquaint himself with the dates upon which students should register and begin their work at the opening of the sessions.

Prospective students are warned of the necessity of making early application in order that their credentials may be processed in time to permit registration within the scheduled period. New undergraduate students must file applications for admission not later than August 15 for the fall semester (April 24 for the College of Engineering, and July 15 for the registered nurses' program in the School of Nursing), and not later than January 15 for the spring semester (December 18 for the College of Engineering, and January 1 for the registered nurses' program in the School of Nursing). For new graduate students, these dates are August 1 (July 15 for Engineering and Nursing) and December 1, respectively. Graduate students planning to return after an absence must file applications for readmission by the same dates, August 1 or December 1. Undergraduate students planning to return after an absence must file applications for readmission not later than August 22 (August 15 for students in the College of Engineering) for the fall semester and not later than January 9 for the spring semester.

PHYSICAL EXAMINATION

All new students (graduate and undergraduate, including transfer students from other campuses of the University) must appear at the Student Health Service and take a physical examination to the end that the health of the University community, as well as that of the individual student, may be safeguarded. This examination must be taken prior to registration.

All reentrant students and all old undergraduates entering graduate status for the first time are required to report to the Student Health Service for clearance of health record and recheck of certain items in the physical examination.

Before coming to the University, every student is urged to have his own physician examine him for fitness to carry on University work, and to have all defects capable of being remedied, such as dental cavities, defective hearing, or defective eyesight, corrected. This will prevent possible loss of time from studies. Prior to registration in the University, prospective students who have had a diagnosis of active tuberculosis will be required to submit evidence that their disease has become inactive.

STUDENT HEALTH SERVICE

The purpose of the Student Health Service is to conserve the time of the students for their classwork and studies, by preventing and treating acute illnesses and injuries. The services are limited by the staff and facilities available.

Each registered student at Los Angeles may, at need, have such consultations and medical care on the campus as the Student Health Service is staffed and equipped to provide, from the time of payment of his registration fee until the last day of the current semester or the date of his official withdrawal from the University; except that a student who registers by mail may not claim such privileges until the day officially announced as the opening day of the semester.

Hospital care for a period up to thirty days may be given in the event of serious illness, on the recommendation of the Director of the Student Health Service. A student patient who is still in the hospital at the end of the semester will be released to the care of his family or community as soon as this can be done with safety. Also, in the case of illnesses or injuries requiring long-continued care (tuberculosis, mental illness, spinal injury, etc.) where the condition will obviously prevent the student from returning to classes during the current semester, he will likewise be released to the care of his family or community as soon as this can be done safely.

The Student Health Service does not take responsibility for the care of chronic physical defects or illnesses present at the time of entrance to the University as, for example, hernias, chronic bone and joint diseases or deformities, chronic gastrointestinal disorders, uterine fibroids, chronically infected tonsils, tuberculosis, syphilis, malignant diseases, allergic and endocrine disorders, etc. Furthermore, it does not take responsibility for any injury or illness wherein treatment (other than first aid or emergency care) has been initiated elsewhere; nor for providing elective medical or surgical care, where the best interests of the student would be served by treatment during vacation. There is no provision for the fitting of glasses. Industrial injuries covered by workmen's compensation insurance are given no care other than first aid.

Dental service is provided for diagnosis, and for emergencies such as fractures. A limited amount of general dentistry is also available in certain cases where there is some special need as, for example, when a student's family dentist is unavailable because of distance. Charges are made for such general dentistry in accordance with a schedule of fees approved by the President of the University. The Dental Department is not prepared to provide bridges or other extensive prostheses.

MILITARY SCIENCE, NAVAL SCIENCE, AIR SCIENCE, AND PHYSICAL EDUCATION

Upon admission, every undergraduate student in the lower division, man or woman, must, unless officially notified of exemption, report immediately to the proper officer for enrollment in physical education,* in accordance with the directions in the REGISTRATION CIRCULAR or the announcements which may be posted on the bulletin boards. Every able-bodied male undergraduate in the lower division, who is under twenty-three years of age at the time of admission and who is a citizen of the United States, unless officially notified of exemption, must report immediately for enrollment in military, naval, or air science. The student must list the courses in military, naval, or air science and

* The University requirements in physical education referred to in this section cover Physical Education 1, a 1/2-unit course which is required of students in each semester of the freshman and sophomore years, irrespective of the total number of units of credit received in these courses.

physical education upon his study card with other University courses. Upon petition a student more than twenty-three years of age at the time of admission will be excused from physical education.

Information concerning the requirements in military science and physical education, including a statement of the grounds upon which a student may be excused from this work, may be obtained from the Registrar.

The student is referred to the announcements of the departments of Military Science, Naval Science, Air Science, and Physical Education in the ANNOUNCEMENT OF COURSES AND CURRICULA.

Naval Reserve Officers' Training Corps

By action of the Secretary of the Navy and of the Regents of the University of California in June, 1938, provision was made for the establishment of a unit of the Naval Reserve Officers' Training Corps on the Los Angeles campus of the University.

The primary object of the Naval Reserve Officers' Training Corps is to provide at civil institutions systematic instruction and training which will qualify selected students of such institutions for appointment as officers in the Regular Navy, Naval Reserve, Marine Corps, and Marine Corps Reserve. Upon successful completion of the four-year program, which includes the receipt of a baccalaureate degree from the University, the student may expect to be commissioned and to be ordered to active duty in ships or aircraft of the Navy or with field troops of the Marine Corps.

Initial enrollment is restricted to able-bodied male students who are citizens of the United States, between the ages of seventeen and twenty-one years, never have been married and agree to remain unmarried until commissioned or disenrolled. Students must pass the same physical examination as is required of all candidates for admission to the Naval Academy.

The N.R.O.T.C. program normally covers eight consecutive semesters.

Courses in naval orientation and organization, naval history, seamanship, communications, ordnance and fire control, navigation, advanced seamanship, naval engineering damage control, military justice, and leadership are given to those students seeking naval commissions. Courses in military history and principles, small-unit tactics and amphibious landings are given during the last four semesters to those students seeking Marine Corps commissions.

Students are enrolled in the Naval Reserve Officers' Training Corps under one of two categories. These categories are listed below together with the method of selection:

Regular N.R.O.T.C.—Students selected by nation-wide competitive examination and personal interviews. Applications to take the examination must be submitted in early November of the year prior to entering Regular N.R.O.T.C. Successful candidates receive tuition, fees, books, uniforms, and \$50.00 per month retainer pay from the Navy.

Contract N.R.O.T.C.—Students selected by the Professor of Naval Science after a personal interview and under the quota and policies set by the Navy Department.

Army Reserve Officers' Training Corps

In accordance with 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 was established on the Los Angeles campus of the University in July, 1920.

The purposes of the Army R.O.T.C. are to qualify male students as leaders in many fields: engineering, communications, administration, logistics, personnel management, and others. The program qualifies R.O.T.C. graduates for commissions as officers in the United States Army Reserve, and selected graduates as officers in the Regular Army.

The courses in general military science are prescribed by the Department of the Army and offer the opportunity for commissions in all of the arms and services of the United States Army.

Air Force Reserve Officers' Training Corps

A unit of the Air Force Reserve Officers' Training Corps was established on the Los Angeles campus of the University in September, 1947.

A four-year course leading to a commission in the Air Force Reserve is offered to qualified and interested students. The purpose of this program is to develop character, personality and leadership abilities and to provide the student with a professional education requisite for appointment as a commissioned officer in the Air Force Reserve. With continued increase in importance of air power in over-all United States strategic planning, the selection of potential flying officers is receiving increased emphasis. Entrance into the A.F.R.O.T.C. program is normally restricted to those students who believe that they are physically and mentally qualified for flight training and who indicate a desire to take flight training upon completion of their four years of A.F.R.O.T.C. training.

A visual acuity of not less than 20/20 bilaterally (uncorrected) is required for pilot training and 20/50 bilaterally, correctible by use of eyeglasses to a vision of not less than 20/20 bilaterally for observer training. A small quota of commissions is offered to outstanding students majoring in engineering and the basic sciences.

More detailed information is available elsewhere in this bulletin or in the ANNOUNCEMENT OF COURSES AND CURRICULA.

R.O.T.C. DRAFT DEFERMENT*

Students of good academic standing, potentially qualified to be commissioned officers, formally enrolled in the Air Force R.O.T.C., Naval R.O.T.C., or Army R.O.T.C. may be deferred from induction into the service under the Universal Military Training and Service Act, Public Law 51, 82d Congress, June 19, 1951, until after completion or termination of the course. This deferment is an agreement, signed by the student, to accept a commission; if tendered, to serve on active duty for a period of from six months to three years after receipt of such commission, subject to call by competent authority; and to remain a member of regular or reserve components, until the eighth anniversary of the receipt of his commission.

SUBJECT A: ENGLISH COMPOSITION

With the exception noted below, every undergraduate entrant must, at the time of his first registration in the University, take an examination, known as the *Examination in Subject A*, designed to test his ability to write English without gross errors in spelling, grammar, sentence structure, or punctuation.

The examination in Subject A is given at the opening of each semester. (See the *Registration Circular*, to be obtained from the Registrar.) A second examination for persons who do not appear at the announced time is given a few days after the first examination in each semester; for this examination a fee of \$1 is charged.

The results of the first examination will be made known not later than the day preceding the date set for the filing of the study lists for the current semester. Papers submitted in the examination are rated as either "passed" or "not passed." A student who is not present at the examination in Subject A which he is required to take will be treated as one who has failed.

Every student who does not pass in the examination in Subject A must, im-

* Students securing R.O.T.C. draft deferments need not request deferment through the Office of Special Services described on page 57 C of this bulletin.

mediately after his failure, enroll in a course of instruction, three hours weekly for one semester, known as the *Course in Subject A*, without unit credit toward graduation. Should any student fail in the course in Subject A he will be required to repeat the course in the next succeeding semester of his residence in the University.

A student who maintains in the course in Subject A a grade of A is permitted, on recommendation of the Committee on Subject A, to withdraw from the course at a date determined by that committee, and is given credit for Subject A.

Every student who is required to take the course in Subject A is charged a fee and the charge will be repeated each time he takes the course. This fee must be paid before the study list is filed.

No student will be granted the degree of Associate in Arts or a bachelor's degree until he has satisfied the requirement of Subject A.

In respect to grading, conditions, and failure, the course in Subject A is governed by the same rules as other University courses.

A student who has received a satisfactory rating in the College Entrance Examination Board examination in English composition will receive credit for Subject A. A student who has passed an examination in Subject A given by the University at Berkeley or given under the jurisdiction of the University at various centers in the State annually in May or June will receive credit for Subject A.

A student who, at any time, has failed in the University examination in Subject A does not have the privilege of taking a second examination until he has completed the course in Subject A.

A student who enters the University of California, Los Angeles, with credentials showing the completion elsewhere with a grade not lower than C, of one or more college courses in English composition (with or without unit credit) is exempt from the requirement in Subject A.

Students from other countries whose native language is not English should take the special examination in English for foreign students rather than the Subject A examination. Those who pass this special examination will be credited as having met the Subject A requirement, as will students who subsequently complete English 33B with a grade of C or better, the advanced course in English for foreign students.

AMERICAN HISTORY AND INSTITUTIONS

Candidates for a bachelor's degree must satisfy the "Requirement in American History and Institutions" by demonstrating a knowledge of American history and of the principles of American institutions under the federal and state constitutions. This requirement may be satisfied in any one of four ways.

1. By passing two optional examinations (one in American History and one in American Institutions) which the Committee on American History and Institutions offers for the purpose of satisfying the requirement. (Normally the examinations are offered once each semester. No unit credit is given for the examinations.)

2. By satisfactorily completing in the University any two courses for a minimum total credit of four units, from the following list:

Economics 13; History 7A, 7B, 8A, 8B, 101, 171, 172A, 172B, 173, 174A, 174B, 175, 176, 177, 178A, 178B, 179, 181; Political Science 1, 101, 113, 125, 141, 142, 145, 146, 166, 167A, 167B, 171, 186; History X7AB (Department of Correspondence Instruction, Berkeley 4, California).

Equivalent courses completed in the University Extension or in Summer Sessions may be used to fulfill the requirement. Equivalent courses taken at other collegiate institutions and accepted by the Board of Admissions may be used to fulfill the requirement.

3. By a combination of 1 and 2, above.

4. By presentation of a certificate of satisfaction of the present California requirement as administered in another collegiate institution within the State.

Candidates for a teaching credential, but not for a degree, need take only the optional examination (in American Institutions) or one of the courses in political science listed above. They may also satisfy the requirement by completion of a two-unit course on the principles and provisions of the Constitution of the United States at any other college (including colleges outside of California) whose undergraduate credits are accepted by the State Board of Education.

Further information regarding the requirement and the optional examinations may be obtained from the Committee on American History and Institutions. For room number and office hours, see official announcements on campus bulletin boards.

DEGREES AND TEACHING CREDENTIALS

Detailed statements of requirements for the degree of Associate in Arts and for bachelor's degrees issued by the University will be found in this bulletin or in the ANNOUNCEMENT OF COURSES AND CURRICULA, DEPARTMENTS AT LOS ANGELES, under headings of the several colleges and departments; for the master's degrees and the doctor's degrees, see the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION, and the bulletins of the various professional schools. The requirements for certificates of completion leading to teaching credentials are to be found in the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

Degree Residence †

Every candidate for a bachelor's degree is required to have been enrolled in that college of the University in which the degree is to be taken during his two final semesters of residence; the last 24 units must be done while so enrolled. It is permissible to offer two six-week summer sessions or one eight-week summer session attended in previous years as equivalent to one semester; but the student must complete in resident instruction at least one regular semester of his senior year. The regulation applies both to students entering this University from another institution and to students transferring from one college to another within the University.

Candidates for the degree of Associate in Arts must have been registered in the University for the two final semesters of residence, and in the college in which the degree is taken for the final semester.

All graduates receiving bachelor's degrees in any one calendar year—January 1 to December 31—are considered as belonging to the "class" of that year.

CHANGE OF COLLEGE OR MAJOR

A student may be transferred from one college or major or department of the University to another upon the approval of the dean or other responsible officer or committee of the college (or department) to which admission is sought. A form of petition for transfer is supplied by the Registrar.

No student is permitted to transfer from one major department to another after the opening of the last semester of his senior year.

HONORS

Honor students include those who receive honorable mention with the degree of Associate in Arts in the College of Letters and Science, in the College of

† Special provisions governing residence of degree candidates in the College of Engineering are described in the requirements of that college. See under College of Engineering in the ANNOUNCEMENT OF COURSES AND CURRICULA.

Applied Arts, or upon attaining junior standing in the College of Agriculture. Honors are granted also with the bachelor's degrees. For regulations concerning honors see the sections explanatory of the curricula of the various colleges in the ANNOUNCEMENT OF COURSES AND CURRICULA.

CREDIT AND SCHOLARSHIP

In both the University and the high school the student is credited, in respect to the amount of work accomplished, in terms of units; and in respect to quality of scholarship, in terms of grades. In a further, more exact determination of the student's scholarship, the University assigns a numerical value in points to each scholarship grade. These points are called grade points and are more fully described below.

High school credit, when it is offered in application for admission to the University, is reckoned in matriculation units; one matriculation unit represents one year's work in a given subject in the high school.

High school credit, when it is offered in satisfaction of high school graduation requirements, is measured in standard secondary units; that is, the credit granted for the study of a subject throughout the school year of from thirty-six to forty weeks is stated in terms of the standard secondary unit. Each unit represents approximately one-quarter of a full year's work in high school; in other words, four standard secondary units represent one full year's work in high school.

Relation between high school matriculation units and University units. One year's work in the high school is considered to be equivalent to one University semester's work of college level; that is, a student who desires to make up any high school subject deficiency by offering work of college level can in one University semester earn credit equivalent to the credit of one year's work in high school.

In the University, a unit of credit represents one hour weekly of the student's time for the duration of one semester in lecture or recitation, with the time necessary for preparation, or a longer time in laboratory or other exercises for which outside preparation is not required. It is expected that most students will spend two hours in preparation for one hour a week of lecture or recitation. Each University unit credit is thus understood to represent at least three hours of the student's time, and the credit value of a course is reckoned in units on that basis.

STUDY-LIST LIMITS*

Concurrent enrollment in resident courses and in extension courses is permitted only when the entire program of the student has received the approval of the proper dean or study-list officer and has been filed with the Registrar before the work is undertaken.

A student on scholastic probation, except in the College of Engineering, is limited to a program of 12 units each semester, to which may be added the required $\frac{1}{2}$ -unit course in physical education.

For students in good academic standing, undergraduate study lists may be presented as follows:

College of Agriculture: 12 to 18 units per semester, plus $\frac{1}{2}$ unit of physical education.

College of Applied Arts: 12 to 18 units per semester except for students in their first semester of residence and students who failed to make a C average the previous semester, in which cases the maximum is 16. Upon attaining at least a B average in a total program of 12 or more units, a student may petition to enroll in as many as 20 units. In all cases $\frac{1}{2}$ unit of physical education may be added to the stated maximum.

* The course in Subject A, which does not give units of credit toward the degree, nevertheless displaces 2 units from a student's allowable program.

School of Business Administration: 12 to 18 units per semester, plus $\frac{1}{2}$ unit of physical education if required.

College of Engineering: Within the limits prescribed in each individual case by the dean or his representative.

College of Letters and Science: 12 to 16 units for students in the first semester of the freshman year. All other students who have a C average or better and are not on probation may carry from 12 to a maximum of $17\frac{1}{2}$ units without petition. After one's first semester, he may petition to enroll in as many as 20 units if in the preceding semester he attained at least a B average in a total program of 12 or more units. All first-semester transfer students from any other campus of the University may carry excess study lists on the same basis as students who have completed one or more semesters on the Los Angeles campus. All entering freshmen who are enrolled in Naval R.O.T.C. may carry not more than $17\frac{1}{2}$ units without petition.

School of Nursing: Programs must be approved by a member of the Study-Lists Committee of the School.

School of Public Health: 12 to 18 units.

With the exception of the $\frac{1}{2}$ unit of physical education allowed in certain cases, as indicated above, all courses in Military Science and Physical Education and all repeated courses are to be counted in study-list limits.

A special student ordinarily will have his study list specified at the time of his admission; it is limited to 16 units.

Regulations concerning study-list limits for graduate students will be found in the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

GRADES OF SCHOLARSHIP; GRADE POINTS

In the University, the result of the student's work in each course (graduate and undergraduate) is reported to the Registrar in one of six scholarship grades, four of which are passing, as follows: A, excellent; B, good; C, fair; D, barely passed; E and F, not passed. The designations "passed" and "not passed" may be used in reporting upon the results of certain courses taken by honor students in the College of Letters and Science. These designations may also be used in reporting upon the results of lower division courses outside the major taken by students in regular graduate status.

Grade E indicates a record below passing, but one which may be raised to a passing grade without repetition of the course by passing a further examination or by performing other tasks required by the instructor. Grade F denotes a record so poor that it may be raised to a passing grade only by repeating the course. A student who raises a grade of E to a passing grade receives unit credit but no grade points unless granted by petition in special circumstances.

The term "incomplete" is not used in reporting the work of students. The instructor is required, for every student, to assign a definite grade based upon the work actually accomplished, irrespective of the circumstances which may have contributed to the results achieved.

Course reports filed by instructors at the end of each semester are final, not provisional.

Grade points are assigned to the respective scholarship grades as follows: for each unit of credit, the scholarship grade A is assigned 3 points; B, 2 points; C, 1 point; D, E, and F, no points.

In order to qualify for the degree of Associate in Arts, or for any bachelor's degree at Los Angeles,* the student must have obtained at least as many grade points as there are units in the total credit value of all courses under-

* Candidates for teaching credentials must also maintain at least a C average in supervised teaching.

taken by him in the University of California.† A similar regulation is in effect on all campuses of the University.

MINIMUM SCHOLARSHIP REQUIREMENTS

The following provisions apply to all undergraduate students at Los Angeles except students in the College of Engineering:

A. *Probation.* A student shall be placed on probation

(1) If at the close of his first semester his record shows a total deficiency of six or more grade points; or

(2) If at the close of any subsequent semester, his grade-point average is less than 1.0 (a C average), computed on the total of all courses undertaken in this University for which he has received a final report.

B. *Dismissal.* A student shall be subject to dismissal from the University

(1) If in any semester he fails to pass with a grade of C or higher courses totaling at least 4 units; or

(2) If while on probation his grade-point average for the work undertaken during any semester falls below 1.0 (a C average); or

(3) If after two semesters of probationary status he has not obtained a grade-point average of 1.0 (a C average), computed on the total of all courses undertaken in this University for which he has received a final report.

Students at Los Angeles coming under the above regulations are subject to the supervision of the deans of their respective colleges, who have adopted a policy of limiting study lists of students under their charge to 12 units or less, exclusive of required physical education.

The following provisions apply to all students in the College of Engineering:

A student will be subject to dismissal from the University

(1) If during any semester or summer session he fails to attain a C average in all courses for which he is enrolled; or

(2) If at the end of any semester or summer session he has failed to attain at least a C average in all courses undertaken in the University.

A student who becomes subject to these provisions shall be under the supervision of the faculty of the College. The faculty, or persons designated by it, shall have the power to dismiss from the University students under its supervision, or to suspend the provisions of this regulation and permit the retention in the University of the students thus subject to dismissal, and the return to the University of students who have been dismissed under this regulation.

Any student who receives a notice of dismissal from the University may petition the dean of his college for a hearing. Ordinarily, however, a student dismissed for unsatisfactory scholarship will be excluded from the University for an indefinite period, with the presumption that his connection with the University will be ended by such exclusion.

The action to be taken in respect to students in graduate status who acquire scholarship deficiencies is left to the discretion of the Dean of the Graduate Division, Southern Section.

CREDIT BY EXAMINATION

Provision is made whereby an undergraduate student in residence and in good standing may under certain conditions take examinations for degree credit either (a) in courses offered in the University, without formal enrollment in them, or (b) in subjects appropriate to the student's curriculum, but not offered as courses by the University. The results of all such examinations, with grades and grade points, are entered upon the student's record in the same manner as for regular courses of instruction (see Grades of Scholarship,

† Courses taken by honor students of the College of Letters and Science or by graduate students without letter grades are not counted in determining the grade-point status.

above). No fees are required. Applications may be obtained from the Dean of the College.

Application for examination for advanced standing on the basis of work done before entrance to the University should be made to the Admissions Office at the time of entrance to the University. If a student who has already matriculated proposes to enter upon study outside the University of California with a view to asking the University to examine him upon that work and to allow him credit toward the degree, he must make all arrangements *in advance* with the department concerned and with the Director of Admissions. Fees are required for such validation examinations.

The application form for examinations may be obtained from the Office of Admissions.

FINAL EXAMINATIONS

Final examinations are obligatory in all undergraduate courses except laboratory courses and other courses which, in the opinion of the Committee on Courses, because of resemblance to laboratory courses, require special treatment. In laboratory courses final examinations are held at the option of the department in charge. All examinations will, so far as practicable, be conducted in writing, and a maximum time will be assigned beforehand for each examination, which no student will be allowed to exceed. The time for examination sessions may not be more than three hours. Leave to be absent from a final examination must be sought by written petition to the proper faculty.

If a final examination is one of the regular requirements in a course, there can be no individual exemption from the examination, except as provided in the preceding paragraph.

WITHDRAWAL FROM THE UNIVERSITY

During the course of any semester a student may file with the Registrar a Notice of Withdrawal and Request for Statement of Conditions for Readmission. Provided the student is in good standing at the time of withdrawal and secures the necessary clearances, he may be issued an "honorable dismissal."

A student is in good standing if he is entitled to enjoy the normal privileges of a student in the status in which he is officially registered. Students dismissed by reason of scholarship deficiencies, and students under supervision or on probation, may receive letters of honorable dismissal which bear a notation concerning their scholarship; students under censure or suspension may not receive an honorable dismissal but may receive transcripts of record which bear a notation concerning such censure or suspension.

Discontinuance without notice. Students who discontinue their work without petitioning for honorable dismissal may render themselves ineligible not only for readmission to the University of California but also for admission by transfer to another institution. All grades in courses undertaken in the semester from which a student withdraws without notice become "not passing" (E or F) and remain so upon the student's permanent record.

TRANSCRIPTS OF RECORD

Each student, upon formal application to the Registrar, may receive or may have issued on his behalf, without cost, one transcript showing all work taken by him on this campus of the University. Subsequent transcripts will be issued upon application at a cost of one dollar for one copy, fifty cents for each of five, and twenty-five cents for each of more than five additional copies provided the dollar copy and additional copies are ordered at the same time.

DISCIPLINE

When a student enters the University it is taken for granted by the University authorities that he has an earnest purpose and that his conduct will bear out this presumption. If, however, he should be guilty of unbecoming behavior or should neglect his academic duties, the University authorities will take such action as, in their opinion, the particular offense requires. Students who fail to make proper use of the opportunities freely given to them by the University must expect to have their privileges curtailed or withdrawn.

STUDENT RESPONSIBILITY

Each student is responsible for compliance with the regulations printed in this bulletin and in the handbook of RULES AND REGULATIONS FOR STUDENTS issued by the Registrar's Office; also with official notices published in the *Daily Bruin* or posted on official bulletin boards.

MISCELLANEOUS INFORMATION

EXPENSES—LIVING ACCOMMODATIONS—EMPLOYMENT— SCHOLARSHIPS—LOANS

GENERAL EXPENSES AND FEES*

THE QUESTION OF EXPENSE while attending the University is of importance to every student. It is difficult, however, to give specific information about yearly expenditures. In a student body of some fifteen thousand members there are so many different tastes, as well as such a wide range of financial resources, that each student must determine his budget in keeping with his own needs and financial condition. It is possible to live simply, and to participate moderately in the life of the student community, on a modest budget. The best help the University authorities can offer the student in planning his budget is to inform him of certain definite expense items, and acquaint him with others for which he will in all probability have to provide.

A table of estimated minimum, moderate, and liberal budgets for one semester is given on page 35 C.

Fees and deposits are payable preferably in cash. If a check is presented the face amount must not exceed all the fees to be paid.

Incidental fee. The incidental fee for all undergraduate students is \$42. This fee, which must be paid each semester at the time of registration, covers certain expenses of students for counseling service, for library books, for athletic and gymnasium facilities and equipment, for lockers and washrooms,† for registration and graduation, for such consultation, medical advice, and hospital care or dispensary treatment as can be furnished on the campus by the Student Health Service, and for all laboratory and course fees. Membership in the Associated Students (fee, \$8 for all the rights and privileges) is required of all undergraduates; see page 40 C. No part of these fees is remitted to those students who may not desire to make use of any or all of these privileges. If a student withdraws from the University within the first five weeks from the date of his registration, a part of this fee will be refunded. The incidental fee for graduate students is \$42 each semester; membership in the Associated Students is not required.

Tuition fee. Tuition in the academic colleges is free to students who have been legal residents of the State of California for a period of one year immediately preceding the opening of the semester during which they propose to attend the University. Every student who has not been a legal resident of the state of California for a period of one year immediately preceding the opening day of the semester during which he proposes to enroll is classified as a nonresident. Such students are required to pay, in addition to the incidental fee, a tuition fee of \$150‡ each semester.

* During registration, fees will be paid as part of the registration procedure. Thereafter, they will be paid at the office of the Cashier, Administration Building. This office is open from 8:30 a.m. to 8 p.m. daily, and from 8:30 a.m. to 12 m. on Saturdays.

† Lockers are issued, as long as they are available, to registered students who have purchased standard locks. These are sold at \$1.25 each, and may be used as long as desired, or may be transferred by the purchaser to another student.

‡ Graduate students pay the full amount of \$150 regardless of the number of units undertaken unless for reasons of health or employment they are unable to devote more than one-half time to academic study, in which event they may petition the Dean of the Graduate Division for reduction to one-half the amount. If an undergraduate student registers for less than 12 units the tuition fee is \$12.50 a unit or fraction of a unit, with a minimum of \$25.

A student entering the University for the first time should read carefully the rules governing determination of residence (see page 32 C) to the end that he may be prepared, in the event of classification as a nonresident of California, to pay the required tuition fee. This fee must be paid at the time of registration. *The attention of the prospective student who has not attained the age of 22 years and whose parents do not live in the state of California, is directed to the fact that presence in the state of California for a period of more than one year immediately preceding the opening day of the semester in which he proposes to attend the University, does not, of itself entitle him to classification as a resident.*

If a student is in doubt about his residence status, he may communicate with the Attorney for the Regents in Residence Matters. On the day preceding the opening day of registration and during the first week of instruction of each semester the Attorney may be consulted upon the campus at a place which may be ascertained by inquiry at the Information Desk in the Registrar's Office; throughout the registration period, he may be consulted during the hours of registration at the place where registration is being conducted. At other times he may be consulted, or communications may be addressed to him, at Room 128 Administration Building, University of California, Berkeley 4, California.

The eligibility of a student to register as a resident of California may be determined only by the Attorney for the Regents in Residence Matters. Every entering student, and every student returning to the University after an absence, is required to make a "Statement as to Residence" on the day of registration, upon a form which will be provided for that purpose, and his status with respect to residence will be determined by the Attorney soon after registration. Old students are advised that application for reclassification as a resident student should be filed within ten days after regular registration. Application for a change of classification with respect to some preceding semester will not be received under any circumstances.

The nonresident tuition fee may be remitted in whole or in part in the case of students in regular graduate status [except in the professional schools, e.g., Law, Medicine, Education (leading to the Ed.D. degree), and except in the case of foreign students whose tuition is paid by their governments], who have proved that they are distinguished scholars and who are carrying full programs of work toward the fulfillment of requirements for academic higher degrees. No graduate student in regular graduate status, no matter how distinguished his scholarship may have been, will be exempted from the payment of the tuition fee if he is merely carrying some lower division courses for his cultural advancement.

The term *distinguished scholarship* in connection with the question of exemption from the payment of the tuition fee is interpreted as follows: the scholarship standing must have been excellent throughout a period of no less than two years just preceding the time of application for this privilege. Moreover, only students from institutions of high standing in scholarly work will be considered. Applicants for this privilege will be required to have sent to the Dean of the Graduate Division confidential letters about themselves from persons who are thoroughly acquainted with their personalities and their intellectual achievements. It should be clear from these statements, therefore, that only the decidedly exceptional student will be eligible for the privilege of exemption from the payment of tuition fee if he is a nonresident. Students exempted from the tuition fee pay only the incidental fee.

The privilege of exemption from the nonresident tuition fee may be revoked at any time at the discretion of the Dean of the Graduate Division if in his judgment a student fails to maintain distinguished scholarship, or if he proves himself unworthy in other respects.

Other Fees

Application fee, \$5. This fee is charged every applicant for admission to the University, and is payable at the time the first application is filed. Applicants for graduate status must pay this fee, even though it may have been paid once in undergraduate status; see page 18 C.

Medical examination: Original appointment, or deferment arranged in advance, no fee; *fee for a second appointment*, \$2.

Late filing of registration packet, \$2.

Late examination in Subject A, \$1.

For courses added or dropped after date set for filing registration packet, \$1 for each petition.

For removal of grade E, \$2 for one course, or \$3 for two or more courses covered by a single petition.

For reinstatement of lapsed status, \$5.

For late application for teaching assignment, \$1.

For late notice of candidacy for the bachelor's degree, \$2.

For late return of athletic supplies,* \$1 for each 24 hours until full purchase price of article is reached.

For failure to empty locker within a specified time, \$2.

Returned check collection, \$1.

For duplicate registration card or student name card, \$1.

For duplicate cards in the registration packet, \$1 for one and \$.25 for each additional card up to a maximum of \$3.

Fee required of applicants for teaching positions who register with the Office of Teacher Placement, \$5, to cover the clerical cost of correspondence and copying of credentials.

REFUNDS

Refund of a part of the incidental fee (and of the nonresident tuition fee, if paid) is made to a student who withdraws from the University within five weeks from the first day of classes.

No claim for refund of fees will be considered unless such claim is presented during the fiscal year to which the claim is applicable. No student will be entitled to a refund except upon surrender to the Registrar of his registration card and receipt. Students should preserve their receipts.

RULES GOVERNING RESIDENCE

The term "nonresident student" is construed to mean any persons who has not been a bona fide resident of the state of California for more than one year immediately preceding the opening day of a semester during which he proposes to attend the University. *Persons who have not attained the age of twenty-two years and whose parents do not reside in California should communicate with the Attorney in Residence Matters, Room 128 Administration Building, University of California, Berkeley 4, California, despite the fact that such a person may have lived in California for more than one year.*

The residence of each student is determined in accordance with the rules for determining residence prescribed by the provisions of Section 244 of the Government Code of California, and Section 20005 of the Education Code of California, provided, however:

That every alien who has not been lawfully admitted to the United States for permanent residence in accordance with all applicable provisions of the laws of the United States, or whose status, he having been so admitted, has been changed, is classified as a nonresident.

Every person who has been, or who shall hereafter be classified as a non-

* Supplies or equipment not returned before the close of the fiscal year must be paid for in full; return after that date is not permitted.

resident student shall be considered to retain that status until such time as he shall have made application in the form prescribed by the Registrar of the University for reclassification, and shall have been reclassified as a resident student.

Every person who has been classified as a resident student shall, nevertheless, be subject to reclassification as a nonresident student and shall be reclassified as a nonresident student whenever there shall be found to exist circumstances which, if they had existed at the time of his classification as a resident student, would have caused him to be classified as a nonresident student. If any student who has been classified as a resident student should be determined to have been erroneously so classified, he shall be reclassified as a nonresident student, and if the cause of his incorrect classification shall be found to be due to any concealment of facts or untruthful statement made by him at or before the time of his original classification, he shall be required to pay all tuition fees which would have been charged to him except for such erroneous classification, and shall be subject also to such discipline as the President of the University may approve.

LIVING ACCOMMODATIONS

Living accommodations for out-of-town students who do not live with friends or relatives are provided in a number of ways—in private homes which accept paying guests; in rooming houses; in residence halls or cooperatives; in neighboring hotels or apartments; in the Veterans Emergency Housing Project (for married students only); and in fraternities or sororities. Information concerning any of these accommodations may be obtained from the Housing Office, Room 169, Administration Building, University of California, Los Angeles 24. Office hours are: Monday through Friday, 8 A.M. to 5 P.M.; Saturday, 9 A.M. to 12 M.

Accommodations with Private Landlords

Up-to-date listings are freely available to any student who desires to call in person at the Housing Office. Arrangements for rooms cannot be made by mail but must be made by the individual directly with the landlord. Students and landlords are both advised to have a clear understanding, preferably in writing, as to prices, intended length of tenancy, charges to be made during vacation periods, etc.

Prices range from \$65 to \$80 per month for room and board, and from \$30 to \$45 per month per person for room only. Those who are not boarding by the month will find many restaurants in the vicinity of the campus. There is also a student-owned cafeteria on the campus where meals may be purchased at moderate prices.

Mira Hershey Hall (Women Only)

Mira Hershey Hall, made available by the will of the late Miss Mira Hershey, is the only residence hall operated by the University, and is located on the campus. Accommodations are available for 129 undergraduate students. If a student is reasonably sure of being accepted by the Admissions Office for enrollment, an application for residence may be obtained by writing to the Housing Office on, or shortly before, October 1, for the spring semester and March 1 for the fall semester. The rate for board and room is \$360 per person per semester during the time the University is in session. Three meals are served daily with the exception of Sundays and holidays when two meals only are served.

Privately Owned Residence Halls

There are a number of privately owned and operated residence halls in the vicinity of the University (all but two for women only). Several provide room and board at rates varying from \$75 to \$90 per month. Two have apartments at rates ranging from \$25 to \$28 per month per person depending on the

number of women sharing the apartment. The two halls for men accommodate 93 students, providing room and 16 to 19 meals per week at \$75 to \$80 per month.

All business dealings should be clearly understood by both the student and the owner since the University cannot assume any responsibility for arrangements to which it is not a party.

Cooperatives

Four residence halls for women are on the cooperative plan with rates for board and room varying from \$35 to \$55 per month per person. Under this plan the students share in the work of operating the hall and work an average of four to five hours per week for part payment of their room and board.

The Cooperative Housing Association is a privately owned, nonprofit organization operating four houses accommodating about 155 men, each member being required to work from three to four hours per week. The cost for board and lodging with two, three, or four in one room is \$50 per month. Information concerning membership application may be secured from the manager at Landfair House, 500 Landfair Avenue, Los Angeles 24.

Fraternities and Sororities

Most of the 35 fraternities and 23 sororities own or lease homes near the campus and provide lodging and meals for their members and pledges. Monthly bills for residents range from \$47 to \$78 per month, depending upon the number of meals served and the social and recreational privileges included. Students interested in affiliating with a fraternity or sorority should register for rushing on forms available at the Office of the Dean of Students. Detailed information concerning membership and deadline dates for rushing registration may also be secured at this office.

Accommodations for Married Students

A housing shortage still exists in the Los Angeles area, especially in low-cost apartments and houses for married couples with children. Prevailing rates are as follows: furnished single apartments, \$65 to \$90; furnished and unfurnished one-bedroom apartments, \$75 to \$125; and furnished and unfurnished two-bedroom apartments, \$90 to \$150. Single-family dwellings are appreciably higher. Although the facilities of the Housing Office are available to all students, listings cannot be sent through the mail because most landlords desire to rent on a personal-selection basis.

Veteran Housing

The University operates a Veterans Emergency Housing Project on the campus consisting of 308 two-room apartments, renting at \$33 per month furnished and \$29 per month unfurnished. These are available only to World War II and Korean veterans of the United States Army, Air Force, Navy, Marine corps, or Coast Guard who are married or the head of a family, and who are "students"* at the University of California, Los Angeles. Applications may be obtained from the Housing Office during the semester preceding that in which the student plans to enroll and after the student is reasonably sure of being accepted for enrollment by the Admissions Office. Assignments to the Veteran Housing Project are made on a "desperate need" basis which considers the number of children in the family, lack of suitable income, need for housing, etc. Since it is impossible to make a commitment as to when one might be able to obtain an apartment, a new applicant is advised not to plan on too-early occupancy of these units.

* A "student" means any veteran student (regular, special, or graduate) taking a combination of courses during the regular sessions whose study-load determination under the formula of the Office of Special Services shows that he is entitled to be classified as a full-time student.

Any combination student (carrying regular and extension courses) ranks as a regular student and is eligible, provided the Office of Special Services classifies him as a full-time student.

Persons not taking a sufficient amount of work to be classified under the Veterans Program as full-time students *will not* be entitled to housing.

Motels and Trailer Courts

Good motels are located one to five miles from the campus with varying rates and accommodations. It is sometimes advisable for family groups to accept these accommodations temporarily until more permanent quarters can be located. Listings may be secured from the Housing Office.

No trailer parking areas are provided on or near the campus. Information relative to such facilities is available at the Housing Office.

PRINCIPAL ITEMS OF EXPENSE ESTIMATED FOR ONE SEMESTER

Expense items	Minimum		Moderate		Liberal	
	Men	Women	Men	Women	Men	Women
Incidental Fee.....	\$ 42	\$ 42	\$ 42	\$ 42	\$ 42	\$ 42
A.S.U.C.L.A. Membership Fee ¹ ...	8	8	8	8	8	8
Books and Supplies.....	30	30	45	45	65	65
Board and Room.....	500	500	600	600	750	750
Miscellaneous (recreation, club dues, laundry, drugs, etc.).....	50	50	100	100	200	200
Total.....	\$ 630	\$ 630	\$ 795	\$ 795	\$1065	\$1065

NOTE.—It is impossible to include in the above figures such variable items as clothes or transportation to and from home, or fees other than the incidental and the A.S.U.C.L.A. membership fees. Students classified as nonresidents of the State must also add to their estimated budgets the tuition fee of \$150 per semester.

¹ Membership required of undergraduates; optional for graduate students.

SELF-SUPPORT AND STUDENT EMPLOYMENT

Many students earn part, and a few earn all, of their expenses while attending the University. The University authorities are eager to offer as much encouragement as possible to students who must maintain themselves, but long experience has brought out the fact that the self-supporting student, early in his college life, may have to face unforeseen problems which affect his welfare.

University work demands the best that a student can give it. The following statements are made, therefore, not to discourage the able student who must do outside work, but to forearm him with facts and information so that he may plan carefully and intelligently, and by so doing overcome many of the difficulties that might otherwise lead to disappointment and failure.

(1) Whenever possible, it is wise for a student to use his savings to make the first semester of residence in the University one of freedom to give full time to academic work. He may then have an opportunity to adjust himself to new surroundings, to establish sound habits of study, and to maintain a good scholastic standing, and thereby build a foundation for the rest of his University course. By the end of the first semester the student should know the demands of university life and his own capabilities well enough to make it possible to plan, for subsequent semesters, a combined program of studies and work for self-support.

(2) The regular undergraduate four-year course based on an average of 15 units of academic work a semester is organized on the supposition that students will give the major part of their time and attention to their studies

while attending the University. Therefore, a student who must give considerable time and energy to outside work should consider at the outset the possibility that more than the usual eight semesters (four years) may be required to complete the program for the degree, if he is to maintain his scholastic standing and his health, and to enjoy the advantages of university life.

With reasonable diligence, a student in good health carrying an average program of study in the undergraduate departments can give as much as twelve hours a week to outside employment without seriously interfering with his college work; employment in excess of this amount should be accompanied by a reduction of the academic program carried.

(3) Students who are not physically strong or in good general health should not, under ordinary circumstances, attempt to be wholly self-supporting because of the danger of jeopardizing health and academic progress.

BUREAU OF OCCUPATIONS

Student Employment

Students desiring employment may register with the Bureau of Occupations, in the Administration Building.

Since it is not always possible to secure employment immediately, the new student who plans to be self-supporting should not begin his University course without sufficient funds to cover the major expenses of at least the first semester.

Women students may obtain board, room, and \$15 to \$20 salary per month in exchange for three hours work daily in a private home. Opportunities of this type for men are limited; however, local boarding houses and restaurants often offer employment for board.

In addition, employment is available on an hourly basis in the fields of typing and stenography, bookkeeping, sales and clerical work, care of children, housework, manual labor, tutoring, and other specialized types of work.

Full-Time Placement

Through its full-time placement service, the Bureau of Occupations refers graduates and students to positions in business and professional fields other than teaching or educational research. Seniors are urged to register as soon as possible in their last year in order that they may be referred to employers before graduation. This service is available to students when they leave the University (if in attendance in regular sessions at least one year) or at any later date if they desire an improvement in their employment situation.

BUREAU OF SCHOOL AND COLLEGE PLACEMENT

OFFICE OF TEACHER PLACEMENT

The Office recommends graduates, students, and former students for positions in universities, colleges, junior colleges, high schools, and elementary schools, and for educational research, thereby assisting qualified candidates to obtain permanent employment or promotion in the work for which they have prepared themselves. A fee of \$5 is charged each candidate for clerical services; there is no expense to school officials seeking teachers through this office. Communications should be addressed to the Office of Teacher Placement, 123 Moore Hall.

The University reserves the right to refuse its services to candidates who seek positions for which they are not fully qualified. In every recommendation the aim is to keep in mind the best available persons, remembering candidates already employed as well as those who may be out of employment.

Candidates for positions are urged to inform the office of the result of their candidacy, and of their desires for future promotion or change of occupation.

STUDENT COUNSELING CENTER

The services of a staff of professional counselors are available to regularly enrolled students of the University. Assistance in the choice of and preparation for education and vocational objectives and with personal-social problems is provided. Knowledge of his strengths and weaknesses will enable the student to make optimum use of his University experiences. Individual interviews are arranged by appointments in the Administration Building. Testing is done when it seems advisable as a basis for counseling. A vocational library is available for reference.

Application forms for and information regarding the National Teachers Examinations, Graduate Record Examination, and the Medical College Admission Test are available in the Center. Certain special testing projects for departments and colleges within the University are also administered through the Center.

BUREAU OF VOCATIONAL REHABILITATION

Men and women who have a physical or mental disability which handicaps them vocationally may be eligible for the services of the Bureau of Vocational Rehabilitation of the State Department of Education. These services include vocational counseling and guidance, training (with payment of costs such as books, fees, tuition, etc.), and placement.

A Rehabilitation Counselor is available on the Los Angeles campus for interviewing applicants. Appointments may be made in the Office of Dean of Students—Special Services, Administration Building, or by contacting the regular Vocational Rehabilitation Office at 811 Black Building, 357 South Hill Street, Los Angeles; telephone MADison 7631. This service may be applied for by both veterans and nonveterans.

SELECTIVE SERVICE (DRAFT)

Selective service information and counseling on draft status are available Mondays through Fridays at the Office of Dean of Students—Special Services, Administration Building. Certifications of enrollment, ranking, and training status for students, and occupational status for employees will be submitted to selective service boards on request. Students desiring deferments on the basis of enrollment in University R.O.T.C. programs should consult the proper R.O.T.C. department on the campus as described on page 22 C.

VETERANS INFORMATION

Dean of Students—Special Services maintains liaison between veterans and the Veterans Administration, the State Department of Veterans Affairs, and other agencies offering veterans educational benefits to assist veterans in becoming assimilated into the life and spirit of the University. This office is located in the Administration Building. The Los Angeles regional office of the United States Veterans Administration is located at 1380 S. Sepulveda Boulevard.

In order to enroll under the provisions of Public Law 16 or 894 (Rehabilitation), authorization to complete such enrollment must be obtained from the United States Veterans Administration Office and be received by Dean of Students—Special Services prior to registration. Veterans should apply to their local United States Veterans Administration offices in sufficient time to receive their Certificates of Eligibility or proper authorization prior to registration, or be prepared to pay all expenses (tuition, books, fees, and

supplies). Refunds of such expenditures may be made later to the veteran student based upon the effective date of the Certificate of Eligibility.

Information regarding educational benefits available from the state of California may be obtained in the same office, or from the State Department of Veterans Affairs located at 711 N Street, Sacramento, California; or by writing to P. O. Box 1559, Sacramento, California.

Veterans wishing to enroll under the provisions of Public Law 550 (Korean G.I. Bill) should obtain from the United States Veterans Administration a Certificate for Education and Training which should be filed with the Office of Special Services, Room 38 Administration Building as soon as registration is completed. These veterans must be prepared to pay all fees and educational costs at the time of registration as education and training allowances are paid to the veteran by the Veterans Administration. The first monthly payment will normally be received 60 to 75 days after compliance with the above instructions.

UNDERGRADUATE SCHOLARSHIPS

A number of scholarships are available for students on the Los Angeles campus from funds provided by the Regents and friends of the University. These scholarships, which range from \$100 to \$500 and run for one year, are awarded annually upon recommendation of the faculty Committee on Undergraduate Scholarships and Prizes. A circular describing them and the conditions under which they are awarded may be obtained from the Office of the Dean of Students, University of California, Los Angeles 24.

Scholarships are available for both resident and entering students. Although the majority of awards are made to students who have successfully completed at least one semester of work on the Los Angeles campus, a definite number of scholarships are awarded to students entering on the Los Angeles campus for the first time from accredited California high schools, California junior colleges, or other collegiate institutions in California. A very limited number of scholarships are available for out-of-state students. Application blanks, which contain the necessary instructions, are to be obtained from the Office of the Dean of Students. These blanks must be filed with this Office during the period November 1 to January 10 for resident students, and during the period November 1 to March 1 for entering students. These dates pertain to the year prior to the academic year for which the awards are to be made. No applications received later than the stated deadlines will be considered.

To be eligible for a scholarship the applicant must meet certain minimum requirements as to scholarship, financial need, and character and promise. The Committee will rate all applicants with respect to these criteria and will base its recommendations for awards upon the relative total ratings of all eligible students applying during the periods specified above. Some of the scholarships are restricted to students with special qualifications in addition to those mentioned above; these special qualifications are listed on the application blank.

Alumni Scholarships

The U.C.L.A. Alumni Association makes available each year a number of scholarships for entering freshmen from accredited California high schools, and a limited number for students entering for the first time from California junior colleges, or other acceptable collegiate institutions in California. These scholarships are tenable on any campus of the University of California, the applicant specifying which campus at the time of application. Application blanks which give all necessary information may be obtained from the Office of the Dean of Students, University of California, Los Angeles 24. These blanks must be filed with the Committee on Undergraduate Scholarships and Prizes in the Office of the Dean of Students during the period November 1 to

March 1 preceding the academic year for which the awards are to be made; if they are received later, they will not be considered. To be eligible, applicants must meet certain minimum requirements as to scholarship, financial need, and character and promise. In the selection of individuals for recommendation for these awards, the Faculty Committee, with the advice of the Alumni Committee, will choose applicants with not only substantial scholastic ability but also high character and outstanding qualities of leadership, who give promise of reflecting credit on themselves and the University.

The California (Berkeley) Alumni Association also makes available a number of scholarships for entering students, and they also are tenable on any of the campuses of the University, with the particular one specified at time of application. Blanks which give all necessary information for application for these scholarships may be obtained from the Committee on Undergraduate Scholarships, University of California, Berkeley 4.

GRADUATE SCHOLARSHIPS AND FELLOWSHIPS

For information concerning graduate scholarships, consult the **ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.**

LOANS

Various organizations and individuals have contributed toward the building up of several student loan funds. The gifts for this purpose are administered by the University in accordance with the conditions laid down by the donors.

All loans are repayable as soon as possible without defeating the purpose of the loan or seriously inconveniencing the students.

Applications should be filed at least ten days in advance of need. For further information, apply to Office of the Dean of Students, Administration Building.

PRIZES

The generosity of alumni and friends of the University provides each year for competitive prizes and awards in several fields. These prizes and awards are described in a bulletin issued annually. The recipients are ordinarily announced at Commencement in June of each year. Further information may be obtained from the Office of the Dean of Students.

PUBLIC LECTURES, CONCERTS, AND ART EXHIBITS

As opportunity offers, the University presents public lectures of general and of special or scholarly interest by qualified persons. These lectures are intended to supplement and stimulate the work of all departments of the University.

The musical program of the University includes many special events. Every year three young artists, chosen by competitive audition in the Young Artists Contest, are presented as a special feature of the Concert Series of the Committee on Fine Arts Productions. The Department of Music offers Tuesday Noon Recitals and Friday Noon Organ Recitals weekly throughout the year. The Tuesday Recitals feature the A Cappella Choir, the Madrigal Singers, the Glee Clubs, the University Band, the University Symphony Orchestra, opera workshop, individual student artists, and members of the music faculty. All of these events are open to the public.

The Art Galleries, in the Art Building, contain a permanent collection of older masters, and present a series of significant temporary exhibitions many of which are circulated nationally. All aspects of art are covered in this program—painting, sculpture, architecture, industrial design and the crafts. The Galleries are open from 12:30 to 5 p.m. Mondays through Fridays and from 2 to 5 p.m. Sundays.

Dance recitals are presented regularly under the auspices of the Department of Physical Education and the Dance Wing of the Campus Theater.

A series of four plays is presented each semester by the Department of Theater Arts.

THE ASSOCIATED STUDENTS

Student self-government, with its accompanying cocurricular program, is organized and administered by the Associated Students, in which all undergraduates hold membership by virtue of paying the A.S.U.C.L.A. membership fee. Payment is required at registration when the University incidental fee is paid. The organization has a legislative council composed of a president, vice-president, two representatives at large, upper and lower division representatives, a living-group representative, a commuters' representative, men's and women's representatives, the National Students Association Coordinator, a Graduate Student Association representative, a faculty representative, an alumni representative, an administrative representative, and the General Manager of A.S.U.C.L.A. The Council administers the general business of the association. Activities of men's and women's affairs, and special-interest fields such as publications, speech activities, the arts, athletics, recreation, and departmental and professional areas are coordinated by the executive council. Offices of the Associated Students are in Kerckhoff Hall, a gift to the University of Mrs. William G. Kerckhoff of Los Angeles.

Members are entitled to participation in the affairs of the Associated Students, to subscriptions to the *California Daily Bruin* and certain other publications, to free admission to many athletic contests, and reduced rates to all other athletic contests, as well as to dramatic, social, and similar events coming under the jurisdiction of the Associated Students.

The U.C.L.A. Students' Store is owned and operated by the Associated Students.

The *California Daily Bruin* and the *Southern Campus* are the official publications of the students. The *California Daily Bruin* contains news of all campus and college activities, official University announcements, and is under direct charge of an editor and a manager appointed by the Council. The *Southern Campus* is the yearbook and contains a record of the college life of the year. Both of these publications are edited, managed, and financed by the students.

OFFICE OF STUDENT ACTIVITIES

For the voluntary use by individuals and student groups, the Student Activities Office, located in Room 246, Administration Building, provides such services as a place to work, facilities to help in program planning, and a qualified staff to give advice and information on campus organizations and activities.

In cooperation with student groups, this office is also responsible for the supervision of the University social program and the enforcement of regulations in living groups. The Panhellenic Administrator and the Interfraternity Council Advisor, who supervise sorority and fraternity affairs, also have offices here.

Necessary clearances and approvals for student activities and events should be obtained through this office in the early stages of planning.

RELIGIOUS FACILITIES

In the immediate vicinity of the campus, at the southeast corner of Hilgard and LeConte Avenues, is the University Religious Conference, where official representatives of the Baptist, Catholic, Congregational, Disciple, Episcopal, Jewish, Latter-day Saints, Lutheran, Methodist, and Presbyterian denomina-

tions have student headquarters. Additional facilities are available for Catholic students at the Newman Club, 840 Hilgard Avenue. The Y.W.C.A. occupies its own building, at 574 Hilgard Avenue, near the entrance to the campus; the Y.M.C.A. has its office in the same building, at 572 Hilgard Avenue. The Christian Science Organization reading room and headquarters are located at 560 Hilgard Avenue, near the entrance to the campus.

At these centers are held religious discussion groups, lectures, Bible classes, social gatherings, luncheons, dinners, and other student meetings.

REQUIREMENTS IN THE SEVERAL COLLEGES, SCHOOLS, AND CURRICULA

COLLEGE OF LETTERS AND SCIENCE

THE curricula of the College of Letters and Science are designed to provide the student with opportunities to broaden his culture and to prepare him for specialized professional studies. These curricula lead to the degree of Associate in Arts, normally at the end of the fourth semester, and to the degree of either Bachelor of Arts or Bachelor of Science, normally at the end of the eighth semester.

A liberal education presupposes a reasonably wide distribution of courses that contribute to a desirable balance of intellectual interests. To this end the student is required to select courses in the lower division that deal with general fundamentals of human knowledge. In the more diverse offerings of the upper division the student is relatively free to concentrate his attention upon courses in a field of interest best suited to his aptitudes and purposes.

Each student therefore chooses a field of concentration in the upper division which may be a program of related courses within a single department (departmental major), or a group of coordinated courses involving a number of departments (interdepartmental curriculum), or, under certain circumstances, an organized group of courses chosen to meet a student's special need (individual field of concentration). The pursuit of such definite courses of study necessarily requires a knowledge of antecedent courses known as "prerequisites." With the assistance of his departmental adviser, the student is expected to select those lower division courses which are related to his proposed advanced study. The College of Letters and Science also maintains a staff of counselors to advise and guide students in all academic matters.

REQUIREMENTS FOR ADMISSION TO THE UPPER DIVISION AND FOR THE DEGREE OF ASSOCIATE IN ARTS

In order to be admitted to the Upper Division of the College of Letters and Science, students must have completed at least 60 units of college work with a grade-point average in all work done in the University of not less than 1.00 (a C average), and must have satisfied requirements (A), (B), (C), (D), and at least three of the six requirements under (E), (F), and (G) below. However, the remaining requirements from (E), (F), and (G) must be completed prior to receipt of the Associate in Arts degree, or graduation. In fields of concentration requiring unusually heavy preparation, additional postponements are possible, as follows: requirements (B), (E), (F), and (G), or any portion of them, may be postponed to the upper division on recommendation of the department and approval of the Executive Committee of the College. While requirement (B) should, so far as possible, be satisfied by work done in the high school, work done prior to graduation from high school will not be counted as part of the 60 units. Students who transfer to the Los Angeles campus of the University of California with the requirements for upper division standing in the College of Letters and Science at Berkeley completed shall be admitted to the Upper Division in this College and not held for the requirements of this section.

(A) General University Requirements.*

- (1) *Subject A.* An examination in Subject A (English Composition) is required of all entrants at the time of their first registration in the University. For further regulations concerning Subject A, see page 22 C of this bulletin.
- (2) *Military Science* (6 units), or *Air Science* (6 units), or *Naval Science* (12 units), 4 semesters (men).
- (3) *Physical Education*, 4 semesters (2 units).

(B) Foreign Language. At least 16 units in not more than two languages.

- (1) The first two years of high school work in a foreign language will be counted in satisfaction of 4 units of this requirement; the third and fourth years in the same language will be counted in satisfaction of 4 units each. Only work of grade C or higher may be counted.†
- (2) If a new language is begun on the college level it may not apply on this requirement unless course 2, or the equivalent, with its prerequisites is completed.
- (3) This requirement may also be satisfied in one of the following ways: (a) by passing a proficiency examination in one foreign language; or (b) on petition, by presentation of credentials from a secondary school in which the language of instruction is a foreign language.
- (4) Courses given in English by a foreign language department will not be accepted in fulfillment of this requirement.
- (5) College credit for the mother tongue of a foreigner and for its literature is allowed only for courses taken in native institutions of college grade, or for upper division and graduate courses actually taken at the University of California or at another English-speaking institution of approved standing.

(C) Mathematics. Elementary algebra and plane geometry. If these subjects were not completed in the high school, they may be taken in University of California Extension, but will not be counted as part of the 60 units.

(D) English Composition. At least 3 units in English composition (English 1A) with a grade of C or better. This requirement may also be satisfied by passing a proficiency examination in English composition set and administered by the Department of English with the approval of the Executive Committee of the College. A bona fide student from abroad, who has learned English as a foreign language and in whose secondary education English was not the medium of instruction, may satisfy this requirement by completing English 33B with a grade of C or better.

(E) Natural Sciences.

- (1) At least 5 units in physical science chosen from the following:
 - Astronomy 1A, 100, 101
 - Chemistry 1A, 2A, 2
 - Geography 1A
 - Geology 2, 3, 5, 101

* For information concerning exemption from these requirements apply to the Registrar.

† Any student who because of lapse of time or other circumstances feels unable to continue successfully a language begun in high school may consult the department of the language concerned regarding the possibility of repeating all or a part of the work for credit. Such credit would count on the 60 units required for the degree of Associate in Arts and on the 120 units required for the bachelor's degree; but credit is not allowed toward the required 16 units in foreign language for both the high school and college work thus duplicated.

Mathematics, one course from:

C, D, 1, 3A, 5A, 5B, 32A, 37, Statistics 1

Meteorology 3

Physics 1A, 1B, 1C, 1D, 2A, 2B, 10

- (2) At least 5 units in biological science, chosen from the following:

Anthropology 1

Bacteriology 1, 6

Biology 12

Botany 1, 2, 3

Life Sciences 1A-1B (both 1A and 1B must be completed to count on science requirement)

Paleontology 101, 111, 136, 137

Psychology 1B

Zoology 1A, 1B, 15, 138

(F) *Social Sciences.*

- (1) A 6-unit lower division year course in history, chosen from the following:

History 1A-1B or 5A-5B or 7A-7B or 8A-8B

- (2) At least 6 units in social sciences exclusive of history and including courses in at least two subjects, chosen from the following list:

Anthropology 2

Economics 1A, 13, 101

Geography 1B

Political Science 1, 2, 101, 103

Psychology 1A, 101

Public Health 5

Sociology 1, 101

(G) *Humanities.* Two of the following three groups:

- (1) *Literature.* At least 4 units in English, American, or any foreign literature, in the original language* or in translation, selected from the following list:

Arabic 142A, 142B

English 30A, 30B, 46A, 46B, 115, 117J, 125C, 125D, 130, 132, 133, 135, 136, 190A, 190B

French 109A, 109B, 109M, 109N

German 104A, 104B, 118A, 118B, 121A, 121B

Greek 101, 114, 180A, 180B

Hebrew 182A, 182B, 183A, 183B

Humanities 1A, 1B

Italian 103A, 103B, 109A, 109B

Latin 5A, 5B, 180A, 180B

Oriental Languages 112, 132

Scandinavian 141A, 141B

Slavic Languages 130, 132, 143A, 143B

Spanish 102A, 102B, 103A, 103B, 104A, 104B

- (2) *Philosophy.* A 6-unit lower division year course in philosophy, selected from the following:

Philosophy 6A-6B, 20A-20B

- (3) *The Arts.* At least 4 units selected from the following:

Art 1A, 1B, 5A, 5B, 108A, 108B, 118A, 118B

Integrated Arts 1A-1B

Music 20A, 20B, 30A, 30B, 170

The degree of Associate in Arts will be granted on the following conditions:

- (A) The candidate shall have completed not less than 60 units which may

* The same courses in foreign language may not be counted both on requirement (G-1) and on the foreign language requirement (B).

be counted toward the bachelor's degree, with an average grade of C in all courses undertaken in this University.

(B) The candidate shall have completed either

- (1) Requirements (A) to (G), inclusive, above; or
- (2) The lower division courses specified as prerequisite for a field of concentration, plus requirements (A) to (G), less exemptions authorized for that field of concentration by the Executive Committee of the College.

(C) The candidate shall have completed at least the two final semesters (24 units of work) in residence at the University and at least the final semester in the College of Letters and Science.

(D) The above requirements shall have been completed at least one semester prior to receipt of the bachelor's degree, otherwise they will become requirements for the bachelor's degree and the Associate in Arts degree will not be granted.

Authorized Exemptions

The following exemptions have been authorized in the fields of concentration listed below. Exemptions granted for the Associate in Arts in one of these fields become requirements for the bachelor's degree if the student changes his field of concentration after receipt of the Associate in Arts degree. Requirements deferred to the upper division must be completed before receipt of the bachelor's degree.

Curricula in Astronomy-Mathematics and Astronomy-Physics

Exemptions:

1. Requirement (F-1); and
2. One of the two groups required under (G).

Major in Bacteriology

Exemption:

- Requirement (F-2).

Curriculum in Biophysics

Exemptions:

1. Requirement (F-2); and
2. One of the two groups required under (G).

Major in Botany

Exemptions:

1. Requirement (F-2); and
2. One of the two groups required under (G).

Major in Chemistry

Exemptions:

1. Either (F-1), or (F-2); and
2. Either (E-2), or one of the two groups required under (G).

Curriculum in Earth Physics and Exploration Geophysics

Exemptions:

1. Requirement (F-2); and
2. One of the two groups required under (G).

Major in Geology

Exemptions:

1. Requirement (F-2); and
2. One of the two groups required under (G).

Major in Mathematics

Exemption: Requirement (F-1).*

* Mathematics majors who are candidates for the general secondary teaching credential may be exempted from one of the two groups required under (G) upon petition recommended by the department and approved by the Dean of the College.

Curriculum in Physical Sciences-Mathematics

Exemption:

One of the two groups required under (G).

Premedical Curriculum

Exemptions:

1. (F-1) or (F-2); and
2. One of the two groups required under (G).

Major in Zoology

Exemptions:

1. (F-1) or (F-2); and
2. One of the two groups required under (G).

REQUIREMENTS FOR THE BACHELOR'S DEGREE

The degree of Bachelor of Arts or Bachelor of Science will be granted upon the following conditions:

(A) The minimum number of units for the bachelor's degree shall be 120, of which at least 108 shall be in courses taken from the Letters and Science List of Courses (see below), and at least 42 shall be in upper division courses from the Letters and Science List. At least 12 of these upper division units shall be outside a single department, and not more than 42 units of upper division courses taken in one department may be counted toward the bachelor's degree. Not more than 4 units in prescribed lower division courses in physical education may be counted toward the bachelor's degree. Not more than 8 units of music courses in the series 40-64, 140-166, and 180-195 will be counted toward the bachelor's degree. No credit will be allowed for work completed at a junior college after the student has completed 70 units toward the degree.

The candidate shall have attained at least a 1.00 grade-point average in all courses undertaken in this University.

(B) The candidate shall have completed requirements (A) to (G), inclusive, pages 2 and 3, except for exemptions authorized for his field of concentration (see pages 4 and 5).

Students who transfer to the Los Angeles campus of the University of California having completed the requirements for upper division standing of the College of Letters and Science at Berkeley shall not be held for the above requirements.

(C) The candidate shall have met the University requirement in American History and Institutions.

(D) The candidate shall have satisfied the requirements of a field of concentration in the College of Letters and Science. Before the degree is granted, the department or committee in charge of the student's field of concentration must certify that the student has completed the requirements for the field of concentration.

(E) The candidate shall have been registered in the College of Letters and Science while completing the final 24 units of work, and shall have completed while registered in the College at least 18 units of upper division courses, including at least 12 units in his field of concentration. This regulation applies to all students including those entering this University from other institutions or from University of California Extension, and to students transferring from other colleges of this University.

The degree of Bachelor of Arts shall be granted to all candidates who qualify for the bachelor's degree, except that the degree of Bachelor of Science shall instead be granted to candidates who have completed such fields of concentration as the Executive Committee of the College may designate as leading to that degree.

LETTERS AND SCIENCE LIST OF COURSES

At least 108 units offered for the degree of Bachelor of Arts or Bachelor of Science must be in courses chosen from the Letters and Science List of Courses, and the 42 units in upper division courses (numbered 100-199) required in the upper division must be selected from the same list.

Any course not included in the Letters and Science List of Courses but required or accepted as part of a field of concentration or as a prerequisite therefor, will, for students in that field of concentration, but for no others, be treated as if it were on the Letters and Science List of Courses. Students in the General Elementary or Kindergarten-Primary Curriculum are specifically referred to the special regulation under those curricula concerning the Letters and Science List of Courses.

The following list refers to the courses as given in the department offerings for the fall and spring semesters, 1956-1957.

Agriculture:

- Agricultural Economics. 120, 130.
- Botany. All undergraduate courses.
- Entomology. 100, 112A, 126, 134, 144.
- Irrigation and Soils. 10, 110A.
- Plant Pathology. 120.
- Subtropical Horticulture. 111.

Air Science. All undergraduate courses up to a total of 12 units.*

Anthropology and Sociology:

- Anthropology. All undergraduate courses.
- Sociology. All undergraduate courses.

Art. 1A, 1B, 5A, 5B, 10, 45A, 45B, 100A, 100B, 102A, 102B, 103A, 103B, 104A, 104B, 104C, 104D, 108A, 108B, 110A, 110B, 114A, 114B, 115, 118A, 118B, 119A, 119B, 120A, 120B, 120C, 120D, 123, 124, 190, 199A, 199B.

Astronomy. All undergraduate courses.

Bacteriology. All undergraduate courses.

Business Administration. 3, 131, 133, 135, 160.

Chemistry. All undergraduate courses.

Classics:

- Classics. 113, 170A, 170B.
- Latin. All undergraduate courses except 370.
- Greek. All undergraduate courses.
- Hebrew. All undergraduate courses.

Economics. All undergraduate courses.

Education. 101, 102, 106, 110, 111, 130, 170, 197A, 197B.

Engineering. 1A, 1B, 11A-11B, 1FA, 2, 4A, 15A-15B, 15AB, 102B, 102C, 155A.

English:

- English. All undergraduate courses except 370.
- Speech. All undergraduate courses except 122, 142A, 142B, 146, 147, 370.

Folklore. All undergraduate courses.

French. All undergraduate courses except 370.

Geography. All undergraduate courses.

Geology:

- Geology. All undergraduate courses.
- Mineralogy. All undergraduate courses.
- Paleontology. All undergraduate courses.

* Effective for all students except those who began upper division work in the department prior to the fall of 1952.

Honors Program

7

Germanic Languages:

German. All undergraduate courses except 370.

Scandinavian Languages. All undergraduate courses.

History. All undergraduate courses.

Home Economics. 113, 114, 134, 138, 143, 144, 154, 170.

Humanities. All undergraduate courses.

Integrated Arts 1A-1B.

Italian. All undergraduate courses.

Journalism. 2, 101, 102, 111.

Linguistics and Philology. All undergraduate courses.

Mathematics:

Mathematics. All undergraduate courses except 370.

Statistics. All undergraduate courses.

Meteorology. All undergraduate courses.

Military Science and Tactics. All undergraduate courses up to a total of 12 units.*

Music. All courses included in the following series: 1A-31, 100A-115D, 118, 121-139, 170-178, 199.

Naval Science. All undergraduate courses up to a total of 12 units.*

Oceanography. All undergraduate courses.

Oriental Languages. All undergraduate courses.

Philosophy. All undergraduate courses.

Physical Education. 1, 26, 44, 130, 139, 146, 147, 150, 151, 155.

Physics. All undergraduate courses except 370.

Political Science. All undergraduate courses.

Psychology. All undergraduate courses.

Public Health. 5, 100, 106, 110, 145, 147A, 147B, 160A.†

Slavic Languages. All undergraduate courses.

Spanish and Portuguese:

Spanish. All undergraduate courses except 370.

Portuguese. All undergraduate courses.

Theater Arts. 7, 24, 102, 104, 105, 106, 169.

Zoology:

Zoology. All undergraduate courses except 5, 136, 136C, 370.

Life Sciences. 1A-1B.

Biology. 12.

HONORS PROGRAM

The College of Letters and Science has instituted an Honors Program which accords special privileges to superior students whose grade-point average for all work undertaken in the University is not less than 2.5:

Honors Program in the Lower Division

1. Admission to Program

A lower division student in the College who has completed 15 or more units in one semester, and whose grade-point average for all work undertaken in the University is not less than 2.5, may apply for admission to this program on forms to be supplied by the office of the Dean. The application form must be approved by the department or committee in charge of the student's proposed field of concentration and by the Dean of the College.

2. Purpose of Program

The Honors Program in the lower division is designed to give the outstanding student more freedom in meeting the lower division requirements by dem-

* Effective for all students except those who began upper division work in the department prior to the fall of 1952.

† Students in the Curriculum in Premedical Studies who choose Public Health as one of their two fields may in addition receive Letters and Science credit for Public Health 160B and 170.

onstrating proficiency and achievement by examination. The total credit which may be earned under the special provisions of the Honors Program in the lower division is 18 units, which may be earned in either or both of the following ways:

(a) Credit by examination for courses studied independently which may be undertaken in addition to the maximum study-list limits of the College.

(b) Credit for more advanced courses taken on a "passed" or "not passed" basis in the fields specified as fulfilling Associate in Arts requirements (E), (F), and (G). Work taken under this section must be included in the study-list limits of the College. The quality of the work required of a student in the Honors Program to be marked "passed" is higher than that required for a barely passing letter grade. In calculating grade-point standing, units gained in this way shall not be counted. Petitions for such credit will not be accepted later than the first week in the semester.

Honors Program in the Upper Division

1. Admission to the Program

A student who has attained upper division standing with a grade-point average for all work undertaken in the University of not less than 2.5, or any other upper division student recommended by his department or committee in charge of his field of concentration, may apply for admission to this program on forms to be supplied by the office of the Dean of the College. The application form must be approved by the department or committee in charge of the student's field of concentration and by the Dean. A student being recommended for this program without the necessary grade-point average must be specially approved as an honor student by the Committee on Honors of the College.

2. Purpose of the Program

A student approved for admission to this program may be admitted to such advanced honors programs as may be provided by the department or committee or faculty adviser in charge of the student's field of concentration. Such honors programs may include:

- (a) Enrollment in small seminar-type classes;
- (b) Independent research or reading during the two semesters of the student's senior year. The maximum amount of credit allowed under provision (b) is 6 units.

Also, an upper division student in the Honors Program may take each semester one course not offered by him to satisfy the requirements for the field of concentration, in which his work shall be marked "passed" or "not passed." The quality of work required to be marked "passed" will be higher than that required for a barely passing letter grade. In calculating grade-point standing, units gained in this way shall not be counted. The maximum number of units which may be earned under this provision is 12. Petitions for such credit will not be accepted later than the first week in the semester.

HONORS

Honorable Mention with the Degree of Associate in Arts

1. Honorable mention is granted with the degree of Associate in Arts to students who attain at least an average of two grade points for each unit undertaken.
2. The list of students who receive honorable mention with the degree of Associate in Arts is sent to the chairmen of departments.
3. A student who gains honorable mention has thereby attained the honor status for his first semester in the upper division. To enter the special Honors Program of the College, however, the student must file application for admission to such a program, as set forth above.

Honors with the Bachelor's Degree

Honors may be awarded at graduation as provided under 1, 2, and 3, below, to a student who is recommended for such an award by the department or committee or faculty adviser in charge of his field of concentration and the Committee on Honors.

1. Honors may be awarded to a student who has both (a) completed his field of concentration with participation in such honors program as may have been provided for that field, and (b) qualified for honors by some other method (such as a comprehensive examination) to be prescribed by the department or committee or faculty adviser in charge of his field of concentration and approved by the Executive Committee of the College.
2. Honors also may be awarded to a student who has completed the field of concentration with distinction, and who has a general record satisfactory to the Committee on Honors, but who has not participated in an Honors Program.
3. Students who, in the judgment of the department, committee, or faculty advisers concerned, display marked superiority in their fields of concentration may be recommended for the special distinction of Highest Honors.
4. The Committee on Honors shall consider all recommendations, shall confer with the several departments, committees, faculty advisers, and Dean of the College about doubtful cases, and shall transmit to the Dean of the College its recommendation concerning the award of Honors or Highest Honors.
5. The lists of students to whom Honors and Highest Honors in the various fields of concentration shall have been awarded at time of graduation shall be published in the Commencement Programme each year, and students whose names appear upon these lists shall be issued certificates of honors in addition to University diplomas.

REGULATIONS GOVERNING THE FIELD OF CONCENTRATION

(A) A field of concentration shall consist of not less than 24, nor more than 42 units of upper division courses. Not more than 42 units of upper division courses taken in one department after receiving upper division standing will be counted toward the bachelor's degree. NOTE.—In economics, this limitation is inclusive of courses in business administration. Only the following courses may be counted in satisfaction of the field of concentration: (1) courses in resident instruction* at the University of California, Los Angeles campus, or at another college or university; (2) courses in University Extension with numbers having the prefix X, XB, XL, XR, or XSB. Courses numbered in the 300 series (teachers' courses) or in the 400 series (professional courses) are not accepted as part of the field of concentration (with the exception of the General Elementary and Kindergarten-Primary curricula).

(B) The fields of concentration shall be designated as *departmental*, *interdepartmental*, or *individual*.

- (1) A departmental field of concentration (or major) shall consist of a group of coordinated upper division courses, of which at least two-thirds of the units are in one department, set up and supervised by a department.
- (2) An interdepartmental field of concentration (or curriculum) shall consist of at least 36 units of coordinated upper division courses, of which less than two-thirds are in one department, set up and supervised by a committee appointed by the Executive Committee of the College.

* Resident instruction is defined as that which is offered to students in regular attendance during the fall and spring semesters and the Summer Session.

- (3) A student who has some unusual but definite academic interest, for which no suitable major or curriculum is offered in the University of California, and who has completed at least two semesters of work (a minimum of 24 units) in the University with a grade-point average of 2.00, or higher, may, with the consent of the Dean of the College and with the assistance of a faculty adviser appointed by the Dean, plan his own field of concentration.

(C) Each upper division student must designate his field of concentration on his study-list card, he must register with the department or committee in charge of his field of concentration, and his study list must be approved by a representative of the department or committee before it will be accepted by the Registrar. A department or committee may designate the Dean of the College as its representative.

(D) An upper division student may change his field of concentration only by permission of the Dean of the College and of the department or committee in charge of the field of concentration to which the student petitions to transfer. No change of field of concentration will be permitted after the opening of the student's last semester.

(E) Students who fail to attain a grade-point average of at least 1.00 in work taken in the prerequisites for the field of concentration, or in courses in the field of concentration, may, at the option of the department or committee in charge, be denied the privilege of continuing in that field of concentration. The student must attain an average grade of C (1 grade point for each unit undertaken) in all courses offered as part of the field of concentration.

(F) All students must take at least one course in their field of concentration each semester during their last, or senior year.

ORGANIZED FIELDS OF CONCENTRATION IN THE COLLEGE OF LETTERS AND SCIENCE

Majors Leading to the Bachelor's Degree

The College offers majors (departmental fields of concentration) in the following fields. These majors lead to the degree of Bachelor of Arts unless otherwise noted.

Anthropology	Geography	Oriental Languages
Applied Physics†	Geology	Philosophy
Art History	German	Physics
Astronomy	Greek	Political Science
Bacteriology	History	Psychology
Botany	Italian	Slavic Languages
Chemistry†	Latin	Sociology
Economics	Mathematics	Spanish
English	Meteorology	Speech
French	Music	Zoology

Curricula Leading to the Bachelor's Degree.

The College offers curricula (interdepartmental fields of concentration) leading to the degree of Bachelor of Arts in the following fields:

Astronomy-Mathematics
 Astronomy-Physics
 Biophysics
 Earth Physics and Exploration Geophysics
 General Elementary Teaching
 International Relations
 Kindergarten-Primary Teaching

† Leading to degree of Bachelor of Science.

Latin-American Studies
Near Eastern Studies
Physical Sciences-Mathematics
Prelibrarianship
Premedical Studies
Presocial Welfare
Public Service
Religion

Requirements of these curricula are listed in detail in the following pages.

CURRICULA LEADING TO DEGREES

CURRICULUM IN ASTRONOMY-MATHEMATICS

Committee in Charge of the Curriculum: S. Herrick (chairman), R. H. Sorgenfrey, F. C. Leonard.

Lower Division

Required: Astronomy 2 (2), 4 (3), Physics 1A-1B-1C-1D (12) or, with the consent of the adviser, Physics 2A-2B; Mathematics 5A-5B, 6A-6B or 1-3A, 3B, 4A-4B (14).

Upper Division

The curriculum comprises 36 upper division units in astronomy, mathematics and physics of which at least 15 units must be taken in astronomy and at least 12 in mathematics.

I. Required: Astronomy 101, 112, 115 (9 units), Mathematics 119A and three of the courses 108, 124, 125, 126, 128 (12 units), Physics 105.

II. Electives in astronomy, mathematics, and physics. The following courses are recommended: Astronomy 104, 107, 117A-117B, Mathematics 119B, 120, 122A-122B, 135A-135B, 136, Physics 108B, 121.

CURRICULUM IN ASTRONOMY-PHYSICS

Committee in Charge of the Curriculum: D. M. Popper (chairman), R. W. Leonard, F. A. Valentine.

Lower Division

Required: Astronomy 2 (2), 4 (3), Physics 1A-1B-1C-1D (12) or, with the consent of the adviser, Physics 2A-2B, Mathematics 5A-5B, 6A-6B or 1-3A, 3B, 4A-4B (14).

Upper Division

The curriculum comprises 36 upper division units, distributed as follows:

I. Required: Astronomy 101 (3), 117A-117B (6), Physics 105 (3), 108B (3), 121 (3), Mathematics 110AB (4) or 119A (3).

II. Electives in astronomy, mathematics, and physics, of which at least 6 units must be in astronomy, and all of which must be in courses approved for the individual.

CURRICULUM IN BIOPHYSICS

Committee in Charge of the Curriculum: A. W. Bellamy (chairman), L. P. Delsasso, F. Crescitelli, J. B. Ramsey.

This curriculum is designed to furnish a minimum background of information and training essential for undertaking advanced work in biophysics. Some degree of flexibility and program modification is provided through conferences with the Committee.

Biophysics approaches biological problems using the special tools of biology and physics with substantial support from chemistry and mathematics. Preparatory training is therefore somewhat exacting. Students who can decide early on their field of specialization will usually be able to proceed in graduate work with a minimum of time devoted to making up undergraduate deficiencies.

Preparation: Chemistry 1A-1B (10); Mathematics C, 1, 3A-3B, 4A-4B (18); Physics 1A-1B-1C-1D (12) or 2A-1C-1D (10) or, with the consent of the Committee in charge of the curriculum, Physics 2A-2B (8); Zoology 1A-1B (8).

Field of Concentration: Required: Chemistry 5A, 8, and either 109A-109B or 110A-110B (10-12); Physics 105, 107, 107C, 108B-108C, 121, 124, and either 108A or 114A (21); Zoology 101A-101B-101C, 130A (10). Recommended: Mathematics 119A (3), Statistics 131A (3); Physics 116A-116C (5), 124C (1); Zoology 119 (3).

CURRICULUM IN EARTH PHYSICS AND EXPLORATION GEOPHYSICS

Committee in Charge of the Curriculum: L. B. Slichter (chairman), J. Murdoch, W. G. Young.

This curriculum is designed to provide training in physics, chemistry, mathematics, and geology, which are basic to geophysics. The requirements of the petroleum and mining industries for exploration experts, and the demands of educational and research institutions, indicate the desirability of a broad training in the physical sciences for those intending to enter either the field of applied geophysics or the general field of the physics of the earth. Summer employment with geophysical prospecting parties is strongly recommended, and is usually arranged in cooperation with oil or mining companies. The curriculum below is subject to modification to meet the needs or interests of individual students.

Lower Division

Required: Chemistry 1A-1B (10), Geology 5 (4), 3 (3), Mineralogy 6 (4), Mathematics 5A-5B (8), 6A-6B (6), or Mathematics 1-3A, 3B, 4A-4B (14), Physics 1A-1B-1C-1D (12).

Upper Division

The curriculum comprises 36 upper division units, distributed as follows:

Required: Geology 102A (4), 103 (3), Geophysics 122 (3), Mathematics 110A-110B (4), Physics 107 (3), 107C (2). Recommended: Chemistry 110A-110B (6), 111 (4), Geology 110 (3), 111 (3), 116 (3), Mathematics 124 (3), 126 (3), 128 (3), Physics 105 (3), 110 (3), 112 (3), 116A (3), 116C (2), Engineering 112A (3), 181A (3), 198 (3). A summer's field experience with a geophysical crew.

Each student is required to obtain approval of his upper division curriculum, including electives, from the course adviser in the Institute of Geophysics.

GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CURRICULA

Committee in Charge of the Curricula: A. E. Longneil (chairman), John Hockett, F. P. Rolfe, F. H. Sherwood, C. M. Zierer, Miss Virginia Richard (secretary).

Lower Division Adviser: Mrs. Barbara Sebastian, Room 200, Moore Hall.

Upper Division Adviser: Miss Virginia Richard, Room 200, Moore Hall.

These curricula have been designed by the College of Letters and Science and the School of Education to lead to both the degree of bachelor of arts from the College of Letters and Science, and the *Certificate of Completion* in

general elementary or kindergarten-primary teaching from the School of Education. It is possible to complete the requirements for these two objectives in approximately four years and one summer session by completing the requirements for the bachelor's degree concurrently with one of the curricula set forth below.*

At the beginning of their junior year students in these curricula must formally register in the School of Education as credential candidates; this is in addition to registration in the College of Letters and Science as candidates for the bachelor's degree.

Curriculum I. General Elementary

Lower Division

Required: English 1A and either English 1B or Speech 3A; Psychology 1A and either 1B or 33 (transfer students may meet this requirement by taking Psychology 101); Art 10; Music 31; Physical Education 27A, 27B, and 44; Mathematics 38. Recommended: Life Science 1A-1B or Biology 12, Botany 1, or Zoology 1A; History 7A-7B or 8A-8B.

Upper Division

The following courses in education are required for the credential and should be taken approximately in the order listed: Education 106 (open to high sophomores), 111, 110, 147, 330, E335A-E335B (Supervised Teaching). (At least a C average is required for all courses in education, including at least a grade of C in Supervised Teaching.)

The field of concentration in this curriculum comprises at least 36 upper division units of professional and academic courses. At least a C average must be maintained in the field of concentration.

1. The professional courses in the field of concentration: Education 139 (4), Art 330 (3), Music 330 (3), Physical Education 330 (3).

2. The academic courses in the field of concentration: At least 27 units of work in no more than four departments, according to one of the following patterns. (The units in any department may vary by one unit above or below that specified, provided the total is 27 or more units.)

(a) English	9	(c) English	6
Geography	9	Geography	6
History	9	Anthropology or Sociology.....	6
	—	Phys. Ed. or Poli. Sci. or	
	27	Psych.	6
(b) English	6	Additional units in one of	
Geography	6	above departments (other	
History	6	than Phys. Ed.) already	
Additional units in one of		chosen by the student.....	3
above	3		—
6 units from one of the follow-			27
ing: Anthro., Phys. Ed.,		(d) Same as (c) except that His-	
Poli. Sci. or Soc.	6	tory may be substituted for	
	—	Geography	
	27		

The courses in the field of concentration must be chosen from the approved list which is available in the College office and the Credentials office, School of Education, Room 200, Moore Hall. No student may offer for credit toward

* It is also possible to secure the recommendation of the School of Education for the general elementary or kindergarten-primary teaching credential by pursuing a departmental field of concentration and by completing, in addition to the requirements for the bachelor's degree, the credential requirements set forth in the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES. This program will require approximately one semester longer than the special program outlined above.

the minimum required 120 units any courses not on the Letters and Science List of Courses in addition to those required in this curriculum.

Curriculum II. Kindergarten-Primary

Lower Division

Required: Same as in Curriculum I with the exception of Mathematics 38, which is not required for kindergarten-primary teaching.

Upper Division

The following courses in education are required for the credential and should be taken approximately in the order listed: Education 106 (open to high sophomores), 111, 110, 128A, 330, K335A-K335B (Supervised Teaching). (At least a C average is required for all courses in education, including at least a grade of C in Supervised Teaching.)

The field of concentration in this curriculum comprises at least 36 upper division units of professional and academic courses. At least a C average must be maintained in the field of concentration.

1. The professional courses in the field of concentration: Education 128B (3), Art 330 (3), Music 330 (3), Physical Education 330 (3).

2. The academic courses in the field of concentration: Same as for Curriculum I. No student may offer for credit toward the minimum required 120 units any courses not on the Letters and Science List of Courses in addition to those required in this curriculum.

CURRICULUM IN INTERNATIONAL RELATIONS

Committee in Charge of the Curriculum: R. H. Fitzgibbon (chairman), W. Gorter, M. W. Graham, T. P. Jenkin, J. E. Spencer.

This curriculum is designed primarily for students in the College of Letters and Science whose interests, while not specialized, fall in the field of international relations and modern diplomacy. Students interested in preparing for the American Foreign Service examinations should consult the adviser with respect to additional courses.

Lower Division

Required: Political Science 1-2 (3-3); History 1A-1B, 5A-5B, or 8A-8B (3-3); Economics 1A-1B (3-3); Geography 1A-1B (3-3). Recommended: Anthropology 1-2 (3-3); Economics 12 (3).

Upper Division

The curriculum comprises 36 upper division units, distributed as follows:

I. General requirements (24 units): (a) Political Science 125 (3), and 127 (3), or Political Science 130 (3), and 131 (3); (b) Political Science 133A-133B (3-3); (c) Geography 181 (3); (d) 9 units from the following, including 6 units of history and 3 of economics or 6 of economics and 3 of history: History 140B (3), 147 (3), 148A-148B (3-3), 178A-178B (2-2); Economics 107 (3), 108 (3), 195 (3), 196 (3), 197 (3).

II. Field requirements: At least 12 units in one of the four following fields of specialization (to be distributed in not less than two departments):

- (a) *Far Eastern Affairs:* Political Science 136 (3), 138 (3), 159 (3); History 191A-191B (3-3), 192A-192B (2-2), 194A-194B (3-3), 195A-195B (2-2); Geography 124A-124B (3-3).
- (b) *Latin-American Affairs:* Political Science 126 (3), 150A-150B (3-3); History 160 (3), 161 (3), 162A-162B (3-3), 163 (3), 166A-166B (2-2), 169 (3); Geography 122A-122B (3-3).
- (c) *European Affairs:* Political Science 154 (3), 155 (3), 157 (3); History 143 (3), 144 (3), 145 (3), 147 (3) [if not offered under I, above],

148A-148B (3-3) [if not offered under I, above], 149A-149B (3-3), 149C (3); Geography 123A-123B (3-3), 178 (3).

- (d) *British Empire Affairs*: Political Science 152 (3), 153 (2); History 151A-151B (3-3), 156 (3), 157 (3), 158A-158B (3-3), 159 (3), 196B (3); Geography 125 (3).

Recommended: Political Science 102 (3), 112 (3), 120 (2).

Candidates for the degree in this curriculum will be required to give evidence, normally by examination, of their ability to read current literature on international relations in one modern language: French, German, Spanish, Russian, or Italian. With permission, candidates may offer other languages not native to them.

CURRICULA IN LATIN-AMERICAN STUDIES

Committee in Charge of the Curricula: M. A. Zeitlin (chairman), H. J. Bruman, R. H. Fitzgibbon, R. D. Hussey, S. J. Weinberg.

The curricula in Latin-American studies are designed to serve the needs of the following classes of students: (1) students desiring a general education focused on this particular area; (2) students planning careers which will necessitate residence in or knowledge of Latin America, such as teaching, business, scientific research, engineering, journalism, or government service; (3) students preparing for advanced study in the social sciences, primarily in the Latin-American field; (4) students preparing to teach social sciences or Spanish in the secondary schools. Selection of courses should be governed in part by the objective of the student.

It is recommended that students who wish to receive credit in one of these curricula for work taken in Latin American schools obtain the prior written approval of the Committee.

Lower Division

Required: Spanish 4 and 44; Portuguese 1 and 2; Geography 1A; Anthropology 1; History 8A-8B. It is recommended that at least two courses be elected from the following list: Anthropology 2; Economics 1A, 1B; Geography 1B; Political Science 1, 2; Sociology 1.

Upper Division

Curriculum for Students Desiring a General Education or Careers in Business, Research, or Government Service

Spanish 104A-104B; 6 units chosen from Portuguese 3, 4, Spanish 101A, 101B, 146; 24 units of additional courses chosen from the list below. Courses must be chosen from at least three departments, with at least 9 units from each of two departments other than Spanish, and at least 20 units of courses of Latin-American content (indicated below by asterisks).

Curricula for Students Preparing to Be Teachers

A. Candidates for the general secondary credential with a teaching major in social sciences and a teaching minor in Spanish must take: Spanish 104A-104B and 6 units chosen from Spanish 100, 101A-101B, 146, 147, 148, 149 (either 100 or 147 must be included); and 24 units of additional courses chosen from the list below. Courses must be chosen from at least three departments with at least 9 units from each of two departments other than Spanish, and at least 20 units of courses of Latin-American content (indicated below by asterisks). In addition to the lower division courses required in the curriculum, the following must also be taken: History 1A-1B or 5A-5B, Geography 1B, Political Science 1 and 2 (or 1 and 103 or 108), and Economics 1A-1B (or 1 and 108) or Sociology 1 and 2. Completion of a teaching major requires 6 units in graduate courses in anthropology, economics, geography, history, or political science, after attainment of the A.B. degree.

B. Candidates for the general secondary credential with a teaching major in Spanish and a teaching minor in social sciences must take: Spanish 100, 102A-102B (prerequisite: Spanish 42), 104A-104B, 146, 147, 148; and at least 18 units of additional courses chosen from the list below. Courses must be chosen from at least three departments, with at least 6 units from each of two departments other than Spanish, and at least 15 units of courses of Latin-American content (indicated below by asterisks). A teaching minor in social science may be completed by meeting the requirements of this curriculum. Completion of the teaching major in Spanish also requires Spanish 108, 149 (or 256), 370, and 6 units of graduate courses in Spanish after attainment of the A.B. degree.

Note: Candidates for the general secondary credential must take Psychology 1A, 1B (or 33) and 22 units of prescribed courses in education. For further information consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES, and the appropriate adviser.

Additional Courses:

Anthropology 102, 105, 110, 124, 125, 127, 140*, 141*, 165; Art 119A*; Economics 195, 196, 197; Education 197A; Folklore 101; Geography 113, 122A-122B*, 131, 165, 175, 199*; History 160*, 161, 162A-162B*, 163*, 166A-166B*, 169*, 178A-178B, 188, 199* (Section 9); Linguistics and Philology 170, 171; Music 136; Political Science 125, 126*, 127, 150A-150B*, 199* (Section 7); Portuguese 123*; Sociology 143, 144, 150*, 186, 189; Spanish 108*, 120*, 130*, 132*, 134*, 136*, 149.

MEDICAL TECHNOLOGY

Adviser: Mrs. Meridian G. Ball.

For requirements, see program given under the Department of Bacteriology in later pages of this bulletin.

CURRICULUM IN NEAR EASTERN STUDIES

Committee in Charge of the Curriculum: B. Lewis (chairman), J. A. C. Grant, I. A. Kavar, W. Leslau, G. E. Mowry, F. P. Rolfe, E. Shevky.

This curriculum in Near Eastern studies is designed primarily for the following classes of students: (1) students seeking a general education and desiring a special emphasis in this particular area; (2) students who plan to live and work in this area, whose careers will be aided by a knowledge of its peoples, languages, and institutions (such careers might be centered on teaching, research, business, engineering, journalism, or government service); (3) students preparing for advanced study in the language, peoples, or institutions of the area. Selection of courses should be decided partly by the student's own special objectives.

Lower Division

Required: Hebrew 5A-5B or Oriental Languages (Arabic) 3A-3B; candidates must also obtain a reading proficiency in either French, German or Italian, and give evidence, normally by examination, of their ability to read current literature on Near Eastern studies (this requirement may be satisfied at any time before graduation); 6 units of History (1A-1B recommended); 12 units from the following social sciences: Anthropology 2, 3; Economics 1A-1B; Political Science 2; Sociology 1.

Upper Division

Required: 12 units of upper division courses in Arabic and/or Hebrew language; 6 units of Near Eastern History; 3 units of Sociology 166 or 167 or Anthropology 123; 8 units of Hebrew literature (in English), Hebrew 182A-182B, and Arabic literature (in English), Oriental Languages 142A-142B;

6 units from the following courses: Hebrew 199 (Special Studies in Semitic Languages); Oriental Languages 198 (Special Studies in Arabic); History 198 (Special Studies in Near Eastern History). Recommended courses: Anthropology 103, 124, 125; Art 120D; Education 197B; Classics 170A-170B; Folklore 101; History 111A, 114; Linguistics 170; Philosophy 112, 152, 153.

CURRICULUM IN PHYSICAL SCIENCES-MATHEMATICS

Committee in Charge of the Curriculum: C. Bell (chairman), J. A. Bond, P. S. Farrington, F. C. Leonard.

This curriculum is designed to provide training in sciences and mathematics for those students who are planning to work for the general secondary credential with physical sciences and general science as a major and mathematics as a minor. The curriculum has been set up to provide adequate training for secondary teachers of physics, chemistry, general science, and mathematics.

Lower Division

Required: Chemistry 1A-1B (10); Mathematics 1, 3A-3B, 4A (12); Physics 1A-1B, 1C (9). *Note:* Physics 1C may be deferred to upper division.

Upper Division

Required: Chemistry 5A (3) and either 8 and 9 (6) or 112A-112B (10); Mathematics 4B (3) and 101A or 101B (3) and any other 100-level mathematics course (3); Physics 1D (3), 121 (3); Astronomy 101 (3); Geology 101 (3); English 106S (3); Education 106 or 101 or 102 (3) and 170 (3), 370 (3); Mathematics 370 or Physical Science 370.

Note: For those students who are not certain that they will continue their work toward the general secondary, the last 12 units may be replaced by 12 units of upper division work selected from Astronomy 102, 112, 115, 117A, 117B, 118; Chemistry 108A, 108B, 109A, 109B; Physics 105, 107.

CURRICULUM IN PRELIBRARIANSHIP

Committee in Charge of the Curriculum: L. C. Powell (chairman), H. T. Swedenberg, H. A. Steiner.

Advisers: Mr. Powell in charge.

The prelibrarianship curriculum is designed to meet the needs of students who plan to pursue a general course in a graduate library school. The requirements of library schools and the demands of the profession indicate the desirability of a broad background in liberal arts subjects for students who plan to enter the general field of public and university library work. Proficiency in at least one foreign language is advantageous.

Students who intend to specialize in scientific, industrial, or other technical fields of librarianship should complete a major in the appropriate subject under the direction of the department concerned, rather than pursue the prelibrarianship curriculum. Students primarily interested in public school librarianship are advised to complete the requirements for a general teaching credential as described in the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES. A major in a subject field is also desirable for some phases of university library work.

Students interested in librarianship as a career should be advised that, in general, applications for admission to the accredited library schools from persons more than thirty-five years of age are considered only when the applicants hold responsible library positions from which they can obtain leaves of absence.

To be admitted to the prelibrarianship curriculum a student must file a "Prelibrarianship Plan" which has been approved by an authorized library adviser, and which meets general requirements stated as follows:

- (1) One year in each of two of the following languages: French, German, Italian, Russian, Spanish. Additional study in at least one of the two languages is strongly recommended.
- (2) Lower division courses:
- (a) Requirements of the College of Letters and Science.
- (b) Prerequisites for upper division courses selected by the student.
- (c) Recommended electives:
- | | |
|------------------|-------------------------|
| Astronomy 1A | Economics 1A |
| Bacteriology 6 | English 1B, 31, 46A-46B |
| Life Sciences 1A | Speech 1A |
| Botany 1 | Philosophy 6A-6B |
| Chemistry 2 | Physics 10 |
| Geology 2 | |
- (d) Ability to type is recommended by many library schools and is generally recognized as an asset to the professional librarian.
- (3) Upper division courses: At least 36 upper division units chosen from the fields listed below, with no less than 12 units in one field, and no less than 6 units in each of four other fields. The particular choice of courses should be determined by the student in consultation with a library adviser on the basis of the student's individual interest and needs. (Courses marked with asterisks have lower division prerequisites.)

I. Art and Music:

Art 108A-108B (4), 118A-118B (4), 119A-119B (4), 120A-120B (4), 173A-173B (4); Music 121* (2), 136 (3), 170 (3).

II. Education and Philosophy:

Education 101 (3), 102 (3), 106 (3), 110* (3), 111* (3), 147 (2), 181 (2), 197 (2); Philosophy 114 (3), 125 (2), 126 (2), 146 (3), 170A-170B* (3-3), 183 (3).

III. English and American Literature:

English 110 (3), 113 (2), 114A-114B* (6), 117J (3), 118 (3), 122A-122B* (6), 125C-125D (6), 125G-125H* (6), 130 (2), 131* (3), 132* (3), 133 (3), 190A-190B (4), 195 (2).

IV. Foreign Language and Literature:

French 109M-109N (6); German 121A-121B (4); Greek 180A-180B (4); Italian 152* (3); Latin 180A-180B (4); Oriental Languages 112 (2), 132 (2); Slavic Languages 130 (3), 132 (3); Spanish 102A-102B* (6); Folklore 101 (3); Linguistics and Philology 170 (3).

(Note: Upper division survey courses in the foreign language itself may be substituted for survey courses in translation.)

V. History, Economics, and Political Science:

History 101 (2), 140A-140B* (6), 149A-149B* (6), 151A-151B* (6), 162A-162B* (6), 177* (3), 179* (3), 188* (3), 191A-191B* (6), 198* (3); Economics 100A* (3), 103* (3), 107* (3), 108* (3), 131A-131B* (4); Political Science 103* (2), 110 (3), 127 (3), 143* (3), 146 (2), 148* (2), 155* (2), 181* (3), 184* (3), 185* (3).

VI. Psychology, Anthropology, and Sociology:

Psychology 110* (3), 120* (3), 126* (2), 143* (2), 145A-145B* (4), 147* (3); Anthropology 102* (3), 103* (3), 124 (3), 125 (3), 164 (3); Sociology 161* (3), 143* (3), 144* (3), 145* (3), 170* (3), 189* (3).

CURRICULUM IN PREMEDICAL STUDIES

(Leading to the Degree of Bachelor of Arts)

Committee in Charge of the Curriculum: R. M. Doreus (chairman), M. S. Dunn, R. Flickinger, W. R. Goldschmidt, C. S. Roberts, A. J. Salle.

A premedical student may satisfy the requirements for admission to a medical school by one of two plans: (a) by majoring in any one department in which he fulfills the departmental requirements concurrently with or in addition to the specific course requirements of the medical school which the student expects to attend; (b) by completing the premedical curriculum as set forth below and the specific course requirements of the medical school which the student expects to attend.

A grade-point average of 1.5 is required in the freshman and sophomore years in order that a student may be eligible for admission to the premedical curriculum in the junior year. Transfer students will not be allowed to continue in this curriculum unless their grade-point average for their first year of work at the University of California is 1.5 or higher.

Preparation: English 1A-1B (6), Chemistry 1A-1B, 5A, 8, 9 (19); Zoology 1A-1B, 100A (14); Physics 2A-2B (8), or 2A, 1C, 1D (10), or 1A, 1B, 1C, 1D (12); French 1, 2 (8), or German 1, 2 (8).

Curriculum: *Either* (a) completion of at least 36 units of coordinated upper division courses in two of the following departments: Bacteriology, Chemistry, Physics, Zoology; *or* (b) completion of at least 36 units of coordinated upper division courses divided between those offered in one of the above departments, namely, Bacteriology, Chemistry, Physics, Zoology, and upper division courses in one of the following: Anthropology-Sociology, Business Administration, Economics, English, History, Mathematics, Political Science, Psychology, Public Health.

In no case may more than 21 units be taken in any one of these departments.

CURRICULUM IN PRESOCIAL WELFARE

Committee in Charge of the Curriculum: S. Riemer (chairman), D. S. Howard, Abbott Kaplan, D. B. Lindsley, R. M. Macdonald.

The field of concentration in social welfare is designed to give the student what is currently regarded as the most suitable background for professional training at the graduate level in a school of social welfare. A course of studies like this also serves all purposes in which a broad foundation in the various social sciences is desirable. Completion of this curriculum does not guarantee admission to a school of social welfare, and the student is expected to consult his adviser regarding the specific requirements of the school of social welfare he expects to enter.

Following an outline of the preparation required, the curriculum is set forth in two parts: I. Specialization and II. Social Science Electives.

Preparation (preferably to be taken during the first two years of college or at the beginning of the third year):

Anthropology 1-2 (6); Life Sciences 1A-1B (6); Sociology 1 or 101 (3); Psychology 1A-1B (6) or 101 (3); Economics 1A-1B (6) or 101 (3); Political Science 1-2 (6) or 103 (2); Statistics 1 (2) or Sociology 18 (3).

I. Specialization: Thirty (or 32) units in upper division Letters and Science courses to be distributed in the fields as indicated below:

Sociology: At least 12 units including Sociology 185 and 9 units of upper division sociology.

Psychology: At least 8 units of upper division psychology.

Economics: At least 5 to 6 units (2 courses) in upper division economics.

Political Science: At least 6 units including Political Science 181.

II. Social Science Electives: Ten (or 11) units, *preferably* to be chosen from the following list of courses, or similar courses, with approval of and in consultation with, an adviser. Courses in this list are also those recommended for the requirements under I above.

Anthropology 103, 125, 151, 165; Economics 100A, 103, 106, 107, 131B, 133, 156A-156B; History 174A-174B, 175, 176, 188; Philosophy 104A-104B,

114, 183; Political Science 113, 166, 186; Psychology 105, 148, 168; Sociology 120, 126, 142, 143, 144, 145, 161, 168, 181, 182, 186, 189; Home Economics 112, 143, 144; Public Health 106, 110, 125, 170.

CURRICULUM IN PUBLIC SERVICE

Committee in Charge of the Curriculum: P. Neff (chairman), E. A. Engelbert, R. H. Turner.

The curriculum in public service is designed to be of assistance to students who wish to qualify themselves for positions in government work. It should be noted that a large percentage of government positions are open only through competitive examinations. The curriculum, therefore, is designed to allow the student to coordinate a program drawn from several departments in preparation for a general class of position. Although the curriculum is primarily related to political science, it is designed to allow a broader training in administrative work than is permitted in a departmental major.

Lower Division

Required: Business Administration 1A-1B (3-3); Economics 1A-1B (3-3); Political Science 1-2 (3-3); Statistics 1 (2); Speech 1A or 1B (3). In certain fields, other courses are prerequisite to upper division courses included in the curriculum:

Public Personnel—Psychology 1A-1B.

Upper Division

The curriculum itself consists of 36 units of upper division courses selected from one of four possible fields of concentration: Public Personnel Administration, Public Management, Public Relations, and Financial Administration. Political Science 141, 166 or 187, 172 or 184, 181, and 185 are required courses for each field of concentration. The remaining units must be chosen from the approved list of courses offered under the student's chosen field:

I. *Public Personnel Administration*

Political Science 166 (3), 171 (3), 172 (3), 183 (3), 184 (3), 186 (3), 187 (3); Psychology 105A-105B (3-2), 185 (2), 186 (2); Business Administration 150 (3), 152 (3); Economics 150 (3), 152 (3), 155 (2), 158 (3); Sociology 118A-118B (3-3), 131 (3), 161 (3).

II. *Public Management*

Political Science 113 (3), 143 (3), 146 (2), 166 (3), 168 (3), 171 (3), 172 (3), 183 (3), 184 (3), 186 (3), 187 (3); Business Administration 150 (3), 152 (3), 190 (3); Economics 131A-131B (2-2), 150 (3), 170 (3); Psychology 185 (2); Sociology 118A-118B (3-3), 128 (3), 131 (3), 143 (3).

III. *Public Relations*

Political Science 125 (3), 127 (3), 142 (2), 143 (3), 146 (2), 148 (2), 166 (3), 167A-167B (3-3), 171 (3), 172 (3), 183 (3), 184 (3), 186 (3), 187 (3); Business Administration 150 (3), 163 (3), 168 (3); Economics 150 (3); Journalism 101 (3); Psychology 142 (2), 143 (2), 180 (2); Sociology 118A-118B (3-3), 128 (3), 131 (3), 143 (3); not more than 6 units from History 171 (3), 172A-172B (3-3), 173 (3), 174A-174B (3-3), 175 (3).

IV. *Financial Administration*

Political Science 143 (3), 166 (3), 167A-167B (3-3), 171 (3), 172 (3), 183 (3), 184 (3), 186 (3), 187 (3); Business Administration 120 (3), 121 (3); Economics 131A-131B (2-2), 183 (3), 185 (3); Sociology 118A-118B (3-3).

Variations in the programs may be made with the approval of the adviser. The curriculum in public service, which combines work of the departments of Political Science, Economics, Psychology, and Business Administration,

prepares students for positions in governmental work other than foreign service. The curriculum is of value also for students interested in careers as public relations counselors, personnel managers, etc.

During the past few years, governmental employment, both in the federal and local governments, has offered an attractive field to young men and women who have the proper training and interest. Governmental positions increasingly require specialized training in fields such as budgeting, personnel, engineering, and in government management. In addition to regular positions with the government, there are openings for part-time or full-time internship training in various governmental agencies in the Los Angeles area.

CURRICULUM IN RELIGION

Committee in Charge of the Curriculum: D. K. Bjork (chairman), A. B. Nisbet, A. H. Travis.

Preparation: Greek and Latin, 16 units; English 1A-1B (6), 31 (2), 46A-46B (6); Psychology 1A-1B (6); Philosophy 20A-20B (6). Recommended: History 1A-1B.

Upper Division: 36 units from (A) and (B), with prescribed prerequisites.

(A) *Required Courses* (22 units): Speech 122 (3); History 121A-121B (3-3), 141A-141B (2-2); philosophy: 6 units from 104A-104B (3-3), 112 (3), 121 (2), 146 (3), 147 (3); Psychology 168 (3).

(B) *Selective Requirements* (14 units chosen from the following list): Anthropology 124 (3); Economics 101 (3); Education 101 (3); English 106F (2), 156 (3), 157 (3); Greek 117A-117B (2-2); History 114 (2); Music 171 (2); philosophy: 3 units from the courses listed under (A); political science: 3 units from 110 (3), 112 (3), 127 (3).

(C) *Recommended Courses:* Anthropology 102 (3); Sociology 142 (3), 143 (3), 144 (3), 189 (3); Economics 150 (3), 155 (2), 158 (3); English 117J (3), 167 (3); History 142 (3), 147 (3), 176 (3), 178A-178B (2-2), 191A-191B (3-3); Music 110 (2), 130 (2), 131 (2); Political Science 146 (2), 148 (2); Psychology 134 (2), 138 (2), 143 (2), 145A-145B (2-2), 175 (3).

PREPARATION FOR VARIOUS PROFESSIONAL CURRICULA

In addition to the curricula described in the preceding pages, all of which lead to the bachelor's degree, certain courses given at the University of California, Los Angeles, may be used as preparation for admission to the professional colleges and schools of the University in Los Angeles, in Berkeley, and in San Francisco.

PREBUSINESS CURRICULUM: TWO YEARS

Committee in Charge of the Curriculum: D. E. McHenry (chairman), J. C. Clendenin, W. Gorter, R. H. Sorgenfrey.

The prebusiness curriculum offered in the lower division of the College of Letters and Science, Los Angeles, is designed to prepare students to meet the entrance requirements specified by the faculty of the School of Business Administration, Los Angeles (see page 47).

The prebusiness curriculum differs from the requirements for the Associate in Arts degree in the College of Letters and Science in the following respects:

1. The specific courses which are required for acceptance by the School of Business Administration, Los Angeles;
2. Completion of course 2 in a foreign language is required, rather than completion of 16 units in not more than two languages.

The Prebusiness Curriculum

The curriculum as set forth below includes the specific requirements for acceptance by the School of Business Administration and provides for meeting all of the requirements for the Associate in Arts degree in the College of Letters and Science with the exception of the language requirement. The specific courses acceptable on this curriculum must be selected from the courses listed under the Associate in Arts degree requirements for the College of Letters and Science (see pages 1-4). Students who wish to qualify for the Associate in Arts degree must complete all requirements (including the 16-unit language requirement in full) before transferring to the School of Business Administration. Those who do not wish to qualify for this degree should apply for admission to the School of Business Administration upon completion of 60 units of the prebusiness program with a C average or better.

(A) General University Requirements	<i>Units</i>
(1) Subject A	0
(2) Military, air, or naval science (minimum).....	6
(3) Physical education	2
(B) Foreign language (Completion of course 2)*.....	4
(C) Elementary algebra and plane geometry.....	0
(D) English composition (English 1A).....	3
(E) Natural science	
(1) Physical science	5
(2) Life science	5
(F) Social sciences	
(1) Lower division year course in history (History 7A-7B recommended)	6
(2) Social science exclusive of history, including courses in at least two subjects: Economics 1A (required for prebusiness curriculum)	3
Elective (to be selected from list on page 3)....	3
(G) Humanities. Two of the following three groups:	
(1) Literature	}
(2) Philosophy	
(3) The arts	
(H) Additional courses required for acceptance by School of Business Administration:	
Economics 1B	3
Business Administration 1A-1B	6
†Mathematics 3B or 32B.....	3

Total Units 57-61

PRECRIMINOLOGY CURRICULA: TWO YEARS

The University offers a four-year program in criminology leading to the bachelor's degree. Three distinct fields of study are provided. Two of them deal with the application of the social sciences to: (a) law enforcement, and (b) correctional work; these lead to the degree of Bachelor of Arts. The third is concerned primarily with the application of the natural sciences to

* Completion of course 2 in a foreign language or 3 years of one language in high school is required for the prebusiness curriculum. Sixteen units in not more than two languages are required for those students who desire to qualify for the Associate in Arts degree.

† Mathematics 2 will be accepted in lieu of Mathematics 32B for the admission of transfer students until July 1, 1957.

law enforcement and crime investigation and leads to the degree of Bachelor of Science. The first two years of work in each field may be taken at Los Angeles; the last two years must be taken in the School of Criminology at Berkeley.

All applicants for admission to the School of Criminology must have completed at least 60 units of college work with a C average or better. In addition to fulfilling the lower division requirements of the College of Letters and Science (see pages 1-4), students are expected to complete certain prerequisite courses. While not all of the prerequisite courses are available on the Los Angeles campus, students should complete so far as possible these courses which are listed below. The remaining courses may be completed after admission to the School of Criminology.

Prerequisite Courses

For Law Enforcement and Correctional Work

Required: Political Science 1-2, Sociology 1-2, Psychology 1A, 33;
 Statistics 1 20 units
 Recommended: Anthropology 1, Business Administration 1A-1B, Chemistry 1A-1B, Physics 2A-2B, Public Health 5, Speech 1A-1B. Students interested in law enforcement are urged to take a year of wrestling and a year of boxing.

For Criminalistics

Required: Chemistry 1A-1B, 5A, 8, 9, Psychology 1A, Zoology 15,
 Physics 2A-2B 35 units
 Recommended: Botany 1, Geology 1, Mineralogy 6, Zoology 1A-1B, 4.

PREDENTAL CURRICULUM: TWO YEARS*

The University offers a six-year program in dentistry leading to the degrees of Bachelor of Science and Doctor of Dental Surgery. The first two years may be taken at Los Angeles; the last four years must be taken in the College of Dentistry in San Francisco.

The student will find himself more adequately prepared for the predental curriculum if he has taken in high school the following subjects: English, 3 units; history, 1 unit; mathematics, 3 units (algebra, plane geometry, and trigonometry); chemistry, 1 unit; physics, 1 unit; foreign language, 2-4 units.

The 60 units of work required for admission to the College of Dentistry include general University requirements and additional specific requirements, as follows (the numbers in parentheses refer to courses at the University of California, Los Angeles, which fulfill the requirements):

(1) General University requirements:

Subject A

Military science or air science (four semesters)

Physical education (four semesters)

American History and Institutions is prerequisite to the bachelor's degree. (Although this requirement may be satisfied in the College of Dentistry, it is preferable that it be completed in the predental program.)

(2) English or Speech (1A-1B)..... 6 units

* The College of Dentistry reserves the right to limit enrollment on the basis of scholarship, results of the performance and aptitude tests, recommendations, and interviews. At the present time, because of limited facilities and the large number of applications, it is not possible for the College of Dentistry to act favorably upon applications from persons who have not had the major portion of their high school and preprofessional education and residence in California or in one of the far western states which does not have a dental school. For further information see the ANNOUNCEMENT OF THE COLLEGE OF DENTISTRY.

- (3) Science 82 units
- (a) Chemistry 1A, 1B, 8, 9..... 16
- (b) Physics 2A, 2B 8
- (c) Zoology 1A, 1B 8
- (4) Trigonometry (Mathematics C)
(if not completed in high school)
- (5) Electives selected as indicated from the following groups... 16-20 units
- (a) *Group I*: 2 year courses selected from Anthropology 1, 2; Economics 1A-1B; Geography 1A-1B or 5A-5B; History 1A-1B, 7A-7B, 8A-8B; Mathematics, any 2 sequential courses, not including course C; Political Science 1, 2; Psychology 1A, and 33; Sociology 1, 2.
- (b) *Group II*: *Either* (a) one year course or year sequence in foreign literature in translation, a year sequence of any foreign language, English 46A-46B, Music 30A-30B, Philosophy 6A-6B, 20A-20B; *or* (b) Art 1A, 1B; or any two semesters of a foreign language in which at least 6 units have previously been completed or are completed concurrently.

PREDENTAL HYGIENE CURRICULUM: TWO YEARS†

(Open to Women Only)

The University offers a four-year program in dental hygiene leading to the degree of Bachelor of Science. The first two years may be taken at Los Angeles; the last two years must be taken in the College of Dentistry in San Francisco.

The student will find herself more adequately prepared if she has taken in high school the following subjects: English, 3 units; history, 1 unit; mathematics, 3 units (algebra and plane geometry); chemistry, 1 unit; physics, 1 unit; foreign language, 3 (or, preferably, 4 units).

The 60 units of work required for admission to the College of Dentistry include general University requirements and additional specific requirements, as follows (the numbers in parentheses refer to courses at the University of California, Los Angeles, which fulfill the requirements):

(1) *General University requirements:*

Subject A

Physical Education (four semesters)

American History and Institutions (required for the bachelor's degree.

The examination in American History and Institutions may be taken in the College of Dentistry, but it is preferable to satisfy the requirement in the predental program).

(2) English or Speech 1A-1B..... 6 units

‡(3) Chemistry 1A, 8 8 units

(4) Zoology 1A-1B 8 units

(5) Either the degree of Associate in Arts from the University of California (or its equivalent), or the following program of courses:

(a) A year course selected from each of the following groups:

Group I: Anthropology 1, 2, Economics 1A-1B, History 1A-1B, 7A-7B, 8A-8B, Political Science 1, 2, Sociology 1, 2,

† The College of Dentistry reserves the right to limit enrollment if applications exceed the available facilities, and to require interviews and aptitude tests if they are necessary in the selection of the class. For further information see the ANNOUNCEMENT OF THE COLLEGE OF DENTISTRY.

‡ At Los Angeles, Chemistry 1B is prerequisite to Chemistry 8.

- Group II: Psychology 1A, 33, Home Economics 11, 12, any two courses in public health,
 Group III: Philosophy 6A-6B, 20A-20B, Art 1A, 1B, Music 30A-30B, literature, foreign language18-20 units
- (b) Six additional units selected from any of the three groups listed under (a) 6 units
- (c) Electives12-16 units

PREMEDICAL CURRICULUM: THREE YEARS*

It is assumed that as preparation for this curriculum the student will have completed in the high school the following subjects: English, 3 units; United States history, 1 unit; mathematics, 2 units (elementary algebra and plane geometry); chemistry, 1 unit; physics, 1 unit; foreign language (preferably French or German), 2 units. The requirements for the degree of Associate in Arts may be met more easily if the foreign language has been pursued four years in the high school. It is desirable that a course in freehand drawing be taken in high school. If possible, the student should also complete in high school intermediate algebra, $\frac{1}{2}$ unit, trigonometry, $\frac{1}{2}$ unit, although these courses may be taken in the University.

It is important for students to bear in mind that the class entering the School of Medicine is limited; in the past there have been a great many more applicants than could be admitted. Premedical students who, upon the conclusion of their sixth semester, find themselves thus excluded from the School of Medicine, will be unable to obtain the bachelor's degree in the College of Letters and Science at the end of the eighth semester, unless they plan their program with this contingency in mind. They should, therefore, either enter a departmental major at the beginning of the fifth semester, at the same time meeting all premedical requirements, or include in their premedical program a sufficient number of appropriate courses in some major department. Provision for the completion of such a major does not prejudice the student's eligibility for admission to the School of Medicine.

PREPHARMACY CURRICULUM: TWO YEARS

The School of Pharmacy on the San Francisco campus of the University offers a four-year curriculum leading to the degree of Doctor of Pharmacy. To be admitted to this curriculum a student must have met all requirements for admission to the University and have completed, with an average grade of C or better in the University of California or in another institution of approved standing, at least 60 units of the program set forth below under the heading of "Prepharmacy Curriculum." Students taking the prepharmacy work at the University of California normally will be enrolled in the College of Letters and Science. If taken elsewhere, the courses selected must be equivalent to those offered at the University of California. In order to complete prepharmacy studies in the minimum of time, students should complete elementary chemistry, trigonometry, and a full year of intermediate algebra in the high school.†

* This section applies both to the School of Medicine at San Francisco and to the School of Medicine at Los Angeles.

† Students who have completed the two-year prepharmacy curriculum at Los Angeles cannot be assured of admission to the School of Pharmacy on the San Francisco campus. When the number of qualified applicants for the Doctor of Pharmacy curriculum exceeds the available facilities, selection will be made on the basis of scholarship as determined from the College record and by examination. A personal interview may be required. Applications for admission to the School of Pharmacy, San Francisco campus, must be filed between October 1 and March 1 preceding the September of proposed admission. Blanks may be obtained from the Office of the Director of Admissions, University of California Medical Center, San Francisco 22.

Until, but no later than, September, 1956, students who have satisfactorily completed the former one-year prepharmacy curriculum in the College of Letters and Science may be permitted to enroll in the first year of the College of Pharmacy at Los Angeles and, with three additional years in the School of Pharmacy on the San Francisco campus, complete the requirements for the Bachelor of Science degree in pharmacy (see page 46 under the heading, "College of Pharmacy"). It is to be noted that the first year of the present (new) two-year prepharmacy curriculum is the same as the former one-year prepharmacy curriculum which met the requirements for admission to the first year of the curriculum leading to the degree of Bachelor of Science in Pharmacy. Thus, students who completed one year of prepharmacy studies prior to September, 1956 have the option of pursuing the curriculum leading to the degree of Bachelor of Science in Pharmacy (first year at Los Angeles and the remaining three years at San Francisco) or, of completing the second year of the new two-year prepharmacy curriculum and qualifying for admission to the four-year curriculum of the School of Pharmacy leading to the degree of Doctor of Pharmacy.

Prepharmacy Curriculum

Adviser: Mr. Plunkett

First Year

	Units
(1) General University Requirements	
Subject A	0
Military, air or naval science (minimum)	3
Physical education	1
(2) English 1A-1B or Speech 1A-1B	6
(3) Science	
Chemistry 1A-1B	10
Botany 1	5
(4) Mathematics (if not completed in high school)	
Trigonometry (Mathematics C)	
Intermediate Algebra (Mathematics D)	
(5) Electives	5
Electives should be selected from courses in foreign language, social science, and humanities offered in satisfaction of the Associate in Arts requirements of the College of Letters and Science.	

Second Year

(1) General University Requirements	
Military, air or naval science (minimum)	3
Physical education	1
(2) Science	
Zoology 1A-1B	8
Physics 2A-2B	8
(3) Mathematics 3A-3B	6
(4) History 7A-7B or History 7A, Political Science 1	6
If the University requirements in American History and Institutions has been met, electives may be taken.	

OTHER PROFESSIONAL CURRICULA IN THE UNIVERSITY

Architecture.—Students in good standing having a minimum of 60 units of University credit will be admitted to the School of Architecture upon formal application filed with the Secretary of the School. In order to complete the prescribed curriculum in the indicated time, such students should also have completed the prerequisites to the work of the junior year. Only the academic courses in this program may be taken in the College of Letters and Science at

Los Angeles; consequently, the student desiring a major in architecture is advised to enroll at Berkeley for the professional courses leading to the M.A. degree which carries the School's recommendation to State License Boards.

Journalism. The University does not offer an undergraduate major in journalism at Los Angeles; therefore, it is not possible to receive a bachelor's degree in journalism on the Los Angeles campus. Instead, the basic background for the graduate program in journalism is drawn principally from the work offered in the various departments in the College of Letters and Science.

Undergraduate students who are primarily interested in journalism should select a major from the list of Majors and Curricula and indicate this major and the appropriate college on the Application for Admission, Undergraduate, with Journalism in parentheses: e.g., *Letters and Science, Anthropology (Journalism)*. This will make it possible for the college to assign the student to the proper adviser who will help the student plan a program in his selected major with electives recommended by the Graduate Department of Journalism. Journalism should not be listed as a major. If the student is undecided regarding a choice of major and desires ultimately to enter the Graduate Department of Journalism as a graduate student, he should indicate on the Application, *Letters and Science, Undecided (Journalism)*.

It is advisable to choose a major that will follow one's field of interest and include as many as possible of the following courses recommended by the Graduate Department of Journalism: English 1A-1B, 2, 31, 106A, 130A-130B; Economics 1A-1B, 12, 13; Geography 1A-1B or 100, 4; History 7A-7B, and 5A-5B or 8A-8B; Political Science 1 or 101, 2, 110; Psychology 1A-1B; Anthropology 1, 2; Sociology 1A-1B or 101.

Librarianship.—The School of Librarianship in Berkeley offers two separate curricula of two years subsequent to the bachelor's degree, leading at the end of the first year to the degree of Bachelor of Library Science, and at the end of the second year to a master's degree—ordinarily the Master of Library Science, but in certain cases the Master of Arts. The A.B. degree of the University of California (Los Angeles or Berkeley) or its equivalent, a minimum grade-point average of 1.5 in the last two years of academic work, a graduate standing in the University without deficiencies, a satisfactory score on the Graduate Record Examination (Profile and Aptitude Tests), and a college year of each of two modern languages (preferably French and German) are required for admission to the B.L.S. program. For admission to the master's program the same requirements obtain except that a minimum 2.0 grade-point average in an accredited graduate library school is required.

COLLEGE OF AGRICULTURE

THE COLLEGE OF AGRICULTURE of the University of California offers at Los Angeles the plant science curriculum with the majors in subtropical horticulture, floriculture and ornamental horticulture, and general horticulture leading to the degree of Bachelor of Science. These majors are not available on the other campuses where the College of Agriculture offers instruction. Graduate work is also offered at Los Angeles leading to the degrees of Master of Science and Doctor of Philosophy in horticultural science.

Students electing other majors in the plant science curriculum—agronomy, genetics, landscape management, plant pathology, pomology, vegetable crops, and viticulture—may spend the freshman and sophomore years at Los Angeles and then transfer to the campus, Berkeley or Davis, where their major work is offered. The same is true of students electing certain other curricula in the College of Agriculture—agricultural economics, agricultural education, entomology and parasitology, food science, irrigation science, landscape architecture, preforestry, soil science, range management, and preveterinary medi-

cine. Students electing the animal science curriculum are advised to transfer after one year at Los Angeles. The first three years of the agricultural engineering curriculum are available in the College of Engineering at Los Angeles. Students who register with the intention of later transferring to Berkeley or Davis to pursue other curricula or to obtain majors in the plant science curriculum other than those offered at Los Angeles are requested to consult the PROSPECTUS OF THE COLLEGE OF AGRICULTURE (obtainable from the Office of the Dean) and the appropriate advisers in agriculture at Los Angeles.

Every student *must* consult his adviser each semester for guidance in meeting the requirements of the curriculum of his choice, and his study list *must* be approved by the Dean's office.

The Department of Botany of the College of Agriculture, Los Angeles, offers the major in botany in the College of Letters and Science. Graduate work is also offered which leads to the degrees of Master of Arts and Doctor of Philosophy in botanical science. Students who elect the major in botany are directed to register in the College of Letters and Science. Each student will be required to consult an educational counselor during his freshman and sophomore years, and thereafter an official adviser in the Department of Botany.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

PLANT SCIENCE CURRICULUM, MAJORS IN SUBTROPICAL HORTICULTURE, FLORICULTURE AND ORNAMENTAL HORTICULTURE, AND GENERAL HORTICULTURE

The candidate for the degree of Bachelor of Science in the College of Agriculture must complete the following requirements:

(1) The equivalent of four years of university residence. The senior year must be spent in the College of Agriculture, University of California.

The student should note that in order to complete the work in agriculture within the normal four-year period, prerequisites must be systematically met and the proper sequences of courses followed. Unnecessary delay will thereby be avoided.

(2) One hundred and twenty-four units of university work, with at least an equal number of grade points, in addition to matriculation units and Subject A. (The Subject A examination in English Composition is required of every undergraduate student on or before his first registration in the University.) Not more than 4 units may be in lower division physical education courses.

(3) Thirty-six of the 124 units must be in upper division courses (courses numbered 100-199).

(4) Nine units of mathematics. Matriculation work may be offered toward this requirement, with each year of high school work valued at 3 units. The student normally satisfies this requirement before the end of his sophomore year in the University.

(5) American History and Institutions. The student may meet this requirement by passing an examination for which no credit is given, or by completing certain prescribed courses or course sequences.

(6) In addition, every student must complete the requirements as listed under the following curriculum:

PLANT SCIENCE CURRICULUM

(a) Students must complete the following:	Units
Chemistry	13
Botany and Plant Physiology	9
Physics	3
Economics	3
English and/or Speech	6
Genetics	4
Plant Pathology.....	4
Soils, Irrigation, or Plant Nutrition.....	3
Entomology	4
Additional units from:	
Natural Sciences	9-15
Bacteriology, biochemistry, botany or plant physiology, chemistry, entomology, geology, irrigation, mathematics†, physics, plant pathology, plant nutrition, soils, zoölogy, or animal physiology.	
Social Sciences and Foreign Languages	3- 9
Economics, English or speech, foreign language, history or political science**, philosophy, psychology, sociology.	
	65

(b) Students must also complete a major, the minimum requirement of which consists of 12 units of approved upper division courses in the field of the major.

Certain courses, or other equivalent, are required by the following majors:

Floriculture and Ornamental Horticulture.—Chemistry 1A, 1B, 8; Botany 1 and 107; Irrigation and Soils 126, and 105 or 110A; and Floriculture 131A or 131B, and 136A or 136B. Recommended: Botany 3 or 151, Entomology 144, Plant Pathology 140, Agricultural Economics 130, and Subtropical Horticulture 2 and 110.

Subtropical Horticulture: Chemistry 1A, 1B, and 8; Botany 1 and 107; Subtropical Horticulture 2. Recommended: Plant Pathology 130, Irrigation and Soils 126 and 105; Entomology 134, Agricultural Economics 130, and Subtropical Horticulture 100, 101, 102, 110, and 142.

General Horticulture.—Chemistry 1A, 1B, and 8; Botany 1 and 107. Recommended: Agricultural Economics 130, Irrigation and Soils 126, Floriculture and Ornamental Horticulture 136A or 136B, and Subtropical Horticulture 101, 102, and 110.

Freshman and Sophomore Years

During the freshman and sophomore years the following schedule will normally be followed. For examples of programs in other curricula of the College of Agriculture students should consult the PROSPECTUS OF THE COLLEGE OF AGRICULTURE and the appropriate advisers for agricultural students at Los Angeles.

The College of Agriculture requirements for graduation are the same whether the student registers at Berkeley, Davis, or Los Angeles.

† Not including Mathematics C or D.

** In addition to the general University requirement.

Example of Minimum Program—Plant Science Curriculum

	Units First Semester	Units Second Semester
<i>Freshman Year</i>		
*Military or Air Science (for men).....	1½	1½
Physical Education	½	½
English or Speech 1A-1B.....	3	3
Botany 1, 6	5	4
Chemistry 1A-1B	5	5
Political Science 1.....	..	3
	15	17
<i>Sophomore Year</i>		
*Military or Air Science (for men).....	1½	1½
Physical Education	½	½
Physics 2A or 10 and 21 (10).....	4	..
Chemistry 8 or 5A.....	..	3
Economics 1A	3	..
History 7A .....	..	3
Bacteriology 1 .....	..	4
Subtropical Horticulture 2, 110.....	3	2
Elective	3 or 4	2 or 3
	15 or 16	16 or 17

There is no degree of Associate in Arts in the College of Agriculture. Consequently students who are unable to meet the above-outlined program of study during the first two years may take some of the requirements in their junior or senior years. It should be noted, however, that any great departure from the above program will delay graduation beyond the normal four-year period.

Junior and Senior Years

The additional required courses—Entomology 134 or 144; Botany 107 (Plant Physiology) and 140 (Plant Genetics); 3 units from Irrigation and Soils 105, 110A, 126; Plant Pathology 120 or 130—together with such electives in any department as may be approved by the major adviser, will be taken during the junior and senior years. For elective courses in other departments, see elsewhere in this bulletin.

Where the option exists, the student should consult the major adviser concerning the 12 units required for his major.

OTHER CURRICULA

The requirements in the other curricula offered by the College of Agriculture will be found in the PROSPECTUS OF THE COLLEGE OF AGRICULTURE (obtainable from the Office of the Dean). Programs suitable for the conditions at Los Angeles are given in the PROSPECTUS or may be had from the appropriate advisers in agriculture, who should be consulted.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS**MAJOR IN BOTANY**

Since the major in botany is given in the College of Letters and Science, the requirements for the degree of Bachelor of Arts with the major in botany will be found under College of Letters and Science (see page 5).

* Or Naval Science (8 units per semester).

HONORS

Students who become candidates for the bachelor's degree in the College of Agriculture may be recommended for honors on the basis of the quality of the work done in the regular curriculum.

I. Honorable Mention with Junior Standing (that is, to students who have completed 64 units in their freshman and sophomore years).

- (1) Honorable mention is granted with junior standing to students who attain at least an average of two grade points for each unit of credit undertaken. Such students will remain in honors status unless their average for all work at the end of any semester falls below two grade points for each unit undertaken.
- (2) The list of students who receive Honorable Mention is sent to the chairman or study-list officer of the College before the beginning of the next semester.

II. Honors with the Bachelor's Degree.

- (1) Honors are granted at graduation only to students in honor status who have completed the major with distinction, and who have a general record satisfactory to the Study-Lists and Courses Committee.
- (2) Students who, in the judgment of the Study-Lists and Courses Committee, show marked superiority in their major subject may be recommended for the special distinction of Highest Honors.
- (3) A list of students to whom Honors or Highest Honors in the College have been awarded is published in the COMMENCEMENT PROGRAM.

COLLEGE OF ENGINEERING

THE DEPARTMENT OF ENGINEERING, in complement with other University departments, offers courses leading to the degrees of Bachelor of Science, Master of Science, and Doctor of Philosophy.

The engineering curriculum, leading to the degree of Bachelor of Science, is an integrated curriculum that emphasizes a thorough understanding of the following fundamentals of engineering: mathematics, physics, chemistry, life science, mensuration, graphics, materials, engineering mechanics, circuit analysis, thermodynamics and heat transfer, fluid mechanics, strength of materials, engineering design, and engineering economics. Superimposed on this framework are 18 or more units pertinent to a major field of engineering, and 21 or more units selected from the humanities, the arts and the social sciences. The elective courses not only provide for some degree of specialization in conventional engineering branches, but also permit the student to make a selection of courses with emphasis on an engineering field or function of his own choosing, subject to College approval. This basic curriculum is designed to lead toward professional competence in whatever field of engineering the graduate may enter.

The engineering curriculum has been accredited by the Engineers' Council for Professional Development.

The curriculum requires 140 units and is designed for completion in four years of full-time study. Students who engage in part-time employment, or who choose to take a broader program than required, may plan to devote more than four years to their undergraduate studies.

An optional Cooperative Work-Study Program enables students to obtain preengineering experience by working for pay in an approved industrial position during a portion of their college years.

Most students will find it desirable to complete the first and second years of college study at a junior college. There are in California approximately sixty public junior colleges, most of which offer instructional programs

equivalent to the first two years of the engineering curriculum. The University of California accepts at full value the college-level courses completed with satisfactory grades at these junior colleges, up to a maximum of 70 units.

Upon admission to the College of Engineering, students are assigned to faculty advisers and are under the guidance of the Dean of the College of Engineering. Study programs are arranged in conference with the adviser and must be approved by the Dean.

Students in the College of Engineering may receive honors at graduation for high scholarship or for distinction in advanced work. Students who display marked superiority may be recommended for the special recognition of highest honors at graduation.

Students who plan to seek advanced degrees are referred to the ANNOUNCEMENTS OF THE GRADUATE DIVISIONS, SOUTHERN AND NORTHERN SECTIONS.

THE ANNOUNCEMENT OF THE COLLEGES OF ENGINEERING, BERKELEY AND LOS ANGELES, gives information concerning the history of the Colleges, facilities for instruction and research, Engineering Extension, and other related matters.

ADMISSION TO ENGINEERING

Attention is directed to the fact that the last days for filing applications for admission to the University by students desiring enrollment in the College of Engineering have been moved forward to April 24, 1956 for fall, 1956 admissions; to December 18, 1956 for spring, 1957 admissions; and to April 23, 1957 for fall, 1957 admissions.

Under the terms of an agreement between the State Board of Education and the Regents of the University of California, the Colleges of Engineering at Berkeley and Los Angeles will provide capacity for a limited number of students in the lower division on each of the campuses. Application of this quota will, in effect, largely confine admission to beginning freshmen and to upper division students.

Satisfaction of the matriculation requirements admits the student to the University but not necessarily to the College of Engineering. Admission to the College of Engineering will be based upon the results of an entrance examination and on consideration of the student's grades.

There are two engineering qualifying examinations: the *Engineering Examination, Lower Division*, is required of all applicants for admission prior to the junior year; it is an aptitude test designed to demonstrate the applicant's general scholastic ability and his ability to comprehend scientific materials and principles, to use mathematical concepts, and to judge spatial relationships. The *Engineering Examination, Upper Division*, is required of applicants for admission at and above the junior level, and must be passed satisfactorily by all students, whether new or continuing, prior to beginning the work of the junior year; it is an achievement test including the subject areas of English usage, engineering drawing, general chemistry, mathematics through integral calculus, and general physics. The same examinations are required for admission to the College of Engineering either at Berkeley or at Los Angeles. A list of the places and times for the examinations may be obtained from the Dean of the College of Engineering at either campus. Application blanks for these examinations should be obtained by the prospective student several months before he plans to enroll in the University. A \$5 fee will be charged for each examination if taken with a group of three or more persons at the regularly scheduled times; otherwise the fee is \$10.

Admission in Freshman Standing

While most applicants will take their first two years in engineering at a junior college, an applicant may qualify for admission to the University in freshman standing under any one of the several plans of admission described

on pages 9 C-13 C of this bulletin. Determination of his admission to the College of Engineering is then made on the basis of his score on the *Engineering Examination, Lower Division*, combined with a further detailed consideration of his high school grades and subjects. It is important for such applicants to include the following subjects in the list of high school courses taken to satisfy the University admission requirement, regardless of which of the plans of admission they choose:

Algebra	2 units	Chemistry or Physics	
Plane Geometry	1 unit	(both are desirable).....	1 unit
Trigonometry	$\frac{1}{2}$ unit	Mechanical Drawing	1 unit

An applicant who has not completed all of the above subjects may sometimes be admitted to engineering if he is otherwise well qualified for admission to the University and to the College of Engineering. If a student is admitted without all of the above preparation, it is necessary for him to make up equivalent courses while in college, thereby probably delaying his graduation.

Admission in Advanced Standing

An applicant may qualify for admission to the University in advanced standing under any one of the several plans described on pages 13 C-15 C of this bulletin. Determination of his admission to the College of Engineering is then made on the basis of his score on the appropriate *Engineering Examination (Lower Division* for freshman and sophomore applicants, *Upper Division* for junior and senior applicants), combined with a further detailed consideration of his high school and college grades and subjects. However, in general, new students will be accepted only as beginning freshmen and as upper division students. Due to a temporary space shortage, the College of Engineering on the Los Angeles campus will not be able to accommodate all qualified junior applicants.

In place of the first two years of the engineering curriculum given below, transfer students should complete a program which is recommended for transfer students by the junior college, or other institution attended, and which also includes the following minimum requirements for junior standing in Engineering at the University:

	<i>Minimum Number of Units</i>
Analytic geometry and calculus.....	12
Chemistry (for engineering and science students).....	8
Physics (for engineering and science students).....	10
Engineering (which must include graphics, properties of materials, surveying or engineering measurements and statics).....	10
Nontechnical electives	6
Unspecified subjects (3 units may be nontechnical; the remainder to be in technical and scientific subjects, which may include units, in addition to required units, in mathematics, chemistry, physics and engineering subjects; none may be in military science and/or physical education).....	10
	<hr/> 56

Students who enter with *only* these 56 units will require more than 4 semesters to complete the upper division of the engineering curriculum.

Students transferring from other colleges and universities to the University of California for the study of engineering should have adequate training in subjects basic to the level at which transfer is planned. The full senior year in all cases must be completed at the University of California.

The Colleges of Engineering on the Berkeley and Los Angeles campuses have adopted a policy of reciprocity whereby students who have completed all

the requirements for upper division standing in either of the Colleges of Engineering will be admitted with upper division standing in the other College of Engineering.

ENGINEERING CURRICULUM

All requirements for the degree of Bachelor of Science are met upon completion of: (1) the required courses and elective program of the engineering curriculum listed below, and (2) the general University requirements, including American History and Institutions, military science, physical education, minimum scholastic standing, and senior residence.

	Units First Semester	Units Second Semester
<i>Freshman Year</i>		
Subject A (if required) .....	..	..
†Military Science or Air Science	1½	1½
Physical Education	½	½
Engineering 4A-4B	3	3
Chemistry 1A-1B	5	5
Mathematics 5A-5B	5	3
Physics 1A .....	..	3
Electives .....	..	2
	15	18‡
<i>Sophomore Year</i>		
†Military Science or Air Science	1½	1½
Physical Education	½	½
Engineering 4C-4D	3	3
Engineering 15A-15B	3	3
Mathematics 6A-6B	3	3
Physics 1D-1C	3	3
Electives	4	4
	18‡	18‡
<i>Junior Year§</i>		
Engineering 100A-100B	3	3
Engineering 102B	3	..
Engineering 103A .....	..	3
Engineering 104A-104B	3	3
Engineering 105A-105B	3	3
Engineering 108B	2	..
Mathematics 110C	3	..
Electives	1	6
	18‡	18‡
<i>Senior Year§</i>		
Engineering 104C-104D	4	4
Engineering 113A	2	..
Electives	12	13
	18‡	17

Requirement in English

Proficiency in written English is a requirement of the College of Engineering. Students entering the upper division who did not make a satisfactory

† Naval science may be substituted for military or air science if approved. Additional elective courses are to be substituted for military or air science by those students who are exempt from the requirement.

‡ Will vary normally from 17 to 19 units depending on elective courses selected.

§ Satisfactory completion of the *Engineering Examination, Upper Division*, is prerequisite to upper division work in engineering.

score in the English portion of the Upper Division Engineering Examination are required to undertake remedial work in English composition.

All written work in engineering courses, both lower and upper division, is required to be of acceptable quality in English. Engineering instructors systematically report deficiencies to the Dean, who then prescribes appropriate remedies.

Students required to take remedial English courses may thereby have their graduation delayed.

Electives in the Engineering Curriculum

The engineering curriculum provides for an individualized program based on 42 units of elective work chosen by the student with the approval of his adviser and of the Dean of the College of Engineering. The 42 units are divided into two types of elective, as follows:

1. **The Major Field Electives:** A minimum of 18 units must be devoted to a field of engineering endeavor selected by the student. At least 15 of these units must be in upper division courses. This program should contain a reasonable balance of courses in the practice and in the science of engineering and may include appropriate advanced courses in other departments of the University. Each student, in consultation with faculty advisers, selects a program suited to his individual needs and interests and directed toward his particular engineering objective. Three units of work in engineering design and 3 units in engineering economy are required of all students and may be accomplished within the upper division major field electives.

Three units of study must be in the life sciences and may be accomplished within either the major field or the non-major field electives. Subjects such as psychology, physiology, bacteriology, etc., are acceptable, as are the applied life science courses, Engineering 30, 130A, 130B.

2. **The Non-Major Field Electives:** A minimum of 21 units must be devoted to humanistic social subjects such as literature, philosophy, the arts, and the social sciences. The courses should be arranged to include at least one coherent group of 8 to 10 units. In general, each group should contain a minimum number of lower division or introductory courses and a maximum number of upper division or advanced courses. The University requirement in American History and Institutions may be satisfied within this category, but students are strongly urged to meet this requirement by examination (see page 23 C).

Three units of the 42 units of elective subjects may be chosen from either major field or non-major field courses.

Optional Senior Year at Berkeley or Davis

Students desiring to take advantage of the wide variety of senior courses on the Berkeley campus or of the senior agricultural engineering offerings on the Davis campus may elect to complete part or all of the senior year of the engineering curriculum, not exceeding 36 units of work, on one of those campuses. In consultation with faculty advisers and with approval of the Dean of the College of Engineering, Los Angeles, such students will substitute appropriate Berkeley or Davis offerings for courses Engineering 113A, 104C, and 104D. The major field electives of such students will be made up largely of Berkeley or Davis campus courses chosen from the offerings of two or more departments.

The College of Engineering on the Berkeley campus offers curricula in ceramic engineering, civil engineering, electrical engineering, engineering physics, geological engineering, industrial engineering, mechanical engineering, metallurgy, mineral exploration, mining engineering, petroleum engineering, and process engineering. These curricula are printed in the GENERAL CATALOGUE, DEPARTMENTS AT BERKELEY, and in the ANNOUNCEMENT OF THE

COLLEGES OF ENGINEERING, BERKELEY AND LOS ANGELES. Students in the College of Engineering on the Los Angeles campus may elect to work toward a Bachelor of Science degree from the College of Engineering on the Berkeley campus. Such students will, with the aid of a Los Angeles faculty adviser, choose Los Angeles campus courses which satisfy the requirements of the Berkeley curriculum selected. Transfer to the Berkeley campus will be effected at the appropriate level, but at least the final 32 units must be completed in residence at Berkeley. The first three years of most, but not of all, of the Berkeley curricula may be completed at Los Angeles.

COLLEGE OF APPLIED ARTS

THE COLLEGE OF APPLIED ARTS was established on the Los Angeles campus of the University of California in 1939 in order to meet the demand for training of a specialized character which has a technical or professional appeal, to organize certain scientific and scholarly studies into suitable curricula which may be applied in the fields of industry and the arts, and to provide curricula for the training of teachers in specialized areas.

The College now offers majors in art, music, and theater arts, leading to the degree of Bachelor of Arts; and majors in business education, home economics, and physical education, leading to the degree of Bachelor of Science. Interdepartmental curricula leading to the degree of Bachelor of Science are offered in apparel design, apparel merchandising, and dance.

Nondegree curricula are offered in prenursing, preoccupational therapy, preoptometry, and prepublic health.

By completing additional requirements set up by the School of Education, students may secure *teaching credentials* in connection with the majors in art, business education, home economics, music, physical education, and theater arts.

REQUIREMENTS FOR GRADUATION

Lower Division

Requirements for Upper Division Standing and the Degree of Associate in Arts

The work of the lower division comprises the studies of the freshman and sophomore years, while the upper division refers to the junior and senior years.

Upper division standing is granted to students who have:

- (1) completed at least 60 units of college work.
- (2) earned at least a C average in all University of California work.
- (3) satisfied requirements (A) to (D) below.

Students transferring from other colleges in the University or from other institutions with 60 or more units of credit are given upper division standing, but any subject shortages in requirements (A) to (D) must be completed concurrently with the requirements for the bachelor's degree.

The Degree of Associate in Arts will be granted to students who have completed not less than 60 nor more than 90¹ units of college work, including requirements (A) to (D) below, with at least a C average in all work done in the University. In addition, the last two semesters (24 units) must be spent in residence at the University and at least the final semester must be completed in the College of Applied Arts.

Certain courses taken in the high school are accepted as fulfilling in part or in whole some of the lower division requirements. However, the fulfillment of lower division requirements in the high school does not reduce the number of units required in the University for the degree of Associate in Arts (60) or for the bachelor's degree (120).

¹ If a student fails to satisfy the requirements for the degree of Associate in Arts by the time he completes 90 units of work, he will proceed toward the bachelor's degree without the degree of Associate in Arts.

(A) *General University requirements.*†

Subject A.‡

Military, Naval, or Air Science, 6 to 12 units (four semesters), men.
Physical Education, 2 units (four semesters).

(B) EITHER:

(B₁) *Foreign Language.* At least 16 units in one foreign language. Without reducing the total number of units required for the degree of Associate in Arts or the bachelor's degree, high school work with grades of C or better and not duplicated by college work§ will count as follows: 4 units for the first two years together, and 4 units each for the third and fourth years. The requirement may also be met by passing a proficiency examination in one language. Courses given in English by a foreign language department may not be applied on this requirement. (A foreign student whose entire secondary school work was completed in his native tongue, excluding English, may upon petition be considered as having fulfilled the foreign language requirement.)

OR

(B₂) *Natural Science.* At least 12 units chosen from the following list, including at least one course having 30 or more hours of laboratory work. Courses marked with an asterisk(*) meet the laboratory requirement. Only college courses may apply on the natural science requirement.

Anthropology 1*.

Astronomy 1A, 1B, 2*, 10.

Bacteriology 1*, 6.

Biology 12.

Botany 1*, 2*, 3*, 6*.

Chemistry 1A*, 1B*, 2, 2A*, 5A*, 5B*, 8, 9*, 10*.

Geography 1A*, 3, 5A*.

Geology 2, 3*, 5*.

Life Sciences 1A-1B (both 1A and 1B must be completed to count on the science requirement).

Meteorology 3 or Geography 3.

Mineralogy 6*.

Physics 1A*, 1B*, 1C*, 1D*, 2A*, 2B*, 10, 21*.

Psychology 1B*.

Zoology 1A*, 1B*, 4*, 15*, 25*.

OR

(B₃) A combination of *Foreign Language and Natural Science* to be distributed as follows:

Foreign Language.—At least 16 units in not more than two languages. Without reducing the total number of units required for the degree of Associate in Arts or the bachelor's degree, high school

† For information concerning exemption from these requirements, apply to the Registrar.

‡ An examination in Subject A (English Composition) is required of all entrants at the time of their first registration in the University. For further regulations concerning Subject A, see page 22 C of this bulletin.

§ Any student who because of lapse of time or other circumstance feels unable to continue successfully a language begun in high school may consult the department of the language concerned regarding the possibility of repeating all or a part of the work for credit. Such credit would count on the 60 units required for the degree of Associate in Arts and on the 120 units required for the bachelor's degree; but credit is not allowed toward the required 16 units in foreign language for both the high school courses and the college work duplicating them.

* May be used on natural science or year-course requirement, but not on both.

work with grades of C or better and not duplicated by college work will count as follows: 4 units for the first two years together, and 4 units each for the third and fourth years. If a new language is begun in college, it may not apply on this requirement unless course 2 with its prerequisites is completed. The requirement may also be met by passing a proficiency examination in one language. Courses given in English by a foreign language department may not be applied on this requirement.

Natural Science.—At least 9 units chosen from the natural science list set forth above, including at least one course having 30 or more hours of laboratory work. Three units of mathematics not offered in satisfaction of (D) may be substituted for three units of this requirement if Astronomy 10 is not also offered.

(C) *Matriculation Mathematics.*—Elementary algebra and plane geometry. If these subjects were not completed in the high school, they may be taken in University of California Extension, but will not be counted as a part of the 60 units.

(D) *Three Year Courses.*—A year course chosen from three of the following seven groups, one sequence to be selected from group 1, 2, or 3. Only the courses specified below are acceptable.

1. English, Speech:

English 1A-1B, 46A-46B.

Speech 1A-1B, 3A-3B.

English 1A and Speech 1A or 3A.

2. Foreign language. Courses offered in satisfaction of this requirement may not include any of the work offered as part of requirement (B) above. No high school work may be counted on this requirement.

Arabic 3A, 3B.

Chinese, any two consecutive courses from the following: 1A, 1B, 13A, 13B, 21A, 21B.

French, any two consecutive courses from the following: 1, 2, 3, 4, 25A, 25B.

German, any two consecutive courses from the following: 1, 2, 3, 3LS, 3PS, 4.

Greek 1, 2.

Hebrew 5A, 5B.

Italian, any two consecutive courses from the following: 1, 2, 3, 4.

Japanese, any two consecutive courses from the following: 9A, 9B, 29A, 29B.

Latin, any two consecutive courses from the following: 1, 2, 3, 5A, 5B.

Portuguese, any two consecutive courses from the following: 1, 2, 3, 4.

Scandinavian, any two consecutive courses from the following: 1, 2, 11, 12.

Slavic Languages 1, 2.

Spanish, any two consecutive courses from the following: 1, 2, 3, 4, 25A, 25B.

3. Mathematics:

Any two of the following courses: Mathematics C, D or 1, 2, 3A, 3B, 4A, 4B, 37; Statistics 1.

4. Social Sciences:

Anthropology 1*, 2.

Economics 1A-1B.

Geography 1A*-1B, 5A*-5B.

* See section mark (§) footnote on preceding page.

• May be used on natural science or year-course requirements, but not on both.

History 1A-1B, 5A-5B, 7A-7B, 8A-8B.

Political Science 1, 2.

Sociology 1, 12.

5. Psychology:

Psychology 1A, and 1B* or 33.

6. Philosophy:

Philosophy 6A-6B, 20A-20B, 30 and 31.

7. Music, Art (acceptable only when the specific sequence is not the student's major):

Art 1A-1B, 2A-2B, 5A-5B, 6A-6B.

Music 1A-1B, 3A-3B, 5A-5B, 20A-20B, 30A-30B.

University Extension.—Courses in University of California Extension (either class or correspondence) may be offered in satisfaction of requirements for the degree of Associate in Arts provided they bear the same number as acceptable courses in the regular session. (Equivalent courses bear the prefix X, XB, XL, XR, or XSB.) Extension courses may not, however, be offered as a part of the residence requirement.

Upper Division*

Requirements for the Bachelor's Degree

The bachelor's degree is granted to students who have:

1. Completed at least 120 units of college work.

2. Earned a C average in all University of California work.

3. Satisfied the following requirements:

Lower division requirements of the College of Applied Arts (see page 36).

American History and Institutions.—This requirement may be met by passing an examination or two courses accepted as satisfactory for this purpose. (See page 23 C of this bulletin for approved courses.)

Minor.—Not less than 20 units of coordinated courses, of which at least 6 units must be in closely related upper division courses. (See page 40.)

Major.—The candidate must complete, with a C average, a major† or curriculum in the College of Applied Arts, and must be recommended by the appropriate department or curriculum committee.

Each student is required to take at least 6 units in his major (either 3 units each semester or 2 units one semester and 4 units the other) during his last or senior year.

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 adjustments approved by petition when necessary.

No student is permitted to change his major after the opening of the last semester of the year in which he intends to graduate.

Students who fail in the lower division to attain at least a C average in any department may be denied the privilege of a major in that department.

A department may submit to the Dean of the College the name of any student who, in the opinion of the department, cannot profitably continue in the major, together with a statement of the basis for this opinion, and the probable cause of the lack of success. The Dean may permit a change of major or may, with the approval of the President, require the student to withdraw from the College.

Any department offering a major in the College of Applied Arts may re-

* May be used on natural science or year-course requirement, but not on both.

† See page 36 for lower division requirements to be satisfied before taking upper division courses.

‡ With the approval of the department chairman, 6 units of "300" courses may be used on both the major and the teaching credential.

quire from candidates for the degree a general final examination in the department.

Residence.—All candidates for the degree must be registered in the College of Applied Arts while completing the final 24 units. Courses completed in University of California Extension are not considered work in residence.

Students transferring from other institutions or from University of California Extension with senior standing must complete in the College of Applied Arts at least 18 units in upper division courses, including 12 or more units in the major department. This regulation does not apply to students transferring from other colleges within the University.

Courses taken at a junior college after the completion of 70 units toward the degree may satisfy lower division subject requirements, but they are not given unit credit toward the 120 units required for graduation. Junior college credits may not apply on any upper division requirement.

HONORS

Honorable Mention with the Degree of Associate in Arts.—Honorable Mention is granted with junior standing to students who attain an average of at least two grade points for each unit of work undertaken. Such students remain in honor status for the rest of the undergraduate course unless the average for all work at the end of any semester falls below two grade points for each unit undertaken.

The list of students who receive Honorable Mention with the degree of Associate in Arts is sent to the chairmen of the departments.

Honor Students in the Upper Division.—The honors list includes the names of:

- A. Students who received Honorable Mention with the degree of Associate in Arts and who are in their first semester of the upper division.
- B. Upper division students who have an average of at least two grade points for each unit undertaken in all undergraduate work in the University of California.
- C. Other upper division students specially approved for listing in the honor status by the Committee on Honors, either upon recommendation made to the Committee by departments of instruction, or upon such other basis as the Committee may determine.

Honors with the Bachelor's Degree

- A. Honors are granted at graduation only to students who have completed the major with distinction, and who have a general record satisfactory to the Committee on Honors. Departmental recommendations are reported to the Registrar.
- B. Students who in the judgment of their departments display marked superiority in their major subject may be recommended for the special distinction of Highest Honors. Departmental recommendations are reported to the Registrar.
- C. A list of students to whom Honors or Highest Honors in the various departments have been awarded is published in the COMMENCEMENT PROGRAM.

THE MINOR

A graduation* minor in the College of Applied Arts consists of 20 units of coordinated courses, of which at least 6 units must be in closely related upper division courses. Courses used on the upper division major or on a teaching credential may not apply on the minor. High school work does not apply.

A minor may consist of courses chosen entirely from one department, or

* A graduation minor is not necessarily a "teaching" minor acceptable for the general secondary teaching credential. See ANNOUNCEMENT OF THE SCHOOL OF EDUCATION for definitions of approved teaching minors.

it may include related courses from several fields. With a group minor, the lower division work may include courses from several departments, although it is recommended that two year courses be included. The 6 units of upper division work must be from one department, normally a year sequence. All courses in a given department are considered closely related.

Possible group minors are listed below. Students planning other combinations should secure advance approval from the Dean's Office *before* taking the courses.

Business administration, business education, economics.

English, speech, theater arts.

Humanities: art, folklore, humanities, integrated arts, literature, music, philosophy.

Life science: bacteriology, biology, botany, life sciences, physiological psychology, zoology.

Physical science: astronomy, chemistry, engineering, geography, geology, mathematics, meteorology, mineralogy, physics.

Social science: anthropology, economics, geography, history, political science, psychology, sociology.

ORGANIZED MAJORS AND CURRICULA

A major or a curriculum consists of at least 36 units of coordinated upper division courses, together with the required prerequisites designated as "preparation for the major." A major is composed of courses from one or more departments arranged and supervised by a department, whereas a curriculum is a program of study made up of courses from several departments and supervised by a special committee. The degree of Bachelor of Arts is granted with the majors in art, music, and theater arts; all other four-year majors and curricula lead to the degree of Bachelor of Science.

Departmental *majors*, with opportunities for specialization as indicated, are offered in the following fields:

MAJOR IN ART

History and Practice

Painting, Sculpture and Graphic Arts

Advertising Art

Applied Design

Costume Design

Interior Design

Industrial Design (5 years)

Teaching

MAJOR IN BUSINESS EDUCATION

Office Administration

Accounting

General Business

Merchandising

Office Administration, Accounting, and General Business

Accounting, General Business, and Merchandising

MAJOR IN HOME ECONOMICS

General

Teacher Education

Foods and Nutrition (Commercial)

Food Technology

Clothing and Textiles

MAJOR IN MUSIC

General

Teaching

Opera (5 years)

Performance (5 years)

MAJOR IN PHYSICAL EDUCATION

Physical Education

School Health Education

Physical Therapy

Recreation

MAJOR IN THEATER ARTS

Theater

Motion Pictures

Radio

Language Arts (Teaching)

Special *curricula*, each involving work in several departments, are offered as follows:

Curriculum in Apparel Design
 Curriculum in Dance
 Curriculum in Apparel Merchandising

Two-year *nondegree curricula* are available as follows:

Prenursing Curriculum
 Program for Registered Nurses
 Preoccupational Therapy Curriculum
 Preoptometry Curriculum
 Prepublic Health Curriculum

Special attention is directed to the courses listed as preparation for the major. In general, it is essential that these courses be completed before upper division major work is undertaken. In any event they are essential requirements for the completion of the major.

The major must, in its entirety, consist (1) of courses taken in *resident instruction* at this or another university, or (2) of courses with numbers having the prefix X, XB, XL, XB, or XSB taken in University of California Extension.

The student must attain an average grade of C (one grade point for each unit of credit) in all courses offered as part of the major (or curriculum).

CURRICULUM IN APPAREL DESIGN

The curriculum in apparel design is planned to provide students with the knowledge, taste, originality, and technical skills essential to the successful designer in either the wholesale or retail trade, or for the stage and screen.

Preparation for the Major.—Art 6A-6B, 7A-7B, 16, 21A, 24, Economics 1A-1B, Home Economics 16.

The Major.—Thirty-six units of coordinated upper division courses, including Art 160, 163A-163B, 167, 169A-169B, Home Economics 161, 170, 171A, 172, 175, 176A, 177A-177B, and additional courses chosen from: Art 157A-157B, 161, 166, 176A. Home Economics 162. Recommended: at least one summer of practical experience in a factory or retail store.

CURRICULUM IN APPAREL MERCHANDISING

The curriculum in apparel merchandising is designed for students interested in the retailing of clothing, preparing them for positions as salespeople, buyers, or department managers with manufacturers, retail stores, and custom shops.

Preparation for the Major.—Art 6A-6B, 7A-7B, 21A, Business Administration 1A-1B or 3, Economics 1A-1B, Home Economics 16.

The Major.—Thirty-six units of coordinated upper division courses, including Art 160, 163A, 167, Business Administration 150, 160, 162, 163, Home Economics 161, 170, 172, 175, and additional courses chosen from: Art 157A, 161, 163B, Business Administration 165, 168, Home Economics 143, 162, 171A, 176A, Psychology 180. Recommended: at least one summer of practical experience in a factory or retail store.

CURRICULUM IN DANCE

The curriculum in dance is designed to give students an opportunity to study in an area involving art, English, music, philosophy, physical education, and psychology as related to dance. This curriculum is not planned to train professional dancers, but rather to offer those interested in dance a program of study in contributing fields.

Preparation for the Major.—Art 5A, 6A-6B, Theater Arts 28B, English 1A-1B, 46A-46B, Philosophy 6A-6B, or 20A-20B, or 30 and 31, Physical

Education 7, 34, 35, Psychology 1A-1B. Recommended: Chemistry 2, French 1, 2, Music 30A-30B, Zoology 15, 25.

The Major.—Thirty-six units of coördinated upper division courses, including Art 160, English 114A-114B, Philosophy 136, Psychology 135, 177, Physical Education 130, 150, 151, 153A-153B, 155, and additional courses selected from 100, 131, 140, 141, 142A, 145A, 146, 152, 327A-327B.

PREPARATION FOR PROFESSIONAL CURRICULA

Certain courses given on the Los Angeles campus of the University of California may be used as preparation for admission to professional colleges and schools of the University.

PROGRAM FOR REGISTERED NURSES

Registered nurses needing further work to meet the requirements for admission to the degree program in the School of Nursing may register in the College of Applied Arts to satisfy the requirements for the degree of Associate in Arts.* English 1A and either English 1B or Speech 1A or 3A, Psychology 1A and either 1B or 33, Sociology 1 and 12 or Sociology 1 and Anthropology 2, and a laboratory science course should be included. See the ANNOUNCEMENT OF THE SCHOOL OF NURSING for requirements for the Bachelor of Science degree.

PRENURSING CURRICULUM

The University of California, Los Angeles, offers a four-year basic program leading to the Bachelor of Science degree in Nursing. The requirements for the Associate in Arts degree in the College of Applied Arts and the courses required by the School of Nursing in the first and second years† are as follows:

	<i>First Year</i>	Units First Semester	Units Second Semester
Subject A (if required) .....		..	..
§Physical Education 1		½	½
Chemistry 2A		5	..
Zoology 15 .....		..	5
English 1A, English 1B or Speech 1A or 3A		3	3
History 7A-7B		3	3
Psychology 1A, 1B or 33		3	3
Home Economics 11 .....		..	3
		14½	17½
	<i>Second Year</i>		
§Physical Education 1		½	½
Zoology 25		3	..
Bacteriology 1		4	..
Anthropology 2 or Sociology 1		3	..
Nursing 5 .....		..	0
Nursing 10		3	..
Nursing 15		3	..
Nursing 20 .....		..	4
Nursing 30 .....		..	8
Elective .....		..	3
		16½	15½

* Thirty units of credit will be granted for the hospital nursing course.

† Students transferring to the School of Nursing from other colleges may have a longer program than will those who enter the University of California, Los Angeles, as freshmen, since the nursing courses required in the pre-nursing curriculum are available only at the University of California, Los Angeles.

‡ The four semesters of Physical Education 1 should include one section of Orientation in Physical Education, to be taken in the first year, and one section of Adapted Physical Education (Section 39) to be taken in the second year.

PREOCCUPATIONAL THERAPY CURRICULUM

The University does not offer a complete course in occupational therapy. The following two-year program meets the requirements for the degree of Associate in Arts and includes those subjects recommended by the American Occupational Therapy Association for the freshman and sophomore years. It does not, however, necessarily meet the lower division requirements of all schools of occupational therapy, and each student should ascertain the requirements of the professional school where he plans to take his advanced work and adjust his program accordingly.

	<i>First Year</i>	Units First Semester	Units Second Semester
Subject A (if required)
Physical Education 1		½	½
Chemistry 2		3	..
Zoology 15	5
English 1A-1B		3	3
Art 27A-27B		2	2
Speech 1A or 3A	3
American History and Institutions.....		3	3
Physical Education 42		2	..
		<hr style="width: 100%;"/>	<hr style="width: 100%;"/>
		13½	16½
 <i>Second Year</i> 			
Physical Education 1		½	½
Zoology 25		3	..
Physical Education 44.....		3	..
English 46A-46B		3	3
Psychology 1A, 1B or 33.....		3	3
Sociology 1, 12		3	3
Physical Education 43	2
Bacteriology 6	2
Electives	3
		<hr style="width: 100%;"/>	<hr style="width: 100%;"/>
		15½	16½

PREOPTOMETRY CURRICULUM

The University offers a five-year program in optometry leading to the degree of Bachelor of Science at the end of the fourth year, and to the Certificate in Optometry and the Master of Optometry degree at the end of the fifth year. The first two years may be taken at Los Angeles; the last three years must be taken in the School of Optometry* at Berkeley.

As prerequisites, students should offer the following high school subjects for matriculation: algebra, plane geometry, trigonometry, chemistry, physics, and three years of foreign language.

During the first two years, the following curriculum outline should be followed, with such choice of electives as will meet the requirements for the

* Enrollment in the School of Optometry is limited to fifty students for each entering class. Candidates for admission to the first year (junior) class are accepted primarily on the basis of scholarship, particular emphasis being placed on the required subjects. In addition, special consideration is given to California applicants and to applicants from states west of the Mississippi. Applications for admission for any year should be filed with the Director of Admissions by May 1 of that year.

degree of Associate in Arts in the College of Letters and Science at Berkeley, which is prerequisite to admission to the School of Optometry. For further information see the ANNOUNCEMENT OF THE SCHOOL OF OPTOMETRY.

	<i>First Year</i>	
	Units First Semester	Units Second Semester
Subject A (if required) .....	..	..
Military, Air, or Naval Science	1½-3	1½-3
Physical Education 1	½	½
Chemistry 1A	5	..
Speech 1A-1B or English 1A-1B	3	3
Foreign Language	4	4
Mathematics D or 1, 3A	3	3
†Zooology 15 .....	..	5
	†	†

	<i>Second Year</i>	
	Units First Semester	Units Second Semester
Military, Air, or Naval Science	1½-3	1½-3
Physical Education 1	½	½
Bacteriology 1 .....	..	4
Chemistry 1B	5	..
Psychology 1A, 1B or 33	3	3
†Zooology 25	3	..
Physics 2A-2B	4	4
Chemistry 8 .....	..	3
	†	†

PREPUBLIC HEALTH CURRICULUM

The University offers a four-year program in public health leading to the degree of Bachelor of Science. Options are available in the fields of sanitary science, biostatistics, administration, and education.

The high school preparation should include chemistry and trigonometry; physics and second-year algebra are recommended.

On the Los Angeles campus it is recommended that the first two years' work be taken in the College of Applied Arts, following the program outlined below. The last two years' work is given under the School of Public Health. For further information see the ANNOUNCEMENT OF THE SCHOOL OF PUBLIC HEALTH.

Preparation for the Major

*Mathematics D or 1

Public Health 5

Bacteriology 1

Humanities, 12 units

English 1A-1B or Speech 1A-1B, 6 units

6 units, including a year sequence, from foreign language, art, music, or philosophy.

† While Zoology 15, 25 is preferred, one of the following sequences will be accepted for admission purposes: Zoology 1A-1B, or Zoology 1A and comparative anatomy, or Zoology 1A and human anatomy. Unless a human anatomy course equivalent to Anatomy 102 at the University of California, Berkeley, or Zoology 25 at the University of California, Los Angeles, is included, Anatomy 102 must be taken in the junior-year program in the School of Optometry.

† Normal total, 15 or 16 units. Many students find it advisable to attend Summer Session to avoid excess programs.

* Mathematics D or 1 required if student did not take either two years of high school algebra or one and one-half years of algebra and trigonometry.

Social Science, 12 units chosen from the following:

Except that a year sequence must be completed in the lower division, portions of this requirement may be deferred to the upper division.

Anthropology 2 (required in education option)

Economics 1A, 1B

Psychology 1A, 1B, 33

Sociology 1, 12

Business Administration 3 (required for administration option)

Physical and Biological Science, 20 units chosen from the following:

Chemistry 1A, 1B, 2A, 10 (1A-1B required for sanitary science option)

Life Sciences 1A, 1B

Physics 2A, 2B, 10, 21

Zoology 1A, 1B, 15, 25

Mathematics 3A, 3B (required for biostatistics option)

COLLEGE OF PHARMACY

In former years the program of the College of Pharmacy was divided, the first year being offered at Los Angeles and at Berkeley and the remaining years at San Francisco. Curricula were offered leading to the degrees of Bachelor of Science in Pharmacy and Master of Pharmacy, based upon a one-year prepharmacy curriculum. The prepharmacy curriculum was taken in the University of California or in any other institution of approved standing and was available in the College of Letters and Science at Los Angeles. The College of Pharmacy at San Francisco, however, has now been changed to a School of Pharmacy offering only a curriculum leading to the degree of Doctor of Pharmacy; except that students who enter the College of Pharmacy on the Los Angeles or Berkeley campus of the University *no later than September, 1956* may be permitted to complete the Bachelor of Science curriculum at San Francisco.* The one-year program of the College of Pharmacy on the Los Angeles campus (first year of the Bachelor of Science curriculum) will be discontinued at the close of the year 1956-1957, therefore, students should *not begin* prepharmacy studies in September, 1956, or later, with the expectation of completing the Bachelor of Science curriculum in Pharmacy. The prepharmacy curriculum offered by the College of Letters and Science (formerly one year) is now a two-year curriculum (see page 25) and should be undertaken only by students preparing to meet requirements for admission to the new Doctor of Pharmacy curriculum.

To qualify for the California State Board of Pharmacy examinations, and to satisfy requirements for the degree of Bachelor of Science in Pharmacy, a student must have completed with an average grade of C or better a curriculum of 129 units in residence in the College and/or School of Pharmacy, University of California. The courses required for completion of the first year are set forth below. The additional three years are offered on the San Francisco campus.

* Students who have completed the first year of the College of Pharmacy at Los Angeles or Berkeley cannot be assured of admission to the second year on the San Francisco campus. When the number of qualified applicants for the second year of the four-year curriculum exceeds the available facilities, selection will be made on the basis of scholarship as determined from the College record and by examination. A personal interview may be required. Applications for admission to the School of Pharmacy, San Francisco campus, must be filed between October 1 and March 1 preceding the September of proposed admission. Blanks may be obtained from the Office of the Director of Admissions, University of California Medical Center, San Francisco 22.

	<i>First Year</i>	Units First Semester	Units Second Semester
Zoology 1A-1B		4	4
Physics 2A-2B		4	4
Mathematics 3A-3B		3	3
*History 7A-7B (or History 7A, Political Science 1) ..		3	3
Military Science		1½	1½
		<hr/> 15½	<hr/> 15½

For further details, see the ANNOUNCEMENT OF THE SCHOOL OF PHARMACY, which may be obtained from the Office of the Dean, School of Pharmacy, University of California Medical Center, San Francisco 22; or consult the adviser to first-year students in the College of Pharmacy at Los Angeles, Mr. O. A. Plunkett, Physics-Biology Building, Los Angeles campus.

SCHOOL OF BUSINESS ADMINISTRATION

THE SCHOOL OF BUSINESS ADMINISTRATION at Los Angeles, replacing the College of Business Administration, was established in the spring of 1950. The School admits students of junior or higher standing, and offers curricula leading to the undergraduate degree of Bachelor of Science. The School of Business Administration is a professional school of the University whose purpose is to provide for qualified students a well-balanced education for careers in business at the management and administrative levels. The general and specific requirements of the School are designed to furnish a broad preparation for careers of management rather than a highly specialized proficiency in particular occupations. The two-year curriculum leading to the degree of Bachelor of Science consists of a basic program of professional education for business management plus specialization in one field. The basic program attempts to create an understanding of the operation of the business enterprise within the whole economy; to develop proficiency in the use of such tools of management as accounting, business law, statistical and economic analysis; and to provide knowledge of the principles of management in several functional fields. Upon completing the basic program, students undertake a minimum of four courses in their chosen field of emphasis. Opportunity for concentration is offered in the fields of accounting, finance, insurance, production management, personnel management and industrial relations, marketing, transportation and traffic management, real estate and urban land economics, and office management.

For further information about the graduate programs in business administration, consult the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION, and the ANNOUNCEMENT OF THE GRADUATE SCHOOL OF BUSINESS ADMINISTRATION, LOS ANGELES.

Admission

In accordance with the general objectives of the School of Business Administration, students are accepted on the basis of intellectual capacity and academic preparation as demonstrated by their work in the first two years of college. A student is eligible to apply for admission to the School of Business Administration if he (1) has been admitted to the University, and (2) has completed or has in progress a minimum of 60 units of college credit with at least a grade C average.

* If the University requirement in American History and Institutions has been met, may be electives.

Lower Division Requirements

As preparation for the upper division professional curriculum of the School, a student is required to complete an organized program of study. This program must satisfy:

- (1) the general University requirements, listed in this bulletin.
- (2) the lower division requirements of one of the colleges of the University of California.

For example, these may be fulfilled by meeting the requirements for the Associate in Arts degree in the College of Letters and Science (Berkeley or Los Angeles), the prebusiness curriculum in the College of Letters and Science (Los Angeles), or the Associate in Arts degree in the College of Applied Arts (Los Angeles). Organized programs of study offered by departments within such colleges as Engineering, Agriculture, or Letters and Science, at any campus of the University of California, are acceptable if junior standing is achieved.

- (3) The following specific requirements or their equivalents:
 - (a) Business Administration 1A-1B, Elementary Accounting
 - (b) Economics 1A-1B, Principles of Economics
 - (c) Mathematics 32B, Introductory Mathematical Analysis for Business, or Mathematics 3B, First Course in Calculus.
 - (d) English 1A, English Composition.
 - (e) Completion of course 2 (or the equivalent) in a foreign language.

Students who have completed 60 units with a grade C average should apply immediately for admission to the School even though they may have lower division course deficiencies in the above categories. If possible, these must be removed during the student's first semester in residence in the School.

Application for acceptance by the School of Business Administration (Los Angeles) should be filed with the Office of Admissions not later than July 15 for the fall semester and not later than December 1 for the spring semester.

Requirements for the Degree of Bachelor of Science

The degree of Bachelor of Science will be granted upon fulfillment of the following conditions:

1. A minimum of 128 units. A candidate must have attained at least a grade C average or as many grade points as units attempted.
2. A candidate for the degree must be registered in the School of Business Administration while completing the final 24 units of work and must have followed organized semester programs approved by the Dean. This regulation applies both to students entering the School of Business Administration from another university and to students transferring from other divisions of this University.

Students admitted to senior standing in the School of Business Administration (Los Angeles) on the basis of credit from other institutions or on the basis of credit from University Extension, must complete in residence, subsequent to such admission, at least 18 units of upper division Business Administration courses, including at least 6 units in their chosen field of concentration.

3. Completion of requirements (a) to (d) below is required of all candidates.
 - a. *University requirement of American History and Institutions.*
 - b. *Basic Courses:* All students in the School of Business Administration must complete the following courses in their proper sequence:
 - Business Administration 100. Theory of Business.
 - Business Administration 101. Business Fluctuations and Forecasting.
 - Business Administration 105A-105B. Business Law, or 108. Legal Analysis for Business Managers.
 - Business Administration 115. Business Statistics.

Business Administration 120. Intermediate Accounting.

Economics 135. Money and Banking.

Business Administration 140. Elements of Production Management.

Business Administration 150. Elements of Personnel Management.

Business Administration 160. Elements of Marketing.

Business Administration 190. Organization and Management Theory.

It is the policy of the School of Business Administration to require courses 100 and 115 to be taken concurrently, and to require courses 100, 115, and 120 to be taken in the student's first semester in the School, followed immediately by a second semester program that includes course 101 and Economics 135. In addition, students must take either 105A and 105B, or 108 in their junior year. Thus, the basic tools of economic analysis, business law, statistics, and accounting are acquired before the senior work begins in the functional areas of concentration. Any adjustments in the programs of entrants, necessitated by subject deficiencies from lower division, or any other reason, may be made only by the Assistant Dean for Student Affairs.

c. *The field of concentration*: At least four courses aggregating not less than 10 units in one of the nine following fields (may not include basic required courses listed under (b) above):

Accounting

Finance

Insurance

Production Management

Personnel Management and Industrial Relations

Marketing

Transportation and Traffic Management

Real Estate and Urban Land Economics

Office Management

Students who do not wish to specialize in one of the above fields of concentration may select a special field outside the department, provided there is a demonstrable relationship between the chosen area and business administration. Examples of such special fields would include agricultural economics, psychology, sociology, economics, and public administration. Selection of the special field and the specific courses therein must have the written approval of the Assistant Dean for Student Affairs before the work is undertaken.

d. *Scholarship requirements*:

1. At least a C average in all work undertaken in the University.
2. At least a C average in all upper division courses taken under requirements (b) and (c) above and any other upper division courses in business administration, business education, and economics.
3. At least a C average in all subjects undertaken in the field of concentration (c) above.

HONORS

The Executive Committee of the School will recommend for Senior Honors Privileges and for Honors or Highest Honors with the bachelor's degree such students as it may judge worthy of that distinction.

GRADUATE SCHOOL OF BUSINESS ADMINISTRATION

The Graduate School of Business Administration was established in August, 1955, and assumes responsibility for the graduate curricula formerly under the jurisdiction of the School of Business Administration. The Graduate School of Business Administration offers curricula leading to the degrees of

Master of Business Administration and Doctor of Philosophy in business administration.

The broader directives of the Graduate School include the following: (1) to provide professional education which will develop in qualified students the intellectual and personal attributes that are prerequisite for successful careers in management or as staff specialists in public or private enterprises; (2) to prepare the exceptionally qualified, mature students for careers as teachers and research scholars in business and business management; (3) to offer management development programs for experienced businessmen who may profit from an intensive study of management theory and practices; and (4) to enlarge the body of systematic knowledge about business administration, the management process, and the environment in which the enterprise functions, and to disseminate this knowledge through publications and improved teaching materials.

The School recognizes the importance of improving management of the economy through the preparation of persons who will have responsibility for making decisions. In a free, competitive, enterprise society, the combined judgments of business managers probably constitute the greatest single influence upon the economic welfare of society. Success in business is increasingly the result of risk-taking enterprise and innovation, backed by systematic intelligence about available technology, markets, finance, and people. The graduate business school faculty in a university properly strives to understand and to influence these changes, and to transmit to mature students a systematic approach to business problem-solving.

Admission

Applicants for both the M.B.A. and the Ph.D. programs follow the same procedures. The degree programs of the School are under the jurisdiction of the Dean of the Graduate Division, and the regulations of the Graduate Division as well as those of the Graduate School of Business Administration should be observed.

Application forms must be filed by each student for both the Graduate Division and the Graduate School of Business Administration not later than July 15 for the fall semester, 1956, and not later than December 15 for the spring semester, 1957. The application must be accompanied by a money order or bank draft of \$5 in payment of application fees. Payment must be for the exact amount of the fee and should be made payable to The Regents of the University of California.

Graduate students are admitted on the basis of promise of success in the work proposed, which is judged largely on previous college record. In general, the minimum requirement for admission in *regular* graduate status is an undergraduate scholarship record equivalent to at least a 1.5 grade point average (halfway between grades B and C) at the University of California, Los Angeles, in all courses taken in the junior and senior years and in all such courses taken in Business Administration. An applicant who has taken a Graduate Record Examination should submit with his application a copy of the results of the examination; this will be especially helpful for a student whose grade-point average is below the requirement for admission in regular graduate status.

An applicant who fails to qualify for admission to regular graduate status may, at the discretion of the Dean of the Graduate Division and the Dean of the Graduate School of Business Administration, be admitted as an *unclassified graduate* student. This is considered to be a temporary status granted only where the applicant's record gives promise on grounds other than the academic record that the student may pursue the degree programs with success. In judging the qualifications of students for unclassified graduate status, special attention will be given to evidence of motivation and intel-

lectual maturity and the student's work experience, from references which he may supply, and from test scores on such standardized examinations as the Graduate Record Examination and the business school tests of the Psychological Testing Service. A student in unclassified graduate status may not enroll in graduate courses. No assurance is given of later admission to regular graduate status, nor is work taken in unclassified status normally accepted in satisfaction of residence or course requirements for the graduate degrees.

An application for readmission is required for students formerly registered in a regular session as a graduate student who may wish to return after an absence, or for persons who were admitted to a fall or spring semester but did not register. Attendance in a Summer Session does not constitute admission to graduate status, nor to the Graduate School of Business Administration.

Requirements for the Degree of Doctor of Philosophy

The following information supplements the statement of general requirements for the Doctor of Philosophy degree in the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

Before undertaking the work outlined below, students must have completed the core courses, or their equivalent, listed on pages 48-49. Any deficiencies in these courses must be made up by the student before he undertakes his course work for the Ph.D. degree. This will necessarily extend the time required to attain the degree.

The program of study leading to the Ph.D. degree in business administration embraces five fields of study. Three of these fields, Quantitative Methods, Management Theory and Policy, and General Economic Theory, normally are included in every doctoral program, although a substitution may be made by the guidance committee in one of these fields. The other fields may be chosen from the list currently offered by the Department of Business Administration: Accounting, Finance, Personnel Management, Production Management and Marketing. With the approval of the Guidance Committee, a candidate may elect one of the above fields in the Department of Business Administration, and a second field from another department in the University.

Normally a student will be expected to complete at least three courses in each of the five fields of concentration in preparation for the Qualifying Examinations. The programs of study of all candidates shall be reviewed and approved by the departmental Committee on Graduate Studies.

Foreign Language.—Reading proficiency in the two foreign languages most useful in the conduct of the candidate's studies will be required; except that the Department, with the consent of the Graduate Council, will permit substitution for one foreign language of a program of study, or a demonstration of proficiency, in a field external to the candidate's major subject where this will be more conducive to sound research results. (For example, economic history or mathematics through calculus might be substituted in appropriate cases.)

Notice of Ph.D. Candidacy.—As early as possible, preferably at the end of the first semester of graduate study, the student should declare his intention of proceeding to candidacy for the Ph.D. degree. This statement of intention should be made in duplicate, on Form 1, which is available at the Office of the Dean of the Graduate Division.

Guidance Committees.—On approval of the notice of Ph.D. candidacy, the student enters the formal Ph.D. degree program. A guidance committee will be appointed to assist the student in the preparation of his *proposed program for residence study*, to make a report to the department chairman of the progress of the candidate, and to make recommendation of the candidate for his Qualifying Examinations.

Doctoral Committees.—On recommendation of the guidance committee and upon nomination of the department to the Graduate Council, a doctoral committee for each candidate is appointed. This committee conducts the written and oral Qualifying Examinations, and is responsible for making nominations for advancement to candidacy. The written portion of the Qualifying Examination is given during the seventh week of each semester.

Advancement to Candidacy.—At least one semester prior to the date the degree is anticipated, the candidate must file with the Graduate Division his *Application for Candidacy for the Degree, Doctor of Philosophy* (Form 4).

The Dissertation.—The candidate files with the Department of Business Administration a *proposal for a doctoral dissertation* and proceeds under the guidance of his doctoral committee. The dissertation must be prepared in accordance with the instructions furnished by the Graduate Division.

Final Examination.—The final examination, conducted by the doctoral committee, is oral and deals primarily with the subject matter of the dissertation.

Requirements for the Degree of Master of Business Administration

The first year of the M.B.A. program requires the mastery of five required fields and five elective fields. These fields are defined below in terms of the courses offered in the Department of Business Administration on the Los Angeles campus: (course numbers refer to courses in the Department of Business Administration unless otherwise indicated)

Required Fields

1. Business Economics (Theory of Business 100), and (Business Fluctuations and Forecasting 101) or Business Economics (102G).
2. Business Law (105A-105B, or 108).
3. Business Statistics (115).
4. Accounting (120, 120G, or 120M).
5. Organization and Management Theory (190).

Elective Fields (any five)

1. Money and Banking (Economics 135).
2. Finance (Business Finance 131, or Investment Principles and Policies 133).
3. Insurance (135).
4. Production Management (140).
5. Personnel Management (150).
6. Marketing (160).
7. Transportation and Traffic Management (170).
8. Real Estate and Urban Land Economics (180).

(Explanation of course numbers: Courses numbered without the G suffix are offered regularly in the Department of Business Administration for undergraduate students, and are generally available for students in the Graduate School of Business Administration. Courses numbered with the suffix G are offered exclusively for students in the Graduate School, regardless of their degree objective or status.)

Regular graduate students who are already prepared in one or more of the above fields, as evidenced by satisfactory completion of the above courses or their equivalent, may elect to begin a part of the program of the second year of the M.B.A., with the approval of the Dean.

In the second year, the M.B.A. candidate completes 24 units of work as follows: 9 units in graduate courses and seminars in a major field; 6 units in graduate courses and seminars in at least one minor field; and 9 units of electives chosen from a list of graduate or undergraduate courses approved by the faculty. At least one of the elective courses must be in a field other than that represented by the major and minor fields. If a student elects a major field in which only two graduate courses are available, he may be

advised to elect an undergraduate course in that field or a graduate course in a related field to complete the 9 units required in the major.

Residence of at least one academic year on the Los Angeles campus is required for the M.B.A. degree candidate.

Fields of concentration available in the M.B.A. program are as follows:

- a. Business Statistics
- b. Accounting
- c. Finance
- d. Production Management
- e. Personnel Management and Industrial Relations
- f. Marketing
- g. Real Estate and Urban Land Economics
- h. Management Theory and Policy
- i. Insurance
- j. Transportation and Traffic Management

The candidate for the degree of Master of Business Administration must pass an integrated comprehensive examination based upon his program of graduate study. The examination is given in the fourteenth week of each semester. There is no language requirement. The candidate must maintain a grade-point average of 2.0 or better in all work taken in graduate standing, including undergraduate courses taken in unclassified status.

HONORS

The Executive Committee of the School will recommend for Senior Honors Privileges and for Honors or Highest Honors with the bachelor's degree such students as it may judge worthy of that distinction.

SCHOOL OF EDUCATION

THE SCHOOL OF EDUCATION, established on the Los Angeles campus July 1, 1939, offers professional curricula to students preparing for teaching service in elementary and secondary schools; for experienced teachers desiring preparation for educational administration, research, or other specialized phases of public school education; and for graduate students who seek the degrees of Master of Arts in Education, Master of Education, or Doctor of Education. The School of Education makes provision for all types of teacher preparation formerly offered in the Teachers College, which was discontinued on June 30, 1939.

All candidates for enrollment in curricula of the School of Education leading to a credential must be students in good standing in the University of California, must have completed the requirements for the degree of Associate in Arts in one of the colleges of the University, or the equivalent, must complete the requirements for approval by the Selection and Counseling Service, and be approved by a physician of the University of California as having met the health requirements of the State Board of Education.

The School of Education maintains a Selection and Counseling Service designed to help prospective students in education discover the vocational opportunities in the public schools, whether or not as individuals they can qualify for teaching credentials or degrees, and what program each should follow in order to achieve his chosen professional objective. The Service is organized to discharge two functions:

1. *Selection.*—The Selection and Counseling Service conducts a testing and interviewing program to determine whether individuals qualify for admission to the School of Education either as candidates for credentials or advanced degrees. As a first step each person planning to qualify must file an application for admission with the Selection and Counseling Service. This applica-

tion should be made as early as possible in the student's academic career. Although freshmen and sophomores will not be officially admitted to the School of Education until they have attained junior standing, they are strongly urged to complete selection requirements as soon as they have decided upon teaching as a profession. Early testing will permit students to correct any remediable deficiencies which may be revealed or, if necessary, to redirect their vocational goals with the least waste of time.

Information about the testing schedules may be secured at the office of the Selection and Counseling Service, 206 Moore Hall (Education Building). Other steps in the selection procedure include referral to the Student Health Service for the health checks required for teaching and possible referral to the Speech Clinic for special speech checks. *All steps in the selection procedure must be completed at least one year before supervised teaching.*

2. Counseling.—The Selection and Counseling Service helps prospective students in education to discover the fields and levels of vocational opportunities and to decide the program each should follow in order to achieve his chosen professional objective. Students may request: (a) interpretation of test results; (b) referral to a Credentials Adviser for an interpretation of credential requirements; (c) referral to community agencies for preteaching experience with children; (d) referral to a remedial program for reading or spelling; and (e) counseling on personal and professional problems.

The School of Education offers curricula leading to certificates of completion and State credentials authorizing service in the following fields:

1. Kindergarten-Primary
2. General Elementary
3. Junior High School
4. Special Secondary in the fields of:
 - a. Art
 - b. Business Education
 - c. Homemaking
 - d. Music
 - e. Physical Education
 - f. Trade and Industrial Education*
5. General Secondary
6. Junior College
7. Special Education Credentials:
 - a. Credential to Teach Exceptional Children
 - b. General Pupil Personnel Services Credential
8. Special Subject Supervision
9. Elementary School Supervision
10. Elementary School Administration
11. Secondary School Supervision
12. Secondary School Administration
13. General Administration
14. Supervision of School Budgets

In addition to maintaining the foregoing curricula, the School of Education provides opportunity for individual programs of study meeting the requirements of the State Board of Education for credentials in certain other fields.

Students planning to prepare for kindergarten-primary or general elementary credentials are advised to choose the recommended curricula which are

* Courses for the vocational type of credentials in trade and industrial education are provided primarily in Summer Sessions.

designed to include fields related to teaching in the elementary schools.

Students desiring to prepare for the special secondary credential, which is limited to one field, should complete the appropriate major in any college in which it is offered. Students desiring to qualify for the general secondary credential are likewise required to complete the appropriate major in any college in which it is offered. In addition, all course requirements for such credentials, as specified by the School of Education, must be completed.

A complete statement of curricula, requirements, and procedures in the School of Education will be found in the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES, which may be obtained at the Office of the Dean, Room 231, Moore Hall (Education Building) on the Los Angeles campus, or by mail upon application to the Registrar of the University of California, Los Angeles 24, California.

SCHOOL OF LAW

THE SCHOOL OF LAW on the Los Angeles campus of the University of California opened in September, 1949. The School occupies the Law Building, which provides the most modern facilities for the teaching and study of law and for legal research.

Applicants for admission to the School of Law must have a bachelor's degree from an accredited institution and must have taken the Law School Admission Test. The application for admission to the School of Law must be made on forms supplied by the School of Law, University of California, Los Angeles 24, California, and should be filed with the School not later than May 1 preceding the fall semester for which application is made. Transcripts of all college, university, and professional school records, including the records of work completed on the Los Angeles campus of the University of California, must be sent from the institutions of origin to the School of Law, University of California, Los Angeles 24. If the applicant is currently enrolled in a college or university, the transcripts should cover all work completed to date, including a statement showing work in progress. The transcripts should be accompanied by a statement indicating the date on which it is expected the work in progress will be completed, and the necessary supplementary transcripts should be sent to the School of Law.

The Educational Testing Service will supply each applicant with a bulletin of information concerning the Law School Admission Test. For permission to take the Law School Admission Test, applicants should write directly to the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey, requesting an application blank and bulletin of information listing places where the test may be taken.

Admissions will be on a competitive basis. Official notice of admission, or denial of admission, will be sent at the earliest possible date.

SCHOOL OF MEDICINE

THE SCHOOL OF MEDICINE on the Los Angeles campus, which opened in 1951, admits a first-year class of candidates for the M.D. degree each fall. Applications, together with all transcripts of record and other necessary documents, must be filed between June 1 and November 30 with the Office of Admissions, University of California, Los Angeles 24. Application forms and information may be secured from that office.

The requirements for admission to the first-year class of the School of Medicine meet or exceed those set by the Association of American Medical Colleges.

Basis of Selection.—Enrollment is limited and highly selective. Candidates

will be chosen on the basis of the following considerations: (1) undergraduate and, where applicable, graduate scholarship; (2) score on the Medical College Admissions Test which must have been taken not later than November of the year during which application is made; this test is administered for the Association of American Medical Colleges by the Educational Testing Service; (3) interview by the Admissions Committee of the School of Medicine; and (4) letters of recommendation.

Preference is given to students who, in the opinion of the Committee on Admissions, present evidence of broad training and high achievement in their college training, of capacity for establishment of effective working relations with people in extracurricular activities and employment, and of possessing in greatest degree those traits of personality and character essential to success in medicine.

Except under extraordinary circumstances, no more than five candidates (10 per cent), who are not California applicants will be admitted. To be considered a California applicant, a student must meet one of the following requirements: (1) he must have completed 60 units or more in an accredited college or university in the State of California, or (2) he must be a legal resident of the State of California, who lived in the State immediately prior to beginning his premedical work and who left the State temporarily for completion of all or part of his premedical work.

Successful candidates must pass a physical examination before registration. The faculty has the right to sever at any time the connection with the School of Medicine of any student who is considered physically, morally, or mentally unfit for a career in medicine.

Premedical Training.—Ordinarily the requirement for admission to the first-year class of the School of Medicine is a baccalaureate degree but in exceptional instances students who have completed at least three full academic years (90 semester units toward a baccalaureate degree) at an approved college or university may be admitted.

The academic years should be devoted to obtaining as broad an education as possible. The major objectives should be: (1) facility in the use of English, written and spoken; (2) facility in quantitative thinking represented by mastery of at least elementary mathematics; (3) such training in physical and biological science as will make possible ready comprehension of medical science and result in a thorough comprehension of the scientific method; (4) a foundation for an ever-increasing insight into human behavior, thought, and aspiration through study of individual man and his society, as revealed both by the social sciences and the humanities; and (5) some knowledge of a language and culture other than the student's own.

These objectives will ordinarily require completion of the following studies:

1. English composition or literature, 6 units.
2. Mathematics, 3 units.
3. Physics, 8 units.
4. Chemistry, 19 units, including lecture and laboratory courses in general chemistry, quantitative analysis and organic chemistry.
5. Zoology, 12 units, including vertebrate embryology.
6. A classical or modern foreign language, at least 12 units, with attainment of facility in reading this language.

Only under exceptional circumstances will consideration be given applicants not fully satisfying these requirements. In addition, students working for baccalaureate degrees must fulfill the specific requirements for such degrees.

In the time not occupied by the required courses, students should undertake studies directed to the fourth objective stated above, guided by their own interests. Preference will not be given students who major in natural

science since intensive study in the social sciences and in the humanities is considered at least equally valuable.

Completion of Requirements.—The student must, with the occasional exceptions cited above, complete all premedical requirements before beginning the first year of medical studies, although these requirements need not be completed at the time application for admission is filed.

Admission to Advanced Standing.—Students who have completed one or two years in an approved medical school and who desire to transfer to this School should apply to the Office of Student Affairs of the School of Medicine for instructions. Applications will be received after May 1, but not later than July 15. In no case will applications for transfer to the fourth-year class be considered.

Graduate Work.—Graduate work leading to the degrees of Master of Science and Doctor of Philosophy is authorized in anatomy, biophysics, infectious diseases, pharmacology, physiological chemistry, physiology, and radiology. See the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION for further information. For details concerning the professional curriculum, consult the ANNOUNCEMENT OF THE SCHOOL OF MEDICINE, LOS ANGELES.

SCHOOL OF NURSING

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA authorized the establishment of a School of Nursing at Los Angeles in the summer of 1949. The School admits students of junior or higher standing, and offers curricula leading to the degrees of Bachelor of Science and Master of Science in nursing.

Three curricula are available:

1. **The Basic Nursing Program** leading to the Bachelor of Science degree provides for a close interweaving of general and professional education. The social, emotional, and health aspects of nursing are emphasized throughout the curriculum. Nursing laboratory practice under the guidance of faculty members is provided in hospitals, outpatient clinics, schools, homes, and community health centers.

Requirements for admission:

Completion of the prenursing curriculum as offered in the College of Applied Arts* (see page 43) with at least a grade of C in all nursing courses.

Personal recommendations as required by the School of Nursing.

Eligibility for the study of nursing as determined by demonstrated aptitudes, recommendations, interviews, physical examinations and scholastic attainment. Scholastic requirement: Preference will be given to students having a grade point average of 1.5 or above in the prenursing program.

2. **The Program for Registered Nurses** leading to the Bachelor of Science degree provides for a close interweaving of general and professional education. Nursing laboratory practice under the guidance of faculty members is provided in hospitals, outpatient clinics, schools, homes, and community health center.

Requirements for admission:

Graduation from an accredited school of nursing and evidence of the fulfillment of the legal requirements for the practice of nursing.

Personal and professional recommendations as required by the School of Nursing.

* Students transferring to the School of Nursing from other colleges may have a longer program than will those who enter the University of California, Los Angeles, as freshmen, since the nursing courses required in the prenursing curriculum are available only at the University of California, Los Angeles.

Eligibility for the study of nursing as measured by the Graduate Nurse Qualifying Examination and other tests administered by the University.

Completion of the lower division requirements in the College of Applied Arts or transfer credit evaluated as the equivalent. (See the ANNOUNCEMENT OF THE SCHOOL OF NURSING)

Scholastic requirement:

Preference will be given to students having a grade point average of 1.5 or above in previous college work.

3. Under the jurisdiction of the Graduate Division, Southern Section, the School of Nursing administers *programs leading to the Master of Science degree*. These programs are designed to prepare professional nurses for administrative, supervisory, and teaching positions in schools of nursing, hospitals, and public health agencies. For further information about the graduate programs in nursing, consult the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION, and the ANNOUNCEMENT OF THE SCHOOL OF NURSING.

Requirements for admission:

Graduation from a recognized college or university having an accredited basic nursing program satisfactory to the School of Nursing, Los Angeles, and the Graduate Division, Southern Section.

or

Graduation from an accredited school of nursing offering satisfactory basic preparation in nursing and from a recognized college or university with a major satisfactory to the School of Nursing, Los Angeles, and Graduate Division, Southern Section.

Evidence of the fulfillment of the legal requirements for the practice of nursing.

Satisfactory completion of the National League for Nursing, Inc. Graduate Nurse Qualifying Examination, Plan C.

An undergraduate scholarship record satisfactory to the School of Nursing, Los Angeles, and to the Graduate Division, Southern Section.

Personal and professional recommendations as requested by the School of Nursing, Los Angeles.

Admission: Applications for admission to the Registered Nurse Program in the School of Nursing should be filed not later than July 15 for the fall semester and not later than December 1 for the spring semester; for the Basic Program these dates are August 15 for the fall semester and January 15 for the spring semester. Applications for admission to the Graduate Program should be filed not later than July 15 for the fall semester and not later than December 1 for the spring semester. The number of students who can enroll in the School is limited. The School of Nursing reserves the right to admit students on the basis of scholarship, recommendation, interviews, and demonstrated aptitudes.

Applications for admission to the undergraduate programs should be filed with the Office of Admissions, University of California, 405 Hilgard Avenue, Los Angeles 24, California.

Applications for admission to the graduate programs should be filed with the Graduate Division, Southern Section, University of California, 405 Hilgard Avenue, Los Angeles 24, California.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science will be granted upon fulfillment of the following requirements.

For the Student in the Basic Program:

1. The candidate shall have completed at least 126 units of college work, and shall have satisfied the general university requirements.

2. The candidate shall have completed satisfactorily the prenursing curriculum as offered in the College of Applied Arts.
3. After admission to the School of Nursing, the candidate shall have completed at least 60 units of college work acceptable to the faculty of the School (less for students entering with advanced standing).
4. The candidate shall have maintained at least a C average, or as many grade points as units attempted.
5. The candidate shall have completed all required nursing courses in the School of Nursing.

For the Student in the Registered Nurse Program:

1. The candidate shall have completed at least 126 units of college work, and shall have satisfied the general University requirements. Not more than 30 units toward the required total will be granted the registered nurse for work completed in a hospital school of nursing.
2. The candidate shall have maintained at least a C average, or as many grade points as units attempted.
3. The candidate must have completed at least 42 units (30 of which are in the major) of upper division college work acceptable to the faculty of the School of Nursing, and shall have been registered in the School while completing the final 24 units of work.

HONORS

The faculty of the School of Nursing or a duly authorized committee thereof shall recommend for Honors or Highest Honors such students as it may judge worthy of that distinction.

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE

The degree of Master of Science will be granted upon fulfillment of the following requirements:

1. The candidate shall have met the general requirements of the Graduate Division, Southern Section. (See page 64.)
2. The candidate shall have completed in graduate or upper division courses: at least 20 units for Plan I of which 14 shall be graduate courses in nursing; at least 24 units for Plan II of which 14 shall be graduate courses in nursing. The additional units required for the degree may be distributed among courses in the 100 or 200 series subject to approval by the student's faculty adviser.

For further information concerning graduate work consult the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

SCHOOL OF PUBLIC HEALTH

THE SCHOOL OF PUBLIC HEALTH is a University-wide school. Instruction is given on the campuses at Berkeley, Los Angeles, and San Francisco, leading to the degrees of Bachelor of Science, Master of Public Health, and Doctor of Public Health. A Department of Public Health has been established on the Los Angeles campus which offers a major in public health leading to the degree of Bachelor of Science (with options in the respective fields of sanitary science, biostatistics, health education, and administration) and a number of courses that carry credit toward the advanced degrees. The graduate program is administratively centered in the School of Public Health at Berkeley.

BACHELOR OF SCIENCE DEGREE

Admission.—Undergraduate students who have satisfactorily completed at least 60 units of work in one of the colleges of the University, or transfer credit evaluated as equivalent, may apply for admission to the School of Public Health. A formal application must be filed in the office of the School. Students are admitted on a competitive basis of aptitude and scholastic record. Any prerequisites in the student's curriculum must be completed in addition to the upper division major requirements. The College of Applied Arts offers a prepublic health curriculum (page 45). It is suggested that interested students follow this program, although it is not necessary that these requirements be completed prior to admittance to the School of Public Health.

Requirements: Candidates for the degree of Bachelor of Science must have completed at least 128 units of college work, of which at least the last 24 units shall have been completed in the School of Public Health. The student must have obtained at least as many grade points as there are units in the total credit value of all courses undertaken by him in the University of California.

The degree is granted upon satisfactory completion of the following requirements, including a selected option:

GENERAL REQUIREMENTS

- *Subject A
- *Military, Air, or Naval Science
- *Physical Education
- †History 7A
- †Political Science 1

PREPARATION FOR THE MAJOR

- ‡Mathematics D, or 1
- Public Health 5
- Bacteriology 1

A. Humanities

1. A 6-unit lower division course in English or Speech, chosen from the following:
English 1A-1B, Speech 1A-1B

2. At least 6 units, including a year-sequence course, chosen from courses in foreign language, art, music, or philosophy.

- #### B. Social Sciences.
- (Portions of this requirement may be deferred to the upper division.) At least 12 units, including a year-sequence course chosen from the following:

- Economics 1A-1B (or Economics 101 in upper division)
- Sociology 1 and 12 (or Sociology 101 in upper division)
- Psychology 1A-33 or 1B (or Psychology 101 in upper division)
- Anthropology 2 (required in Education Option)

In addition: Business Administration 3 (required for Administration Option) may be counted as meeting 4 units of the social science requirement.

- #### C. Natural and Biological Sciences.
- 20 units of natural and biological sciences chosen from the following:

- Chemistry 1A-1B or Chemistry 2A and 10 (Chemistry 1A-1B required for Sanitary Science Option)
- Physics 2A-2B or Physics 10 and 21

* If required.

† For other methods of satisfying the "Requirement in American History and Institution," see page 23 C of this bulletin.

‡ Required if student had less than two years of high school algebra or one and one-half years of algebra and trigonometry.

Zoology 15 and 25 or Zoology 1A-1B
Life Sciences 1A-1B
Mathematics 3A-3B (required for Biostatistics Option)

The Major

MAJOR REQUIREMENTS FOR ALL OPTIONS

Public Health 100, 106, 110, 134, 145, 147A, 147B, 170

ADDITIONAL MAJOR REQUIREMENTS FOR THE OPTIONS AS FOLLOWS:

Administration

Business Administration 3, 105A, 150 (or Political Science 185), 152, 190

Economics 152 (or Business Administration 135)

Public Health 101, 148, 162

Electives to yield a total program of 128 units

Education

Anthropology 125

Education 106

Home Economics 111

Psychology 110, 142, 145A, 145B, 147

Public Health 125, 131, 148, 162

Electives to yield a total program of 128 units

Sanitary Science

Chemistry 8, 9

Engineering 172

Entomology 126

Public Health 113A, 113B, 114, 162

Electives to yield a total program of 128 units

Biostatistics

Mathematics 3A, 3B

Public Health 160A, 160B, 161A, 161B, 199

Electives to yield a total program of 128 units

GRADUATE DEGREES

(Master of Public Health; Doctor of Public Health)

The Department of Public Health at Los Angeles offers courses in the University's graduate program in public health, but does not offer the full curriculum leading to a graduate degree. However, graduate students may be enrolled on this campus for special work or for work constituting a part of the program leading to either the Master of Public Health or the Doctor of Public Health degree.

The Los Angeles Department is in a developmental stage. It has a unique opportunity to integrate its staff with those of the various units of the Medical Center. Its graduate program is planned for 1957 jointly with the complementary Department of Preventive Medicine and Public Health of the School of Medicine. (See page 331 for listing of joint appointments.) However, students who wish to become candidates for the Master of Public Health degree should address their inquiries to the Dean of the School of Public Health, University of California, Berkeley 4, California.

SCHOOL OF SOCIAL WELFARE

THE SCHOOL OF SOCIAL WELFARE offers a two-year graduate program in social welfare which is fully accredited by the Council on Social Work Education. In addition, the psychiatric specialization is also fully accredited. The degree of

Master of Social Welfare is awarded to students who successfully complete the prescribed two-year program (four semesters) of 48 units, including field work, and who comply with additional specified requirements.

Because of the highly integrated nature of the School's program and the consequent necessity of taking together at least certain groups of courses, part-time study (other than carefully arranged work-study programs and courses for advanced students) is usually not encouraged.

Certain courses offered by the School are, however, open to a limited number of part-time students who qualify for admission to the School. Part-time students are not admitted to methods courses; to certain related courses, or to field work. Part-time students, with the permission of the School, may enter either in the fall or the spring semester.

Full-time students are admitted to the School in the fall semester and are expected to continue in attendance throughout the academic year. Students who have successfully completed their first year of training within the past seven years in another accredited school of social work may be admitted for a second year of training if they otherwise qualify for admission to the School. Students who have previously attended an accredited school of social work may have certain courses counted toward the degree provided they have been completed within the past seven years. A maximum of 24 such units may be applied toward the Master of Social Welfare degree.

The School of Social Welfare offers courses on the graduate level only. Completion of the University's program in presocial welfare or its equivalent is most desirable as preparation for graduate study in social welfare. Applicants who have not had this preparation will, however, be considered if they have completed a broad undergraduate program in the biological and social sciences and psychology.

Applications for admission should be filed by April 15 of the year in which the applicant wishes to enter the School. Applicants must file an "Application for Admission to Graduate Status" with the Graduate Division of the University, and, in addition, must file an application with the School of Social Welfare and submit other specified information. To qualify for admission to the first-year program an applicant must: (1) have a bachelor's degree from a recognized college or university, and establish his eligibility for admission to regular graduate status at the University of California, Los Angeles; (2) have maintained at least a 1.75 average in undergraduate work except that an applicant with a grade-point average between 1.5 and 1.75 may be considered if the School is convinced that the applicant's potential achievement in the social welfare field is higher than was demonstrated in undergraduate work; (3) have completed at least 15 semester hours in the social sciences and/or psychology; (4) be not over 35 years of age, unless capacity for professional development in the field of social welfare has been demonstrated in social work or in a closely related field; (5) be physically able to meet the demands of the graduate curriculum, as evidenced by a physical examination conducted by the Student Health Service immediately prior to registration; (6) satisfy the School that he possesses the personal attributes essential for professional education and for successful social work practice.

To qualify for admission to the second-year program, an applicant must:

1. Have successfully completed in an accredited school of social work and within seven years immediately preceding his request for admission to the second-year program, a first-year graduate program equivalent to that offered by the School. First-year students at the School of Social Welfare who successfully complete their work, have a grade-point average of at least 2.0 (B average), and have a grade of B or better in the second semester both in their major methods course and in field work, automatically qualify for advancement to the second-year program. Applications

of other first-year students of the School are considered upon an individual basis.

2. Be physically able to meet the demands of the graduate curriculum, as evidenced by a physical examination conducted by the Student Health Service immediately prior to registration.

3. Satisfy the School that he possesses the personal attributes essential for further professional education and for successful social work practice.

Agencies having stable and progressive programs capable of providing students with educational as well as practical experience are utilized for field instruction. While the overwhelming majority of placements are in the Los Angeles area, a few may be as far away as Camarillo State Hospital to the north and San Diego to the south. Students are assigned to placements on the basis of their particular educational needs and are expected to work within agency policy including the observation of employment practices and, where stipulated by the agency, the signing of oaths sometimes required of agency employees. In a few agencies stipends are paid to students for field work.

Total enrollment in the School of Social Welfare is limited to the number for whom suitable field work placement can be arranged. As a result, it may not be possible to accept some applicants, even though they may otherwise meet all the qualifications for admission. Preference in the selection of students will be given to those applicants who appear to be best qualified as indicated by their previous experience, scholastic achievements, personal fitness, and aptitude for the social work profession.

GRADUATE COURSES

Admission to courses is by specific approval of the School. Inasmuch as the social work profession is a discipline primarily based upon interpersonal relationships, the School reserves the right to exclude from courses students who have not demonstrated in class, practice, and professional relationships the personal attributes regarded as essential to the successful practice of social work even though the academic work done by such students may be satisfactorily performed. The School reserves the right to exclude from courses any student whose performance as reflected in grades falls below the requirement for the master's degree.

THE GRADUATE DIVISION

SOUTHERN SECTION

THE UNIVERSITY OF CALIFORNIA offers on its southern campuses advanced study leading to the degrees of Master of Arts, Master of Business Administration, Master of Education, Master of Public Administration, Master of Science, Master of Social Welfare, Doctor of Philosophy, and Doctor of Education, to the Certificate in Social Welfare, and to the certificates of completion for the general secondary and junior college teaching credentials and the supervision and administration credentials. For more complete information concerning the work of the Division, and concerning the requirements for higher degrees, consult the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION, which may be had upon application to the Registrar of the University of California, Los Angeles 24, California.

DEFINITION OF ACADEMIC RESIDENCE

Every regular graduate student must register for, attend, and complete upper division courses (courses in the 100 series) or graduate courses (200 series) amounting to at least 4 units for each semester or 2 units for each summer

session, in order to satisfy the minimum residence requirement in candidacy for any higher degree or certificate issued by the University.

STUDY-LIST LIMITS

In order to counteract the tendency to accumulate credits by sacrificing thoroughness and the high scholarly attainment which comes only through intense application, the University restricts the number of units in which a student may enroll.

A graduate student in a regular semester is limited to 16 units when he takes only upper division courses, to 12 units when he takes only graduate courses, and to a total made up in the proper proportion of 12 to 16—as for example, 6 graduate and 8 upper division—when he takes both upper division and graduate courses.

Teaching assistants and others employed for approximately half time are limited to three-fourths of these totals. Graduate students engaged full time in other occupations are limited to 4 units of graduate courses or the equivalent thereof.

REQUIREMENTS FOR THE MASTER'S DEGREE

Preparation.—The candidate's preliminary training for the master's degree should be substantially the equivalent of that represented by the corresponding bachelor's degree. In the University of California, the bachelor's degree indicates eight years of systematic high school and college work distributed according to the University's requirements for the particular college or course in which the degree is offered.

If the candidate's undergraduate course has been deficient in breadth of fundamental training and fails to provide a proper foundation for advanced work in the department or departments of his choice, it probably will be necessary for him to take specified undergraduate courses before he may be admitted to regular graduate status.

The Degree.—The degree of Master of Arts is awarded for the completion of requirements in any of the major subjects of graduate study at the University of California, Los Angeles, except anatomy, applied physics, biological chemistry, biophysics, chemistry, engineering, health education, home economics, horticultural science, infectious diseases, nursing, oceanography, pharmacology, physical education, physiological chemistry, physiology, and radiology, in which the degree of Master of Science is given. In the Department of Journalism both the degree of Master of Arts and the degree of Master of Science are given. In addition to work leading to the degree of Master of Arts in political science and in international relations, the Department of Political Science also offers work leading to the degree of Master of Public Administration.

Work is offered in the School of Business Administration leading to the degree of Master of Business Administration, in the School of Education leading to the degree of Master of Education, and in the School of Social Welfare leading to the degree of Master of Social Welfare.

Major fields. The major fields for the master's degree are:

Anatomy	Chemistry	Health Education
Anthropology	Economics	History
Anthropology-Sociology	Education	Home Economics
Applied Physics	Engineering	Horticultural Science
Art	English	Infectious Diseases
Astronomy	French	International Relations
Biological Chemistry	Geography	Italian
Biophysics	Geology	Journalism
Botanical Science	German	Latin
Business Administration	Greek	Latin-American Studies

Mathematics	Physical Education (in- cluding Recreation)	Radiology
Meteorology	Physics	Social Welfare
Microbiology	Physiological Chemistry	Sociology
Music	Physiology	Spanish
Nursing	Political Science	Speech
*Oceanography	Psychology	Theater Arts
Pharmacology	Public Administration	Zoology
Philosophy		

Application for Advancement to Candidacy.—Advancement to candidacy must occur not later than one semester prior to the completion of requirements for the degree. Students are warned that such advancement is not automatic, but requires a formal application distinct from registration. A date approximately two weeks after the opening date is set each semester for application for candidacy by those who hope to qualify for degrees at the close of that session.

Amount and Distribution of Work.—A student must pursue one of the following plans at the option of the department of his major field for fulfillment of the requirements for the master's degree. Under either plan all requirements for the degree must be satisfied within a calendar year from the time of completion of the course requirement.

Plan I: Thesis Plan. At least 20 units and a thesis are required. The units must be taken in graduate or upper division undergraduate courses, and at least 8 of the 20 must be strictly graduate work in the major subject. No unit credit is allowed for the thesis. It is expected that the work of the graduate course, or courses, together with the thesis will not be less than half of the work presented for the degree. After these general and the special departmental requirements are met, the student may take any course in the 100 or 200 series, although he is subject to his major department's guidance in the distribution of his work among the departments. In addition, the major department may require any examination which seems necessary to test the candidate's knowledge of his field.

Plan II: Comprehensive Examination Plan.—Twenty-four units of upper division and graduate courses are required, of which at least 12 units must be in strictly graduate courses in the major subject. After these general and the special departmental requirements are met, the student may take any course in the 100 or 200 series, although he is subject to his major department's guidance in the distribution of his work among the departments. A comprehensive final examination in the major subject, its kind and conduct to be determined by the department concerned, is taken by each candidate.

Scholarship. Only courses in which the student is assigned grades A, B, or C are counted in satisfaction of the requirements for the master's degree. Furthermore, the student must maintain an average of at least two grade points a unit in those courses and also in all others elected at the University subsequent to the bachelor's degree; this includes upper division or lower division courses taken in unclassified status. Three grade points for each unit of credit are given to grade A, two points to grade B, one point to grade C, none to grades D, E, and F.

Foreign Language.—Each department shall determine at its option whether a reading knowledge of a foreign language shall be required of a candidate for the master's degree. The examination in all cases is to be administered by an examiner under the supervision of a committee of the Graduate Council.

Residence.—The minimum period of academic residence required is two semesters, of which at least one semester must be spent at Los Angeles. The requirement may be satisfied in part by residence in the Graduate Division, Northern Section.

A student is not regarded as in residence unless he is actually attending

* At Scripps Institution of Oceanography, La Jolla.

regularly authorized University exercises amounting to at least 4 units of upper division or graduate work in a regular session, or 2 units in a summer session.

Ordinarily all the work for the master's degree is expected to be done in residence, but a graduate of this University or any other approved candidate may complete part of his work in absence, subject to the approval of the Graduate Council, the regulations on study in absence, and the minimum residence requirement of one year.

The Thesis.—The thesis is the student's report, in as brief a form as possible, of the results of his original investigation. Although the problems for master's degree candidates are of limited scope, they must be attacked in the same systematic and scholarly way as problems of greater magnitude, as, for example, one under investigation by a candidate for the doctor's degree. Before beginning his work on a thesis, the student must receive the approval of his major department and the instructor concerned, on the subject and general plan of investigation. Detailed instructions concerning the physical form in which theses must be submitted may be had upon application to the Dean of the Graduate Division.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Students who desire to become candidates for the doctor's degree should bear in mind that the degree of Doctor of Philosophy is granted by the University of California not for the fulfillment of technical requirements alone, such as residence and the completion of fundamental courses within a chosen field, but more for the student's general grasp of the subject matter of a large field of study and his distinguished attainments within it, for his critical ability, his power to analyze problems and to coordinate and correlate the data from allied fields to serve the progress of ideas. In addition, he must demonstrate, through his dissertation, the ability to make an original contribution to the knowledge of his chosen field, and throughout his career as a graduate student must prove himself capable of working independently.

Fields of Study.—The fields of study open to candidates for the degree of Doctor of Philosophy are:

Anatomy	Geography	Oceanography
Anthropology	Geology	Philosophy
Anthropology-Sociology	Germanic Languages	Physics
Art History	Hispanic Languages	Physiological Chemistry
Biological Chemistry	and Literature	Physiology
Biophysics	History	Political Science
Botanical Science	Horticultural Science	Psychology
Business Administration	Infectious Diseases	Romance Languages
Chemistry	Mathematics	and Literature
Economics	Meteorology	Sociology
Engineering	Microbiology	Zoology
English	Music	

Other fields and departments will be added as circumstances warrant.

Preparation.—A prospective candidate for this degree must hold a bachelor's degree from one of the colleges of this University, based on a curriculum that includes the requirements for full graduate status in the department of his major subject, or must have pursued successfully an equivalent course of study elsewhere.

Residence.—The minimum residence requirement for the doctor's degree is two academic years (or four semesters), one of which, ordinarily the second, must be spent in continuous residence at the University of California, Los Angeles. (See also *Program of study*, below.)

Foreign Language.—Before taking the qualifying examinations for advancement to candidacy for the Ph.D. degree the student must normally pass

examinations in two foreign languages acceptable to the department of the candidate's major and the Dean of the Graduate Division. The examinations must show that he is able to read and understand the written form in these languages. These examinations will be administered by an examiner under supervision of a committee of the Graduate Council. A student's native language will not count as satisfying one of the language requirements above.

A department may, with the approval of the Graduate Council, permit a Ph.D. candidate to substitute for one of the languages an adequate program of study or demonstration of proficiency in a field external to the major subject. This substitute program shall be in addition to the normal program of study and shall be permitted only if, in the judgment of the Graduate Council, the department has demonstrated that such substitution will be more conducive to sound research results than would a reading knowledge of any second language.

Program of Study.—The student's program of study must be approved by the Graduate Council, must embrace a field of investigation previously approved by his department or interdepartment group, and must extend over the full period of study. However, recommendation for the degree is based on the attainments of the candidate rather than duration of his study, and ordinarily not less than three full years will be needed to finish the work.

Notice of Ph.D. Degree Candidacy.—As early as possible, preferably at the end of the first semester of graduate study, the student should declare his intention of proceeding to candidacy for the Ph.D. degree. Statement of such intention should be made in duplicate on Form 1, which is available at the Office of the Dean of the Graduate Division. One copy of the form should be filed with the department or interdepartment group of the student's field of study and the other with the Dean.

Guidance Committees.—On receiving such notification an informal guidance committee will be appointed by the department or interdepartment group of the student's field of study to assist the student in making out his program and in preparing him for the qualifying examinations. This committee must give its written approval to the department before the student is permitted to take these examinations and it ceases to exist as soon as he has passed the qualifying examinations.

Doctoral Committees.—Upon nomination of the department or interdepartment group of the student's field of study a doctoral committee will be appointed by the Graduate Council. Nomination of the doctoral committee should be made on Form 2, which is available at the Graduate Division Office. This committee shall consist of not fewer than five members, three of whom shall be from the department of the candidate's major and two from a department or departments other than the major. The doctoral committee conducts the qualifying oral examination (in some cases also the written examinations), supervises and passes upon the student's dissertation, and conducts the final oral examination. For this final oral examination additional members may be appointed to the committee by the Dean of the Graduate Division in consultation with the department.

Qualifying Examinations.—Before he is admitted to candidacy, the student must pass a series of qualifying examinations, both written and oral. The written examinations may be administered by the department of the student's field of study, but the oral examination must be conducted by his doctoral committee. The qualifying oral examination is never open to the public. The report on the qualifying examinations should be made on Form 3, which is available at the Graduate Division Office. The report form must be signed by the members of the doctoral committee.

Advancement to Candidacy.—Upon receipt of the report on the qualifying examinations an application form for advancement to candidacy (Form 4) will be sent to the candidate. The candidate must file his application, properly

approved by the chairman of his doctoral committee, and must report in person to the Dean of the Graduate Division, who determines whether all formal requirements have been met.

A minimum period of resident study approximately equivalent to two semesters must intervene between the date of formal advancement to candidacy and the date of the final examination. The semester in which the student is advanced to candidacy will be counted as a full semester for the purpose of the residence requirement, provided advancement to candidacy occurs at or before midterm.

The Dissertation.—A dissertation on a subject chosen by the candidate, bearing on his principal study and showing his ability to make independent investigation, is required of every candidate for the degree. In its preparation the candidate is guided by his doctoral committee, which also passes on the merits of the completed dissertation, and the approval of this committee, as well as that of the Graduate Council, is required before he is recommended for the degree. Special emphasis is laid on this requirement. The degree is never given merely for the faithful completion of a course of study, however extensive.

The dissertation must be typewritten or printed. Specific instructions concerning the form may be obtained from the Dean of the Graduate Division. Two copies* of the approved dissertation must be filed with the Dean two weeks before the proposed date of the final examination, for later deposition in the University Library. In certain instances, however, the Graduate Council may authorize the final examination to be taken before the dissertation is accepted.

Final Examination.—The candidate's final examination is conducted by his doctoral committee. The examination is oral and deals primarily with the relations of the dissertation to the general field in which its subject lies. Admission to the final examination may be restricted to committee members, members of the Academic Senate, and guests of equivalent academic rank from other institutions. The report on the final examination should be made on Form 5, which is available at the Graduate Division Office. The report form must be signed by the members of the doctoral committee.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF EDUCATION

The requirements for the degree of Doctor of Education are similar in general outline to those of the degree of Doctor of Philosophy; for a detailed statement consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

MULTIPLICATION OF BACHELOR'S DEGREES

In general, the University of California discourages candidacy for a second bachelor's degree, even if the proposed major is in a new field; at the same time, it recognizes that there are cases in which such a degree may legitimately be sought. *Students wishing to become candidates for a second bachelor's degree will apply to the Admissions Office for admission as undergraduate students.* Admission is subject to the approval of the dean of the appropriate college who shall also set requirements and make recommendation for the degree. No persons will be recommended for the bachelor's degree who have not satisfied substantially, at the time of procedure to the degree, the conditions imposed upon other undergraduate students at the University of California, including the completion of at least twenty-four units of course work in continuous residence.

* If the thesis is typewritten, both the original and first carbon must be on bond paper of one hundred per cent rag content. Onionskin paper is not acceptable. If the thesis is prepared by Ozalid process, the candidate is required to submit to the Dean of the Graduate Division the original copy on vellum and two Ozalid copies. Candidates for degrees in engineering are required to submit the original on vellum and three Ozalid copies.

COURSES OF INSTRUCTION OFFERED AT LOS ANGELES, FALL AND SPRING SEMESTERS, 1956-1957

The course offerings listed in this bulletin are subject to
change without notice

CLASSIFICATION AND NUMBERING

COURSES ARE CLASSIFIED and numbered as follows:

Undergraduate Courses.—These are of two kinds, lower division and upper division.

A lower division course (numbered 1-49, or sometimes indicated by a letter if the subject is one usually given in high school) is open to freshmen and sophomores, and does not count as upper division work in any department.

An upper division course (numbered 100-199) is advanced study in a field which has been pursued in the lower division, or elementary work in a subject of sufficient difficulty to require the maturity of upper division students. A lower division student (except in agriculture) may not take an upper division course without written permission of his dean.

Graduate courses (numbered 200-299) are open only to students accepted in regular graduate status. As a condition for enrollment in a graduate course the student must submit to the instructor in charge of the course evidence of satisfactory preparation for the work proposed; adequate preparation will consist normally of the completion of at least 12 units of upper division work basic to the subject of the graduate course. Students in unclassified graduate status are not admitted to graduate courses.

Teachers' courses (numbered 300-399) are highly specialized courses dealing with methods of teaching specific subjects, and are acceptable toward academic degrees only within the limitations prescribed by the various colleges.

ABBREVIATIONS

In the following list of courses, the credit value of each course in semester units is indicated by a number in parentheses after the title. A unit of registration is one hour of the student's time at the University, weekly, during one semester, in lecture or recitation, together with the time necessary in preparation therefor; or a longer time in laboratory or other exercises not requiring preparation. The session in which the course is given is shown by Roman numerals: I for the fall semester, and II for the spring semester. A course given throughout the period September to June is designated Yr. The assignment of hours is made in the SCHEDULE OF CLASSES to be obtained at the time of registration.

Year Courses.—A course given in a period of two semesters is designated by a double number. Economics 1A-1B is an example. Each half of the course constitutes a semester's work. The first half is prerequisite to the second unless there is an explicit statement to the contrary. The instructor makes a final report on the student's work at the end of each semester. Unless otherwise noted, the student may take the first half only and receive final credit for it.

AGRICULTURE

Harry R. Wellman, Ph.D., *Professor of Agricultural Economics, Berkeley (Vice-President—Agricultural Sciences)*.

Claude B. Hutchison, M.S., LL.D., D.Agr. (hon.c.), *Professor of Agriculture, Emeritus, Berkeley*.

Robert W. Hodgson, M.S., *Professor of Subtropical Horticulture (Dean of the College of Agriculture), Los Angeles*.

Letters and Science List.—Agricultural Economics 120, 130; all undergraduate courses in botany; Entomology 100, 112A, 126, 134, 144; Irrigation and Soils 108 and 110A; Plant Pathology 120; and Subtropical Horticulture 111. For regulations governing this list, see page 6.

Upper Division Courses.—All upper division courses announced by the College presuppose at least junior standing, though sophomore students may take certain upper division courses. Juniors and seniors in colleges other than Agriculture may elect such courses in the College of Agriculture as they are qualified to pursue.

Majors Offered.—Four majors are offered on the Los Angeles campus: the majors in general horticulture, subtropical horticulture, and floriculture and ornamental horticulture in the plant science curriculum of the College of Agriculture (for requirements see sections under the College of Agriculture and the departments of Subtropical Horticulture, and Floriculture and Ornamental Horticulture) and the major in botany in the College of Letters and Science (for requirements see sections under the College of Letters and Science and the Department of Botany).

Preparation for Other Majors in the Plant Science Curriculum and for Other Curricula in the College of Agriculture.—See the PROSPECTUS OF THE COLLEGE OF AGRICULTURE and consult the appropriate advisers for students in agriculture.

Course Offerings.—On the Los Angeles campus courses are offered by the following departments of the College of Agriculture:

Agricultural Economics (see below). Botany (see page 101). Entomology (see page 188). Floriculture and Ornamental Horticulture (see page 189). Irrigation and Soils (see page 232). Plant Pathology (see page 311). Subtropical Horticulture (see page 344).

AGRICULTURAL ECONOMICS

Roy J. Smith, Ph.D., *Professor of Agricultural Economics (Vice-Chairman of the Department)*.

———, *Assistant Professor of Agricultural Economics*.

The Major.—The major is offered on the Berkeley and the Davis campuses. See the PROSPECTUS OF THE COLLEGE OF AGRICULTURE and consult the appropriate adviser for students in agriculture.

UPPER DIVISION COURSES

120. Agricultural Policy. (3) I.

Mr. Smith

Lecture and discussion, three hours. Prerequisite: Economics 1A.

The evolution of agricultural policy in the United States. Historical and analytical treatment of principal farmer movements, legislative provisions for the betterment of agriculture, and current policy problems.

130. Agricultural Marketing. (3) II.

Lecture and discussion, three hours. Three field trips to be arranged.
Prerequisite: Economics 1A.

Survey of determinants of agricultural markets and trade. Organization and operation of agricultural markets. Coöperative marketing. Costs of marketing. Government in marketing. Changes in agricultural marketing and markets.

140. Farm Management. (4) I.

Mr. Smith

Lecture and discussion, four hours.

Survey of farm management: nature of the farm and the problems and methods of farm management; organizational aspects of the individual farm unit; administration of the farm business.

AIR SCIENCE

Vincent J. Donahue, M.A., Colonel, U. S. Air Force, *Professor of Air Science (Chairman of the Department)*.

George J. Fleckenstein, B.S., Major, U. S. Air Force, *Associate Professor of Air Science*.

Alvin E. Lundquist, A.B., Major, U. S. Air Force, *Associate Professor of Air Science*.

William B. Mayes, Jr., B.A., Major, U. S. Air Force, *Associate Professor of Air Science*.

John M. Austin, A.B., M.Ed., Captain, U. S. Air Force, *Assistant Professor of Air Science*.

Lawrence E. Green, M.S., Captain, U. S. Air Force, *Assistant Professor of Air Science*.

Chester N. Keller, B.S., Captain, U. S. Air Force, *Assistant Professor of Air Science*.

Joseph D. Kitko, B.A., Captain, U. S. Air Force, *Assistant Professor of Air Science*.

Letters and Science List.—All undergraduate courses in this department up to a total of 12 units are included in the Letters and Science List of Courses. Note: This in no way prejudices counting additional Air Science courses up to the 12 units of non-Letters and Science credit accepted toward the degree. For regulations governing this list, see page 6.

College of Engineering.—6 units of lower division credit and 9 units of upper division credit for Air Science courses are accepted toward a degree in the College of Engineering.

Air Force Reserve Officers' Training Corps

The Air Force R.O.T.C. courses are particularly adaptable to students physically and aptitudinally qualified who desire to become flying officers or expect to follow an engineering or basic science major. The Air Force R.O.T.C. program constitutes the principal source of junior officers for the Reserve Forces of the United States Air Force, and a major source for the Regular Air Force.

Objectives.—The objectives of the Air Force R.O.T.C. program are:

1. To develop by precept, example, and student participation, the attributes of character, personality, and leadership which are indispensable to civilian leaders and Air Force officers.

2. To develop an interest in the Air Force and an understanding of its organization, mission, problems, and techniques.

3. To provide the student with a balanced course of officer development training, and officer career training, both theoretical and practical, which in conjunction with his academic curriculum will prepare him to discharge all duties and responsibilities which may be required of him as a junior officer of any component of the Air Force.

4. To arouse in students the desire to become pilots and aircraft observers in the Air Force.

Basic Course—Air Age Citizenship Education.

LOWER DIVISION COURSES

The lower division or basic courses in either Military or Air Science are prescribed for all first- and second-year undergraduate male students who are citizens of the United States, have not reached their twenty-fourth birthday, and are physically fit for military service unless exempted. Students other than those required to take R.O.T.C. training may be informally enrolled in Air Force R.O.T.C. on application. The Professor of Air Science may, at his discretion, allow credit for portions or all of the Air Science I and II courses for equivalent training obtained from active service in one of the Armed Forces. The Air Science basic course consists of two hours of formal academic instruction and one hour of Leadership and Command laboratory per week for the first two academic years. The Air Force supplies formally enrolled basic students on a temporary loan basis, without charge, all the required Air Science textbooks, instructional equipment, and a regulation Air Force blue uniform. This Air Force equipment is to be returned in good condition on completion of the course and students are held liable for loss or damage to any component thereof. Informally enrolled Air Force R.O.T.C. students may be supplied Air Force texts and training equipment if available, but not a uniform.

1A. Aviation and Global Geography. (1½) I, II. The Staff
Introduction to Air Force R.O.T.C.; introduction to aviation; fundamentals of global geography. Leadership laboratory.

1B. Security Organizations. (1½) I, II. The Staff
Prerequisite: course 1A.
International tensions and security organizations; instruments of national military security. Leadership laboratory.

21A. Careers, Targets, and Weapons. (1½) I, II. The Staff
Prerequisite: course 1B or equivalent.
Careers in the Air Force, elements of aerial warfare to include targets and different types of Air Force weapons. Leadership laboratory.

21B. Aircraft Bases and Operations. (1½) I, II. The Staff
Prerequisite: course 21A or equivalent.
Elements of aerial warfare to include aircraft bases and operations. Leadership laboratory.

Advanced Course—Air Force Officer Development.

UPPER DIVISION COURSES

Students who have successfully completed, or are credited with, the basic course may apply for enrollment in the advanced course of Air Science. Students who have shown potentials for leadership and command and have demonstrated interest and aptitude of becoming an Air Force officer are selected within quota limitations for the advanced courses. First priority for accept-

ance in the advanced course is given to students who are physically and aptitudinally qualified for flying and who desire to enter pilot or aircraft observer schools when called to active military service. Second priority for acceptance is given to students physically and aptitudinally qualified for general service and who are majoring in engineering or a basic science in which the Air Force has a primary interest.

The advanced Air Science course comprises four hours of formal academic instruction and one hour of leadership laboratory per week for two academic years. The advanced course students organize and operate a typical Air Force training activity. Advanced students are expected to devote a part of their study time, in addition to scheduled instruction, to planning, administration, and management of the cadet organization and to logistical and social phases of the training activity. The advanced courses of Air Force R.O.T.C. include a summer camp of four or six weeks' duration, normally held following the Air Science III academic year.

Additional qualifications required for the formally enrolled advanced course students include:

1. Must not have reached his twenty-fifth birthday at the time of admission, and be able to graduate with four semesters of academic work, and must graduate in two academic years.

2. Make application to appear before a board of officers appointed for selecting students for the advanced course. This board normally meets during March and November of each year.

3. Satisfactorily completed a written aptitude-test battery.

4. Successfully pass a physical examination prescribed for Air Force officers.

5. Execute a written agreement with the Air Force to complete the Air Force R.O.T.C. advanced courses, to attend the prescribed summer camp, and to accept a commission as an Air Force officer, if offered.

6. Advance Air Force R.O.T.C. formally enrolled cadets may be enlisted members of the Air Force Reserve, and as such must retain their reserve status during the advanced course. They may not hold a commission in any of the Armed Forces in any capacity.

7. Applicants must be physically sound, well-informed, and of robust constitution. Applicants desiring to enter flying training as pilots must have 20-20 vision, uncorrected, in each eye. Normal color perception is required. Applicants for training as aerial observers must have uncorrected distant vision of better than 20-50 bilaterally, correctible to 20-20 bilaterally, and near vision of 20-20 bilaterally, uncorrected.

A limited number of advanced-course appointments are available to outstanding students who are unable to qualify physically for flying training. Distant-vision requirements for such applicants are distant vision of 20-200 or better bilaterally, correctible to 20-20 in one eye and 20-30 in the other. Students majoring in engineering or physical sciences are given priority for such appointments.

Formally enrolled advanced course Air Force R.O.T.C. students are issued Air Force officer-type blue uniforms, which they may be permitted to retain upon acceptance of a commission. These students receive a governmental commutation of ration allowance amounting to \$81 per quarter during the two advanced academic years, in addition to being supplied a major portion of the required Air Science texts and training equipment. Students attending summer camp are paid at the rate of \$78 a month, in addition to being given rations, quarters, and travel expenses.

131A. Problem Solving and Communication. (4) I.

The Staff

Prerequisite: course 21B or equivalent.

Introduction to Advanced Air Force R.O.T.C.: Air Force commander and staff; creative problem solving; communication processes; teaching methods. Leadership laboratory.

131B. Applied Air Science. (4) II.

The Staff

Prerequisite: courses 21B and 131A or equivalent.

Military justice system; aerial navigation; weather; Air Force Base functions. Leadership laboratory.

SUMMER TRAINING

Summer training is required of all Air Force Advanced Course Cadets. Attendance at summer training unit is normally accomplished during the summer months between the junior and senior years of College.

Summer Training. (3) 232 hours of four weeks' duration.

Summer Training Unit Staff

Prerequisite: course 131A and 131B or equivalent.

Processing in and out; physical training; individual weapons; familiarization of flying; field exercises; United States Air Force Base activity and equipment.

This course is held at selected Air Force Bases.

141A. Principles of Leadership. (4) I.

The Staff

Prerequisite: courses 131A and 131B or equivalent.

Seminars on principles of leadership and management; career guidance. Leadership laboratory.

141B. Aviation, Geography, and War. (4) II.

The Staff

Prerequisite: courses 131A and 131B or equivalent.

Military aspects of world political geography; military aviation and the art of war; briefing for commissioned service. Leadership laboratory.

ANATOMY

(A Department of the School of Medicine)

The Department of Anatomy offers certain courses which are open to qualified graduate students who are not pursuing the professional curriculum of the School of Medicine. For information concerning these courses and advanced degrees available, see the ANNOUNCEMENT OF THE SCHOOL OF MEDICINE, LOS ANGELES, and the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

ANTHROPOLOGY AND SOCIOLOGYRalph L. Beals, Ph.D., *Professor of Anthropology and Sociology.**Joseph B. Birdsell, Ph.D., *Professor of Anthropology.*Leonard Broom, Ph.D., *Professor of Sociology and Anthropology (Chairman of the Department).*Walter R. Goldschmidt, Ph.D., *Professor of Anthropology and Sociology.*Harry Hoijer, Ph.D., *Professor of Anthropology.*†Kenneth L. Little, Ph.D., *Visiting Professor of Anthropology.*Svend Riemer, Ph.D., *Professor of Sociology.*Eshref Shevky, Ph.D., *Professor of Sociology and Anthropology.*Constantine Panunzio, Ph.D., *Professor of Sociology, Emeritus.*Donald R. Cressey, Ph.D., *Associate Professor of Sociology.*William A. Lessa, Ph.D., *Associate Professor of Anthropology.*

¹ In residence fall semester only, 1956-1957.

² In residence spring semester only, 1956-1957.

William S. Robinson, Ph.D., *Associate Professor of Sociology and Anthropology.*

*Ralph H. Turner, Ph.D., *Associate Professor of Sociology and Anthropology.*

¹Melville Dalton, Ph.D., *Assistant Professor of Sociology.*

Harold Garfinkel, Ph.D., *Assistant Professor of Sociology.*

Clement W. Meighan, Ph.D., *Assistant Professor of Anthropology.*

Richard T. Morris, Ph.D., *Assistant Professor of Sociology.*

*Ruth Riemer (Ruth Riemer Ellersieck), Ph.D., *Assistant Professor of Sociology.*

Charles R. Wright, Ph.D., *Acting Assistant Professor of Sociology.*

Raymond J. Murphy, Ph.D., *Instructor in Sociology.*

H. B. Nicholson, Ph.D., *Instructor in Anthropology.*

Counsell Taylor, Ph.D., *Instructor in Anthropology.*

¹John Forster, M.A., *Acting Instructor in Sociology.*

George C. Barker, Ph.D., *Research Associate in Anthropology.*

Eleanor Bernert Sheldon, Ph.D., *Research Associate in Sociology.*

Roy T. Simmons, M.A., *Research Associate in Anthropology.*

Letters and Science List.—All undergraduate courses in anthropology and sociology are included in the Letters and Science List of Courses. For regulations concerning this list, see page 6.

FIELD OF CONCENTRATION IN ANTHROPOLOGY

Preparation.—Required: Anthropology 1, 2, Sociology 1 or 101, 12, Sociology 18 or Statistics 1 or an equivalent approved by the Department; 6 units chosen from Psychology 1A-1B, Geography 1A-1B or 101, History 1A-1B, 8A-8B or 101, Life Science 1A-1B, Zoology 1A-1B, 15 or 35, Geology 2, 3; and fulfillment of the general requirements of the University and the College of Letters and Science.

The Field of Concentration.—Thirty upper division units distributed as follows:

1. Anthropology 102, 103, 125, and 9 additional units in anthropology. Linguistics 170 and 171 may be used to satisfy 3 or 6 units of this requirement.

2. Six units of upper division sociology. Any course except 101, 120, 142, 185.

3. Six additional units chosen from one of the following fields: Sociology; Linguistics 170, 171; Psychology 120, 126, 134, 137, 139, 143, 145A-145B, 147, 175, 177; Folklore 101, 105, 190; any course in regional or cultural geography; Geology 102A-102B, 107, 117; History 111A-111B, 135, 136, 162A-162B, 163, 166A-166B, 180, 190, 191A-191B, 192A-192B, 196A-196B; Paleontology 101, 111, 137; Zoology 100A-100B, 101A-101B, 106.

The student must also meet the requirements of the University and the College of Letters and Science for graduation.

FIELD OF CONCENTRATION IN SOCIOLOGY

Preparation.—Required: Sociology 1 or 101 and 12, Anthropology 1 and 2, Psychology 1A or 101, Sociology 18, or another course in statistics approved by the department, and fulfillment of the general requirements of the University and the College of Letters and Science. The student should consult a detailed statement of requirements and recommendations available at the

* Absent on leave, 1956-1957.

¹ In residence fall semester only, 1956-1957.

departmental office. Each student must apply to the department for assignment to an adviser.

The Field of Concentration.—Thirty upper division units distributed as follows:

1. Eighteen upper division units in sociology, not including courses 101 and 142. Students planning graduate study or a professional career in sociology should include course 117.

2. Six units chosen from anthropology.

3. Six additional upper division units selected with the approval of the adviser from one of the following groups: anthropology; economics; folklore (may be combined with 3 units of history or 3 additional units of anthropology); geography; history; philosophy; political science; psychology.

Candidates for the General Secondary Credential.—The undergraduate requirements for a teaching major in social science may be fulfilled by completing the preparation as outlined in the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, and items 1 and 2 for the field of concentration in anthropology or items 1 and 2 for the field of concentration in sociology. Six upper division units in history selected from courses 111A–111B, 121A–121B, 142, 143, 144, 145, 151A–151B, 153, 157, 162A–162B, 171, 172A–172B, 173, 174A–174B may be substituted for one of the lower division year courses in history and also apply on the field of concentration.

Graduate Work.—Work leading to the M.A. and Ph.D. degrees is offered in both anthropology and sociology. An interdisciplinary program leading to a combined degree may be arranged in exceptional cases. For details of requirements for the degrees consult the departmental adviser.

Social Welfare.—Students whose primary interest is in social welfare may either fulfill the requirements of the field of concentration in sociology or of the curriculum in presocial welfare (see page 19). Students planning on graduate training in social welfare at this University should consult the announcement of the School of Social Welfare (see page 61).

ANTHROPOLOGY AND SOCIOLOGY

GRADUATE COURSE

274A–274B. Departmental Seminar. (1–1) Yr. Mr. Broom in charge
Prerequisite: consent of the instructor.

ANTHROPOLOGY

LOWER DIVISION COURSES

1. **General Anthropology.** (3) I, II. The Staff
Human biology and physical anthropology; the relation of man and the animals; the origin and antiquity of man; fossil man; anthropometry; the criteria of race and racial classification; current racial theories; race problems.
2. **General Anthropology.** (3) I, II. The Staff
Lecture, three hours; quiz, one hour. May be taken without Anthropology 1.
The nature of culture; culture growth and history; a survey of the range of cultural phenomena, including material culture, social organization, religion, language, and other topics.
3. **Prehistory and Culture Growth.** (3) II. Mr. Meighan
Development of archaeology as an anthropological study; objectives and methods of modern archaeology; important archaeological discoveries throughout the world; contributions of archaeology toward understanding the development of human culture.

UPPER DIVISION COURSES

Courses 1, 2, or upper division standing are prerequisite to all upper division courses, except as otherwise stated.

102. **Ethnology.** (3) I, II. Mr. Lessa, Mr. Taylor
Major theories of culture; survey of principal culture types and their distribution; discussion of ethnological problems.
103. **Culture History.** (3) I. Mr. Nicholson
A general survey of the origin and development of early civilizations of the Old World: Europe, Asia, Africa.
105. **The American Indian.** (3) I. Mr. Nicholson
An introductory survey of the Indians of North and South America; origins, languages, civilizations, and history.
106. **Archaeology of North America.** (3) II. Mr. Meighan
Prehistory of North American Indians; prehistoric culture areas; relations with historic Indians.
110. **Language and Culture.** (3) I. Mr. Hoijer
The study of language as an aspect of culture; the relation of habitual thought and behavior to language; the problem of meaning.
123. **Nomadic Societies.** (3) II. Mr. Shevky
Pastoralism and tribal organization, with special reference to Central Asia and the Middle East. Relations of pastoral nomadic and peasant agricultural peoples. Conquest, sedentarization, and the transformation of organization.
124. **Comparative Religion.** (3) I, II. Mr. Lessa
The origins, elements, forms, and symbolism of religion; the role of religion in society.
125. **Comparative Society.** (3) I, II. Mr. Goldschmidt
Prerequisite: upper division standing and Anthropology 2, or Sociology 1 or 101, or consent of the instructor.
The analytical study of organized social life in societies of varying degrees of complexity; group formation and function; the relation of value systems to organized interpersonal behavior; systems of status; economic institutions and the role of property; the problem of control and authority in society.
126. **Invention and Technology.** (3) II. Mr. Meighan
Prerequisite: upper division standing.
A survey of the technologies of primitive peoples. Technological progress; the characteristics of invention; factors in the adoption of inventions.
127. **Primitive Art.** (3) I. Mr. Taylor
Development and change of conventions in the visual art forms of various nonliterate peoples; effects of craftsmanship, materials, and local culture on primitive art.
137. **Indians of California.** (3) II. Mr. Meighan
Native peoples of California; their origins, languages, and culture.
139. **Peoples of Africa.** (3) I. Mr. Taylor
The native cultures of Africa south of the Sahara; cultural history and diversity. Problems in cultural adjustment in modern Africa.

- 140. Ancient Civilizations of Mexico and Peru. (3) II.** Mr. Nicholson
Aztecs, Mayas, Incas, and their predecessors; origins, archaeology, traditions, history; social and political systems; religion; art and architecture; intellectual achievements.
- 141. Indians of Modern Mexico. (3) II.** Mr. Beals
The contemporary Indian groups in Mexico; the present cultures and their derivations; the problem of the mixed culture; Indian influences on modern Mexican culture.
- 147. Peoples of the Pacific. (3) I.** Mr. Lessa
The aboriginal civilizations of Australia, Malaysia, Melanesia, Micronesia, and Polynesia in prehistoric and modern times; changes arising from European contact and colonization.
- *150. Physical Anthropology. (3) I.** Mr. Birdsell
Lecture, three hours; laboratory, two hours. Prerequisite: consent of the instructor.
A general survey of human osteology in terms of racial variations. The methodology of measurements and observations will require laboratory work.
- 151. The Genetics of Race. (4) II.** Mr. Birdsell
Prerequisite: Anthropology 1.
A general survey of the techniques and problems of racial classification. Emphasis is on the genetic approach; and the methods of modern classical genetics and population genetics are applied to human evolution.
- 162. History of Anthropology. (3) I.** Mr. Beals
Prerequisite: Anthropology 1 and 2, and senior standing.
A systematic survey of the development of anthropology as a scientific field, especially designed for majors in anthropology and sociology. Prerequisite to graduate work in the theory and method of anthropology.
- 164. Basic Patterns of the American Culture. (3) I.** Mr. Goldschmidt
Prerequisite: upper division standing.
A cultural analysis and description of the central elements in modern American society. The sources and the content of themes of individuation, mobility, competition, industriousness; the influence of these themes upon institutional aspects of society.
- 165. Acculturation and Applied Anthropology. (3) I.** Mr. Little
Prerequisite: upper division standing and Anthropology 2 or Sociology 1 or 101. Recommended: Anthropology 125.
The impact of Western civilization upon native societies; characteristic social and cultural adjustments to the impact; community disintegration and reintegration; anthropological problems in colonial and native administration.
- 195. Methods and Techniques of Field Archaeology. (2) II.** Mr. Meighan
Lecture, one hour; laboratory, three hours. During part of the semester Saturday field work is substituted. Prerequisite: consent of the instructor.
The organization of archaeological surveys and excavations, aims and working methods. Archaeological mapping, photography, and recording.
- 196. Methods and Techniques of Archaeology. (2) I.** Mr. Meighan
Lecture, one hour; laboratory, three hours. Prerequisite: consent of the instructor.
The interpretation and presentation of archaeological finds. Chronological sequencing; stylistic and statistical analysis; documentation, publication. Techniques of preservation, restoration and illustration of artifacts.

* Not to be given, 1956-1957.

198A-198B. Methods and Techniques in Anthropology. (2-2) Yr.

Mr. Hoijer in charge

Lecture, one hour; laboratory, three hours. Prerequisite: open only to advanced majors and graduate students in anthropology. Required of Ph.D. candidates.

A course in field and laboratory methods in all branches of anthropology.

199A-199B. Special Problems in Anthropology. (1-4; 1-4) Yr.

Prerequisite: consent of the instructor.

Mr. Lessa in charge

GRADUATE COURSES

250A-250B. Theory and Method of Anthropology. (2-2) Yr.

Mr. Lessa

256A-256B. Social Anthropology. (2-2) Yr.

Mr. Goldschmidt

257A-257B. Problems in Cultural Anthropology. (2-2) Yr.

Mr. Beals, Mr. Little

260A-260B. Characteristics of American Culture. (2-2) Yr.

Mr. Goldschmidt

265A-265B. Cultures of Latin America. (2-2) Yr.

Mr. Beals

269A-269B. Problems in Archaeology. (2-2) Yr.

Mr. Meighan

271A-271B. Structural and Historical Linguistics. (2-2) Yr.

Mr. Hoijer

273A-273B. Human Population Genetics. (2-2) Yr.

Mr. Birdsell

***276. Man and His Ecological Relations. (2) I.**

Mr. Birdsell in charge

Prerequisite: consent of the instructor.

***292A-292B. Research in American Indian Languages. (1-6; 1-6) Yr.**

Prerequisite: Linguistics and Philology 170, 171.

Mr. Hoijer

299A-299B. Research in Anthropology. (1-6; 1-6) Yr.

Mr. Beals in charge

RELATED COURSES IN ANOTHER DEPARTMENT (See page 238)

Linguistics and Philology 170. Introduction to Linguistics. (3) I.

Mr. Hoijer

***Linguistics and Philology 171. Introduction to Phonetics. (3) II.**

Mr. Hoijer

SOCIOLOGY

LOWER DIVISION COURSES

1. Introductory Sociology. (3) I, II.

The Staff

Not open to students who have credit for course 1A or 3.

Survey of the characteristics of social life, the processes of social interaction, and the tools of sociological investigation.

12. Sociological Analysis. (3) I, II.

The Staff

Prerequisite: course 1 or 101. Required of majors. Not open to students who have credit for course 2 in this University.

Development and application of the basic tools and concepts of course 1 by means of an examination of selected monographic works.

* Not to be given, 1956-1957.

- 18. Interpretation of Quantitative Data.** (3) I, II. Miss Riemer
 Prerequisite: course 1 or 101. Satisfies the statistics requirement for the major in sociology.
 The interpretation of statistical measures, tables, and graphs of the types most frequently encountered in sociological literature.

UPPER DIVISION COURSES

Course 1 or 101, or the equivalent, is prerequisite to all upper division courses in sociology unless otherwise stated.

- 101. Principles of Sociology.** (3) I, II. The Staff
 For upper division students who have not taken Sociology 1. A more intensive introduction to sociology than is given in course 1. May not be counted as fulfilling the requirements of the field of concentration.
- 117. Introduction to Sociological Research Methods.** (3) I. Mr. Robinson
 Prerequisite: course 1 or 101.
 A systematic treatment of the logic of qualitative 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 material.
- 118. Intermediate Quantitative Methods.** (3) I. Mr. Robinson
 Prerequisite: courses 12 and 117, and Sociology 18, Statistics 1, or some other course in statistics approved by the department. Required for the M.A. in sociology.
 A brief systematic course in the logic and practice of statistical methods of use to sociologists.
- 119. Advanced Quantitative Methods.** (3) II. Mr. Robinson
 Prerequisite: course 118. Required for the Ph.D in sociology.
 A continuation and elaboration of course 118. Designed for students with professional objectives.
- 120. Social Disorganization.** (3) I, II. Mr. Cressey, Mr. Garfinkel
 Prerequisite: course 1 or 101, and upper division standing.
 An examination of various symptoms of social disorganization, such as individual maladjustment, and a general survey of the processes through which societies become disorganized.
- 122. Social Change.** (3) I. Mr. Murphy
 Prerequisite: course 1 or 101.
 A study of patterns of social change, resistance to change, and change-producing agencies and processes.
- 124. Collective Behavior.** (3) II. Mr. Turner
 Characteristics of crowds, mobs, publics, social movements, and revolutions, their relation to social unrest and their role in developing and changing social organization.
- 126. Culture and Personality.** (3) I. Mr. Turner
 Prerequisite: Sociology 1 or 101, and upper division standing.
 Theories of the relation of variations in personality to culture and group life, in primitive and modern societies, and the influence of social role on behavior.
- 128. Formal Organizations.** (3) II. Mr. Dalton
 Prerequisite: course 1 or 101, and upper division standing.
 Institutional analysis of administrative structures and voluntary associations; informal organization, ideology, bureaucracy, decision-making, and morale.

- 131. Industry and Society. (3) I.** Mr. Dalton
Prerequisite: upper division standing.
A social and cultural analysis of industry. Attention given to occupational roles, status and social participation of workers.
- 142. Marriage and the Family. (3) I, II.** Mr. Riemer
Prerequisite: upper division standing. May not be counted toward the field of concentration in sociology.
The marriage-family system; development, modern functions, characteristics, and maladjustments.
- 143. Urban Sociology. (3) I.** Mr. Riemer
Prerequisite: course 1 and upper division standing, or course 101.
Urban and rural cultures; the characteristics of cities in Western civilization, with emphasis on the American metropolis.
- 144. Rural Society. (3) II.** Mr. Shevky
Prerequisite: course 1 and upper division standing, or course 101.
The characteristics of rural social systems in contrast to urban; the nature of folk societies; development of major agricultural traditions in America, with emphasis upon the effects of industrialization of rural life; problems in policy and administration of agriculture in modern America.
- 145. Community and Ecology. (3) I.** Mr. Shevky
Prerequisite: course 1 and upper division standing, or course 101.
Comparative studies of community structure and organization. Application of the ecologic, sociometric, and similar techniques to community research.
- *150. Latin-American Societies. (3) I.** Mr. Beals
Prerequisite: upper division standing.
A descriptive survey of the major Latin-American societies, emphasizing their historical backgrounds and their emergent characteristics, with special attention to the relations between rural and urban life.
- 161. Group Processes. (3) I.** Mr. Morris
Systematic study of the formation, structure, and functioning of groups; analysis of group processes and group products from a variety of theoretical viewpoints; implications of various research techniques.
- 166. Population and Society in the Middle East. (3) I.** Mr. Shevky
A survey of the Middle Eastern societies; their historic and environmental bases; the contemporary demographic and cultural situation.
- 167. Comparative Sociology of the Middle East. (3) II.** Mr. Shevky
A review of the unity of Middle Eastern societies in Islam and their diversity exemplified by such nomadic peoples as the Bedouin, countries in process of rapid modernization such as Turkey and Israel, colonial situations as in Algeria and Morocco, and underdeveloped areas as Iran and the Arabian countries.
- 170. Backgrounds of Sociological Thought. (3) I.** Mr. Dalton
Survey of attempts, from early literate societies to the twentieth century, to understand the nature of man and society; the social origins of this intellectual background; the course of these ideas in the development of sociological theory.

- 171. Development of Sociological Theory. (3) I.** Mr. Morris
Prerequisite: course 1 or 101, and upper division standing.
A comparative survey of basic concepts and theories in sociology, 1850-1920; the codification of analytic schemes; a critical analysis of trends in theory construction.
- 172. Contemporary Sociological Theory. (3) II.** Mr. Morris
Prerequisite: course 1 or 101, and upper division standing.
A critical examination of significant theoretical formulations, 1920 to the present; an analysis of the relation between theoretical development and current research emphases.
- 181. Sociopathic Behavior. (3) I, II.** Mr. Garfinkel
Prerequisite: course 120 and upper division standing.
Various types of sociopathic behavior analyzed from the standpoint of social isolation and social control.
- 182. Criminology. (3) I.** Mr. Cressey
Prerequisite: course 120 and upper division standing.
Theories of the genesis of crime; factors in the organization of criminal behavior from the points of view of the person and group; criminal behavior systems.
- 183. Social Control. (3) I.** Mr. Garfinkel
Prerequisite: course 120 and upper division standing.
Theories of social control; consideration of the agencies and means involved in the control of social deviation.
- 184. Control of Crime. (3) II.** Mr. Cressey
Prerequisite: course 120 and upper division standing.
Theories of punishment; methods of dealing with convicts; police, courts, prisons, probation, and parole. Emphasis on California systems.
- 185. The Field of Social Welfare. (3) II.** Mr. Riemer
Prerequisite: course 120.
A sociological analysis of social work as an institution. Attention given to agency organization and functions.
- 186. Population. (3) I.** Miss Riemer
Prerequisite: course 1 or 101, and senior standing.
Fundamental problems and techniques in interpreting population data and trends, and a systematic discussion of the more important generalizations which constitute the science of demography today.
- *189. Ethnic and Status Groups. (3) I.** Mr. Broom
Prerequisite: course 1 or 101, and upper division standing.
A study in social stratification; the statuses of the chief minorities in the continental United States with comparisons drawn from Jamaica, Hawaii, and other areas; the development, operation, and effects of such policies as selective immigration, assimilationism, ethnic pluralism, and racism.
- 190. American Ethnic Problems. (3) II.** Mr. Broom
Prerequisite: course 1 or 101, and senior standing.
A topical study, especially of Southern California. The characteristics of the "visible" ethnic groups, e.g., Japanese, Mexican, and Negro; their organization, acculturation, and differentiation. The operation of segregation, discrimination, and programs of counteraction.

* Not to be given, 1956-1957.

192. Studies in the Family. (2) I, II.

Mr. Riemer

Prerequisite: consent of the instructor.

A survey of the range of sociological research on family structure and the individual; the intensive analysis of selected research and practice in the planning of research in this area.

199A-199B. Special Problems in Sociology. (1-4; 1-4) Yr.

Mr. Cressey in charge

Prerequisite: open to seniors who have had 6 units of upper division courses in sociology with grades of B or above, and consent of the instructor.

GRADUATE COURSES***216. Questionnaire and Schedule Construction. (2) I.**

Mr. Turner

Prerequisite: graduate standing and consent of the instructor.

Procedures, methods, and problems in the collection of data by means of interview and questionnaire.

217. Interviewing and Interviewer Training. (2) II.

Mr. Morris

Prerequisite: graduate standing and consent of the instructor.

Problems and methods of sociological interviewing; development of interview skills; the selection and training of interviewers; the administration of interview studies.

218. Sample Survey Methods in Sociological Research. (2) II.

Prerequisite: courses 117 and 118.

Mr. Robinson

Principles and applications of simple and random sampling; simple and stratified cluster sampling, both single and multistage; regression estimates and double sampling. Field techniques.

219. Factor Analysis as a Sociological Research Tool. (2) I.

Prerequisite: courses 117 and 118.

Mr. Robinson

The principles of factor analysis and its application to sociological problems; use of traditional R-technique in analysis of complexes of statistical variables and in testing conceptual hypotheses in sociology; Q-technique and the determination of types; recent developments.

236. Social Change in the Middle East. (2) I.

Mr. Shevky

237. Social Stratification in the Middle East. (2) II.

Mr. Shevky

250A-250B. Methodological Problems. (2-2) Yr.

Mr. Broom

251. Social Maladjustment. (2) II.

Mr. Garfinkel

252. Criminology. (2) I.

Mr. Cressey

253A-253B. Quantitative Methods in Sociology. (2-2) Yr.

Mr. Robinson

254. Penology. (2) II.

Mr. Cressey

256A-256B. Demography. (2-2) Yr.

Miss Riemer

258. Marriage and the Family. (2) II.

Mr. Riemer

***259. Social Institutions. (2) II.**

***260. Industry and Society. (2) II.**

Mr. Dalton

***261A-261B. Ethnic Minorities. (2-2) Yr.**

Mr. Broom

263. Social Stratification. (2) II.

Mr. Morris

* Not to be given, 1956-1957.

- *268. **Historical and Interpretive Sociology.** (2) I. Mr. Dalton
 *269. **Social Action.** (2) II. Mr. Dalton
 270. **Selected Problems in Socialization.** (2) II. Mr. Turner
 299A-299B. **Research in Sociology.** (1-6; 1-6) Yr. Mr. Broom in charge

ARABIC

For courses in Arabic, see under Department of Oriental Languages.

ARCHAEOLOGY

For courses in archaeology, see under Departments of Anthropology and Sociology, Classics, and Oriental Languages.

ART

- †Laura F. Andreson, M.A., *Professor of Art.*
 Gibson A. Danes, Ph.D., *Professor of Art (Chairman of the Department).*
 Annita Delano, *Professor of Art.*
 Henry Dreyfuss, *Visiting Professor of Art.*
 Robert S. Hilpert, M.A., *Professor of Art.*
 Frederick S. Wight, M.A., *Professor of Art and Director of Art Galleries.*
 Karl E. With, Ph.D., *Professor of Art.*
 Louise Pinkney Sooy, *Professor of Art, Emeritus.*
 S. Macdonald Wright, *Professor of Art, Emeritus.*
 Archine Fetty, M.A., *Associate Professor of Art.*
 Thomas Jennings, M.A., *Associate Professor of Art.*
 Gordon Nunes, M.A., *Associate Professor of Art.*
 Carl D. Sheppard, Jr., Ph.D., *Associate Professor of Art.*
 Jan Stussy, M.A., *Associate Professor of Art.*
 Helen Clark Chandler, *Associate Professor of Fine Arts, Emeritus.*
 Clara Bartram Humphreys, M.A., *Associate Professor of Fine Arts, Emeritus.*
 Karl M. Birkmeyer, Ph.D., *Assistant Professor of Art.*
 William J. Brice, *Assistant Professor of Art.*
 Dorothy Brown, A.B., *Assistant Professor of Art.*
 Warren G. Carter, A.B., *Assistant Professor of Art.*
 Alice M. Everett, M.A., *Assistant Professor of Art.*
 John Paul Jones, M.F.A., *Assistant Professor of Art.*
 Nathan I. Krevitsky, Ed.D., *Assistant Professor of Art.*
 John Maguire, B.S., *Assistant Professor of Art.*
 Josephine P. Reys, M.A., *Assistant Professor of Art.*
 †John Rosenfield, Ph.D., *Assistant Professor of Art.*
 *Jack D. Stoops, M.A., *Assistant Professor of Art.*
 Madeline Boyce Sunkees, B.E., *Assistant Professor of Art.*
 Samuel Amato, B.F.A., *Instructor in Art.*
 Barbara W. Axelrod, M.A., *Instructor in Art.*
 Phyllis M. Beacom, M.A., *Instructor in Art.*
 Donald W. Chipperfield, A.B., *Instructor in Art.*
 Robert W. Cremean, M.F.A., *Instructor in Art.*
 J. Bernard Kester, M.A., *Instructor in Art.*

* Not to be given, 1956-1957.

† Absent on leave, 1956-1957.

* In residence spring semester only, 1956-1957.

Margaret T. Lecky, *Lecturer in Art.*

Annie C. B. McPhail, M.S., *Lecturer in Art.*

Gretchen B. Larimer, A.B., *Associate in Art.*

William M. Reithard, *Associate in Art.*

Olga M. Richard, A.B., *Associate in Art.*

The student may select a major from among the eight majors offered in the College of Applied Arts or the major in the history of art in the College of Letters and Science; each of these majors leads to the degree of Bachelor of Arts. For information concerning teaching credentials, consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

The department reserves the right to hold for exhibition purposes examples of any work done in the classes and to retain for the permanent collection of its galleries such examples as may be selected.

College of Applied Arts

Preparation for the Major.—Twenty-four units of lower division art courses, including 1A, 1B, 2A-2B, 3A, 6A-6B, 7A, and 6 additional units selected from lower division courses offered by the department, not more than 4 units in any one of three areas—history of art, drawing and painting, design.

1. History and Practice.

The Major.—14 units from 100A, 100B, 102A, 102B (or Classics 170A, 170B), 103A, 103B, 104A, 104B, 108A, 108B, 119A, 119B, 119C, 120A, 120B, 120C, 120D; 4 units from 114A, 114B, 115, 124, Philosophy 136; and 12 units from not more than two of the following areas of specialization: Painting: 128A-128B, 130A-130B, 134A-134B; Advertising: 140A, 140B, 145A-145B, 148; Applied Design: 170A-170B, 173A-173B, 176A-176B; Costume Design: 160, 163A, 163B, 166; Interior Design: 150, 152A, 152B, 158A, 158B; and electives from upper division art courses to bring total to 36 units.

Art 125A and 125B are recommended.

2. Painting, Sculpture and Graphic Arts.

The Major.—Courses 125A, 126, 127A, 128A-128B, 130A-130B, 134A-134B, 135, 137A; 8 units from Group I; and electives from upper division art courses to bring total to 36 units.

3. Advertising Art.

The Major.—Courses 108A, 108B, 125A, 125B, 128A-128B, 130A, 134A, 140A, 140B, 145A, 145B, 146, 147A, 148, and electives from upper division art courses to bring total to 36 units.

4. Interior Design.

The Major.—Courses 150, 152A, 152B, 153A-153B, 155A-155B, 157A-157B, 158A, 158B, 170A, 176A; 4 units from Group I, and electives from upper division art courses to bring total to 36 units.

5. Costume Design.

The Major.—Courses 157A-157B, 160, 161, 163A, 163B, 166, 167, 169A-169B, 176A; and 4 units from Group I, and electives from upper division art courses to bring total to 36 units.

6. Applied Design.

The Major.—Courses 137A, 152A, 153A, 170A, 173A, 176A, 177A, 180; 8 units from Group I, including 115; 6 units from 152B, 157A-157B, 170B, 173B, 176B, 177B; and electives from upper division art courses to bring total to 36 units.

7. Industrial Design.

The industrial design curriculum, which is a five-year program requiring 160 units, leads to the bachelor's degree and to a Certificate in Industrial Design.

Preparation for the Major.—Twenty-four units of lower division art courses, including 1A-1B, 2A-2B, 3A, 6A-6B, 7A, and 16, Chemistry 2, English 1A, Mathematics 1, 3A, Physics 2A-2B, and Speech 1A.

The Major.—Courses 100A, 108A-108B, 115, 140A-140B, 155A-155B, 180, 181A, 181B, 181C, 181D, 181E, 182A-182B, Economics 101, Psychology 101, Sociology 101.

The minor must be in Engineering-Business, and should include Engineering 2, 6, 18, 130B; Business Administration 140, 160; Business Education 110.

Electives should be chosen from the following: Art 120A, 120B, 125A, 137A, 141A, 141B, 152A, 153A-153B, 170A, 173A, 177A, 184, Business Administration 105A, and other courses approved by the industrial design adviser.

8. Teaching of Art.

The Major.—Courses 130A, 134A, 140A, 152A, 163A or 166, 170A, 173A, 177A, 190, 370A, 370B; Theater Arts 148A; 4 units from Group I; and electives from a second closely related group to bring total to 36 units.

College of Letters and Science

Art History.—The Department of Art offers a major in art history in the College of Letters and Science; students electing this major must be enrolled in the College of Letters and Science, not in the College of Applied Arts.

Preparation for the Major.—Courses 1A, 1B, and 5A, 5B. Recommended: 4 units from the following: Art 2A, 2B, 6A, 6B; also recommended for Letters and Science requirements E, F, and G: History 1A-1B, Philosophy 6A-6B or 20A-20B, Anthropology 1, 2, and Psychology 1A-1B.

The Major.—Four out of the five following year courses: 102A-102B (or Classics 170A-170B), 103A-103B, 104A-104B, 104C-104D, 108A-108B. Courses chosen from the following list to complete 30 units: 100A, 100B, 114A, 114B, 115, 119A, 119B, 119C, 120A, 120B, 120C, 120D, 123, 124, 199, sec. 1 (not more than 4 units), Anthropology 127, Oriental Languages 170, and Philosophy 136.

Letters and Science List.—Courses 1A, 1B, 5A, 5B, 10, 12, 45A, 45B, 100A, 100B, 102A, 102B, 103A, 103B, 104A, 104B, 104C, 104D, 108A, 108B, 110A, 110B, 114A, 114B, 115, 118A, 118B, 119A, 119B, 119C, 120A, 120B, 120C, 120D, 123, 124, 190, 199, section 1, are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Graduate Division

Requirements for the Master's Degree.—For the general requirements, see page 63. The Department of Art follows either Plan I, 20 units of graduate work and a thesis, or Plan II, 24 units of graduate work (including 4 units of an advanced project in the laboratory field as approved by the department) and a comprehensive examination. Additional requirements with regard to the several fields of concentration should be obtained from the departmental adviser.

Master of Arts Degree in Art History.—The program for the Master of Arts degree in art history follows Plan I, 20 semester units and a thesis. Knowledge of at least one foreign language is required. Before the thesis is submitted, a comprehensive examination must be passed, consisting of three two-hour examinations. This examination covers the following seven fields: classical art, medieval art, Renaissance and baroque art, modern art, American art, primitive and prehistoric art, and Oriental art.

Requirements for the Doctor's Degree in Art History.—In addition to the general University regulations (see page 66), a candidate must satisfy the following departmental requirements:

1. **Comprehensive Examination.** This examination is given for the Master of Arts Degree in art history and must be taken by each student as soon as possible after announcing his intention to follow the Ph.D. program, unless he already holds an M.A. degree in art history from this department granted after 1955.

2. **Foreign Language.** A reading knowledge of French and German is requisite for all candidates except those specializing in Oriental art who may substitute an Oriental language for one of the above, or for those specializing in Spanish or Latin-American art who may substitute Spanish for French.

3. **Qualifying Examination.** A written examination must be passed in three of the following seven areas of study: classical art, medieval art, Renaissance and baroque art, modern art, American art, primitive and prehistoric art, and Oriental art. One of the three areas will be the candidate's major area of specialization and will have double emphasis. Preparation for the qualifying examination will include a minimum of four graduate seminars, two in the candidate's major area of specialization and one each in the other fields offered for the examination.

4. **Dissertation.** See the General University Regulations.

5. **Final Examination.** This will consist of the candidate's oral defense of his thesis and of his demonstration of a satisfactory knowledge of the historical and general cultural context of the period within which his thesis topic is developed.

LOWER DIVISION COURSES

1A. Survey of Art History. (3) I.

Mr. Sheppard

Lecture, two hours; quiz, one hour.

A general presentation of architecture, sculpture, and painting from the Prehistoric, Ancient Mediterranean, Classic, and Medieval periods of Western and Eastern civilizations.

1B. Survey of Art History. (3) II.

Mr. Birkmeyer

Lecture, two hours; laboratory, one hour.

A general presentation of architecture, sculpture, and painting from the Renaissance through the Modern periods of Western and Eastern civilizations.

2A-2B. Beginning Drawing and Painting. (2-2) Yr. Beginning either semester.

Mr. Stussy, Mr. Amato

3A-3B. Intermediate Drawing and Painting. (2-2) Yr. Beginning either semester.

Mrs. Brown, Mr. Nunes

Prerequisite: course 2B.

5A. Fundamentals of Art. (2) I.

Definitions of art, terminology, types of approach, design and meaning, color theory, appreciation of art.

5B. Fundamentals of Art. (2) II.

Criteria for evaluation of works of art, evolution of forms in art, relation of styles to the cultural context.

6A-6B. Beginning Design. (2-2) Yr. Beginning either semester.

Mr. Stoops

Fundamental course in elements of art, and the principles involved in their use in creative design.

7A. Intermediate Design. (2) I, II.

Application of fundamental art principles to three-dimensional form through experimental and creative studies in a variety of materials and varied spatial constructions.

7B. Intermediate Design. (2) I, II.

Mrs. Sunkees

Experimentation in the relationships of form, line, value, color, and texture as applied to plane surfaces.

10. Introduction to Art. (3) I, II.

Mr. Hilpert

Lecture, one hour; studio, six hours. Not open to students whose major is art.

An exploratory course to develop an understanding and appreciation of art as an aspect of all activities of daily life.

16. Perspective Drawing and Rendering. (2) I, II.

Mr. Maguire

Perspective and other systems of space description, rendering in various media.

21A. Apparel Analysis. (2) I, II.

Mrs. Reps

A discussion of clothing as an art form and as creative expression. Study of line, color, pattern, and texture in relation to the individual pictorial and psychological composition.

21B. Home Furnishing. (2) I, II.

Mrs. Fetty

Lecture, one hour; studio, two hours.

Appreciative study of modern home furnishing.

24. Figure Drawing. (2) I, II.

Miss McPhail

A basic study of the proportions of the human figure.

27A-27B. Crafts Workshop. (2-2) Yr.

A course designed to meet the needs of recreational workers, occupational therapists, social workers, and others interested in crafts.

44. Life Drawing. (2) I, II.

Mr. Stussy

Prerequisite: course 2B.

Problems of anatomy and draftsmanship.

45A. Scientific Illustration. (2) I.

Recommended to students whose major is science.

Studies in the development of an ability to draw those forms relevant to the science course involved; and an understanding of various media for reproduction.

45B. Scientific Illustration. (2) II.

Study of a variety of techniques for the presentation of aspects of scientific materials with special emphasis on rendering in color.

UPPER DIVISION COURSES**I. History of Art**

Courses 1A and 1B or consent of the instructor are prerequisite to all courses in Group I except 118A, 118B.

100A. The Art of Prehistoric and Primitive Cultures. (2) I. Mr. With

Art, architecture, and industrial arts in prehistoric and primitive civilizations.

100B. The Art of Early Historical Cultures. (2) II. Mr. With

Evolution of art and architecture in early historical cultures, including the Ancient Near and Far East.

***102A. Classical Art. (2) I.**

Art, architecture, and decorative arts of Early Mediterranean and Greek cultures to the time of Alexander the Great.

***102B. Classical Art. (2) II.**

Art, architecture, and decorative arts in Hellenistic and Roman civilizations, including the areas from Asia Minor to Gandhara.

103A. Medieval Art. (3) I.

From the Early Christian to the Romanesque period.

Mr. Sheppard

103B. Medieval Art. (3) II.

From the Gothic to the Flamboyant style.

Mr. Sheppard

104A. Southern Renaissance Art. (2) I.

Art and architecture of the Renaissance in Italy and Spain.

Mr. Birkmeyer

104B. Northern Renaissance Art. (2) II.

Art and architecture of the Renaissance in the Netherlands, Austria, Germany, France, and England.

Mr. Birkmeyer

104C. Southern Baroque Art. (2) I.

Art and architecture in Italy and Spain during the Baroque period.

Mr. Birkmeyer

104D. Northern Baroque Art. (2) II.

Art and architecture in Flanders, Holland, Austria, Germany, France, and England during the Baroque period.

Mr. Birkmeyer

108A. Modern Art. (3) I.

Art and architecture from the late eighteenth century to the latter part of the nineteenth century, including the early phases of Industrialization.

Mr. Wight

108B. Modern Art. (3) II.

Post-Impressionism and the contemporary movements in art, architecture, and the fields of domestic, industrial, and commercial art.

Mr. Wight

114A. Art Analysis, Theory and Criticism. (2) I.

Critical study of art theories and methods of approach.

Mr. With

114B. Art Analysis, Theory and Criticism. (2) II.

Criteria of art analysis as a means to an objective evaluation of works of art.

Mr. With

115. Utilitarian and Domestic Art. (2) I.

A study of basic forms as determined by human needs, physical functions, esthetic appeal, and symbolic significance.

Mr. With

118A. History of Architecture and Sculpture. (2) I.

Not open to students having credit for courses 1A-1B.
Several outstanding monuments chosen to exemplify the architectural and sculptural characteristics of various epochs. Emphasis is laid upon the relationship between art and religion throughout the ages.

118B. History of Painting. (2) II.

Not open to students having credit for courses 1A-1B.
The works of leading personalities in Western painting are discussed with regard to subject matter, manner of representation, and pictorial organization, and are evaluated on the basis of their cultural and human significance in our time.

- *119A. Art of the Americas. (2) I.** _____
Pre-Columbian and Amerindian art.
- *119B. Art of the Americas. (2) II.** _____
Painting, sculpture, and architecture from the Colonial period to 1900.
- 119C. Art of the Americas: Twentieth Century. (2) I.** Mr. Wight
Development of architecture, sculpture, painting, and design from about 1910 to the present.
- 120A. Art of China. (3) I.** The Staff
Survey of the architecture, sculpture, and painting of China from pre-historic to modern times.
- 120B. Art of Japan. (3) II.** The Staff
Survey of the architecture, sculpture, and painting of Japan.
- 120C. Art of India and Indonesia. (3) I.** The Staff
Survey of the architecture, sculpture, and painting of India and the cultures of southeast Asia which developed under Indian influence from the prehistoric culture of the Indus Valley to the present.
- *120D. Islamic Art. (3) II.** The Staff
Survey of the architecture, painting, and minor arts of those regions dominated historically by the Mohammedan religion, with emphasis on the Arabic cultures of the Near East, North Africa, and Spain from the seventh century to the present.
- 123. History of Prints and Drawings. (2) II.** The Staff
A study of the historical development of techniques and formal expression in printmaking and drawing, with emphasis upon masters of the Renaissance, Baroque, and Modern periods.
- 124. Research Methods in Art History. (3) II.** Mr. Sheppard

II. Painting, Sculpture and Graphic Arts

Courses 2A, 2B, and 3A are prerequisite to all courses in Group II except 125A, 125B.

- 125A-125B. Printmaking. (2-2) Yr. Beginning either semester.** Mr. Jones
Experimental and creative use of the major media of printmaking, engraving, etching, dry point, aquatint, softground, lithography and woodcut.
- 126. Traditional and Experimental Media: Painting. (2) I, II.**
Prerequisite: course 130A. Mr. Brice, Mr. Amato
Experimental and creative painting, intensive experience in the use of one medium.
- 127A-127B. Advanced Drawing. (2-2) Yr. Beginning either semester.**
Prerequisite: course 128A. Mrs. Brown, Mr. Stussy
The function of drawing in art; content-form relations emerging from study of still-life, landscape, and the figure.
- 128A-128B. Advanced Life Drawing. (2-2) Yr. Beginning either semester.** Mr. Brice, Mr. Nunes
Pictorial concepts motivated by the human image; problems of draftsmanship and form.
- 130A-130B. Advanced Drawing and Painting. (2-2) Yr. Beginning either semester.** Mr. Nunes, Miss Delano
Still-life and the human figure as subjects; major concepts of pictorial structure; medium—oil.

* Not to be given, 1956-1957.

- 134A-134B. Landscape Painting. (2-2) Yr. Beginning either semester.** Miss Delano
Selection of subject themes and their transformation in landscape painting.
- 135. Advanced Painting. (2) I, II.** The Staff
Prerequisite: senior standing and consent of the instructor.
Individual development in concept, technical competence, control of pictorial order.
- 137A-137B. Sculpture. (2-2) Yr. Beginning either semester.** Mr. Cremean
Problems in sculptural forms and compositions.

III. Advertising Art

Courses 6A, 6B, and 7A are prerequisite to all courses in Group III.

- 140A. Advertising Art. (2) I, II.** _____
Development of concepts of design in visual advertising; lettering and typography for layout.
- 140B. Advertising Art. (2) I, II.** _____
Basic media of visual communication: newspaper, magazine, brochure.
- *141A-141B. Lettering, Calligraphy, and Typography. (2-2) Yr.** Mr. Jennings
Prerequisite: course 140A.
Historical development of the alphabet, calligraphy, and typography; creative design with production lettering.
- 145A. Advanced Advertising Art. (2) I, II.** Mr. Jennings
Prerequisite: courses 140A, 140B.
Preparation of creative design material employing graphic and photographic techniques for reproduction processes.
- 145B. Advanced Advertising Art. (2) II.** Mr. Jennings
Prerequisite: course 145A and senior standing.
Development of professional ideas creatively interpreted for complete advertising campaigns through integration of design and technical experience in graphics, typography, photography, and reproduction.
- 146A-146B. Illustration. (2-2) Yr. Beginning either semester.** Miss McPhail
Prerequisite: course 140A-140B.
Development of techniques and skills applicable to the fields of editorial, decorative, book, magazine, and advertising illustration.
- 147. Fashion Illustration. (2) I.** _____
The development of individual expression for the presentation of fashion in advertising; historical and traditional considerations.
- 148. Graphic Communication. (2) I, II.** _____
Prerequisite: senior standing.
Intensive and specialized projects of graphic design.
- 149. Advanced Graphic Communication. (2) I, II.** The Staff
Prerequisite: senior standing, a B average in the major, and consent of the instructor.
Advanced creative projects in graphic design, with emphasis upon the individual solution of problems relative to the field of advertising art.

* Not to be given, 1956-1957.

IV. Interior Design

Courses 6A, 6B, and 7A are prerequisite to all courses in Group IV unless otherwise stated.

- 150. The Development of Furniture. (2) I.** Mrs. Fetty
No prerequisite.
Furniture: its changing forms as an expression of cultures from ancient to modern times.
- 152A. Interior Design. (2) I, II.** Mrs. Axelrod
Creative solutions to specific problems in interior design; a consideration of the home as a functional unit, including an analysis and application of current trends and materials and their uses.
- 152B. Interior Design. (2) I, II.** Mrs. Fetty
Prerequisite: courses 150, 152A.
Design experiences in creating room interiors in variations of character and mood to express the individuality of the occupants.
- 153A-153B. Furniture Design (2-2) I, II.** Mrs. Beacom
Design of furniture and fixtures.
- 155A-155B. Introduction to Theory and Design of Architecture. (2-2) I, II.**
Prerequisite: senior standing. Mr. Beckett
An introduction to architectural design.
155A: Design and Theory.
155B: Materials and Methods in Application.
- 157A-157B. Studies in Surface Design. (2-2) Yr.** Mrs. Sunkees
Prerequisite: courses 152A-152B or 163A-163B, senior standing.
Creative design applied to the enrichment of plane surfaces; emphasis on research and experiments in designing for textiles and wallpapers; laboratory work using various printing processes and techniques.
- 158A. Advanced Interior Design. (2) I.** Mrs. Fetty
Prerequisite: course 152A-152B.
The design of domestic and commercial interiors with limitations as to function, budget, and climate.
- 158B. Advanced Interior Design. (2) II.** Mrs. Fetty
Prerequisite: courses 152A, 152B, 158A.
Design of interiors, with emphasis on the use of fabrics and materials as developed from architectural specifications for both commercial and domestic interiors.
- 159A-159B. Interior Design Analysis—Theory and Practice. (2-2) Yr.**
Prerequisite: senior standing, a B average in the major, and consent of the instructor. The Staff
Advanced creative work in the basic concepts of pictorial structure, experimental work in new forms, emphasis on color and structure and their relationship to space.

V. Costume Design

Courses 6A, 6B, and 7A are prerequisite to all courses in Group V unless otherwise stated.

- 160. The History of Costume.** (2) II. Miss Everett
No prerequisite.
Developing forms and modes of costume as indicative of the social and economic life of the periods from ancient to modern.
- 161. Design and Structure of Apparel Accessories.** (2) I, II. Mrs. Lecky
The design and structure of apparel accessories. A study of the historical development of the accessories of each period, with emphasis upon the characteristic forms of modern design and the construction problems of various materials used in this field.
- 163A. Modern Costume Design.** (2) I, II. Miss Everett
Problems of designing basic types of apparel.
- 163B. Modern Costume Design.** (2) I, II. Miss Everett
Prerequisite: course 163A.
Emphasis upon creative ideas dealing with specific fabrics and construction procedures.
- 166. Costume of the Theater.** (2) I, II. _____
Design for stage costume, historical motifs, psychological implications, the visual composition.
- 167. Principles of Fashion Presentation.** (2) I, II. Mrs. Reps
Prerequisite: course 163A.
Relation of the designer to the industry: problems of custom and mass production, processes of manufacture, buying, and publicity.
- 169A-169B. Advanced Costume Design.** (2-2) Yr. Mrs. Reps
Prerequisite: course 163A-163B.
Advanced creative work related to production requirements.

VI. Applied Design

Courses 6A, 6B, and 7A are prerequisite to all courses in Group VI.

- 170A-170B. Ceramics.** (2-2) Yr. Beginning either semester. Mr. Kester
An analysis of form, function, and decoration in ceramics, with emphasis on materials and their use. Empirical method of glaze calculation and methods of vitrification.
- 171. Advanced Ceramics.** (2) II. Mr. Kester
Prerequisite: course 170A-170B.
Individual creative and experimental design: experiments in reduction processes; calculation of glazes to fit original clay bodies.
- 173A-173B. Bookbinding.** (2-2) Yr. Beginning either semester. Mrs. Lecky
Fundamentals of the art of the book, including the history of writing, printing, and paper. Experience in binding of several types, using various materials and emphasizing design in relation to content.
- 176A-176B. Weaving.** (2-2) Yr. Beginning either semester. Mr. Kester
Lectures, demonstrations, studio work, quiz, field trips.
Relations of woven fabrics to world cultures: theory of creative design as applied to the woven fabric; research and experiments in weaving methods; study of fibers; fabric analysis.
- 177A-177B. Metalcraft.** (2-2) I, II. Mr. Carter
Principles and methods of design for fine metal work, with emphasis upon the application of three-dimensional design theory and the esthetic correlation of visual, practical and technical objectives.

VII. Industrial Design

Courses 6A, 6B, and 7A are prerequisite to all courses in Group VII.

- 180. Advanced Design in Three Dimensions.** (2) I, II. Mr. Carter
Experimental work in three dimensions; theories of design; exploration of abstract principles of space and form.
- 181A-181B. Design for Industry.** (4-4) Yr. Mr. Maguire
Prerequisite: course 180.
Application of design principles to manufactured products with consideration for use, sales, cost, convenience, and maintenance. For industrial design majors only.
- 181C-181D. Design for Industry.** (4-4) Yr. Mr. Maguire
Prerequisite: course 181A-181B.
Application of design principles to manufactured products with consideration for use, sales, cost, convenience, and maintenance. (Intermediate.)
- 181E. Design for Industry.** (4) II. Mr. Maguire
Prerequisite: courses 181A-181B, 181C-181D.
Application of design to manufactured products with consideration for use, sales, cost, convenience, and maintenance. (Advanced.)
- 182A-182B. Advanced Rendering.** (2-2) Yr. Mr. Maguire
Prerequisite: course 16.
Delineation of creative designs in the various professional media for presentation.
- 184. Display and Exhibit Design.** (2) I, II. The Staff
Prerequisite: course 140A-140B.
Design of three-dimensional displays; layout, design, and setup of exhibits.

VIII. Teaching of Art

- 190. Theory and Philosophy of Art Education.** (2) II. Mr. Hilpert
Prerequisite: courses 370A and 370B, and senior standing.

Special Studies for All Majors

- 199A-199B. Special Studies in Art.** (1-4; 1-4) Yr. Beginning either semester. The Staff
- Section 1. History of Art.
Section 2. Painting, Sculpture and Graphic Arts.
Section 3. Advertising Art.
Section 4. Interior Design.
Section 5. Costume Design.
Section 6. Applied Design.
Section 7. Industrial Design.
Section 8. Teaching of Art.
Prerequisite: senior standing, an average grade of B or higher in the student's specified major.
Advanced individual work upon specific problems connected with art and art education.

GRADUATE COURSES

- 201. Bibliography and Research Methods.** (2) I, II. The Staff

241. **Advanced Art Criticism.** (2) I, II. The Staff
Prerequisite: consent of the instructor.
250. **Seminar in Art Education.** (2) I, II. The Staff
Prerequisite: consent of the instructor.
251. **Seminar in Art Analysis.** (2) I, II. The Staff
Prerequisite: consent of the instructor.
252. **Seminar in Advanced Design.** (2) I, II. The Staff
Prerequisite: consent of the instructor.
260. **Seminar in Contemporary Art.** (2) I, II. The Staff
Prerequisite: consent of the instructor.
270. **Seminar in Museology.** (2) I, II. The Staff
Prerequisite: consent of the instructor.
271. **Seminar in Comparative Art History.** (2) I. The Staff
Prerequisite: consent of the instructor.
272. **Problems in Art History.** (2) I, II. The Staff
Prerequisite: permission of the department.
Section 1. Primitive and Prehistoric Art.
†Section 2. Classical Art.
Section 3. Medieval Art.
Section 4. Renaissance and Baroque Art.
Section 5. Modern Art.
Section 6. American Art.
Section 7. Latin-American Art.
Section 8. Oriental Art.
290. **Research Projects in the Arts.** (4) I, II. The Staff
Prerequisite: permission of the department. Specific requirements may be obtained from the departmental adviser.
Advanced creative work, a course designed for candidates for the degree of Master of Arts.
Section 1. Art History.
Section 2. Painting, Sculpture, and/or Graphic Arts.
Section 3. Advertising Art.
Section 4. Interior Design.
Section 5. Costume Design.
Section 6. Applied Design.
Section 7. Industrial Design.
Section 8. Art Education.
- 299A-299B. **Special Studies for Graduate Students.** (1-4; 1-4) Yr. The Staff
Beginning either semester.

PROFESSIONAL COURSES IN METHOD

330. **Industrial Arts for the Elementary Grades.** (3) I, II. _____
Analysis of the aims, scope, and psychology of the industrial arts program; experience in activities embodying the basic concepts of the program.
- 370A. **Principles of Art Education.** (2) I, II. Mr. Hilpert
Prerequisite: junior standing. Open only to majors in teaching of art.
A study of objectives and general educational principles as related to art education.

† Students desiring seminar work in this field should take Classics 272.

370B. Principles of Art Education. (2) I, II.

Mr. Stoops

Prerequisite: course 370A. This course should be completed before student teaching.

A study of method and the curriculum in art education.

RELATED COURSE IN ANOTHER DEPARTMENT

Integrated Arts 1A-1B. Man's Creative Experience in the Arts. (3-3) Yr.
Mr. With

UNIVERSITY ART GALLERIES

Located in the east wing of the Dickson Art Center (Art Building) are three well-equipped art galleries. The Willitts J. Hole Art Gallery and the James Kennedy Gallery are devoted to exhibition of the permanent art collections of the University; the other, the East Gallery, to special loan exhibitions which are presented on a regular schedule. Inquiries regarding the galleries should be addressed to the Director of the Art Galleries, Department of Art.

ART HISTORY

For courses in art history, see under Department of Art.

ASTRONOMY

Samuel Herrick, Ph.D., *Professor of Astronomy.*

Frederick C. Leonard, Ph.D., *Professor of Astronomy.*

Daniel M. Popper, Ph.D., *Professor of Astronomy (Chairman of the Department).*

George O. Abell, M.S., *Acting Instructor in Astronomy.*

Letters and Science List.—All undergraduate courses in astronomy are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Required: Astronomy 2 and 4; Physics 1A-1B-1D-1C or, in exceptional cases, 2A-1D-1C or 2A-2B; Mathematics 1, 3A, 3B, and 4A, or 5A, 5B, and 6A. Recommended: English 106S, speech, and a reading knowledge of at least one modern foreign language.

The Major.—Twenty-four upper division units of astronomy, physics, and mathematics, of which at least 18 must be in astronomy, inclusive of course 101 but exclusive of course 199, and all 24 in courses approved by the department.

Majors in Astronomy-Mathematics and Astronomy-Physics.—Attention is directed to the curricula in astronomy-mathematics and astronomy-physics on page 11 of this bulletin.

LOWER DIVISION COURSES**1A. Elementary Astronomy. (3) I, II.**

The Staff

An introductory survey course in the general principles and the fundamental facts of astronomy, designed primarily for students not majoring in a physical science or mathematics. Not open to students who have taken or are taking Astronomy 100 or 101.

***1B. Elementary Astronomy. (3) II.**

Prerequisite: course 1A.

An elementary course, including selected topics supplemental to the material of course 1A, with biweekly laboratory periods for constellation studies and telescopic observations of celestial objects.

2. Practice in Observing. (2) I.

Mr. Abell

Prerequisite: credit or registration in course 4 or 101; or credit in course 1A and consent of the instructor.

Practical work for beginners, including constellation studies, telescopic observations of celestial objects, laboratory exercises cognate to the material of course 4 or 101, and regularly scheduled excursions to the neighboring observatories and planetarium. Required of students preparing to major in astronomy.

4. Spherical Astronomy. (3) I.

Mr. Leonard

Prerequisite: plane trigonometry.

The celestial sphere and its coordinate systems; time; spherical trigonometry and its astronomical applications. Required of students preparing to major in astronomy. Course 2 may be elected for observational and laboratory work in connection with this course.

***9. Navigation. (3) I.**

Navigational instruments, chart projections, compass correction and compensation, the sailings, dead reckoning, piloting, and radio navigation.

10. Celestial Navigation. (3) II.

Mr. Abell

The determination of position and the solution of allied problems of celestial navigation, both at sea and in the air; the use of the *Air Almanac*, the *Nautical Almanac*, modern tables and graphs, and the marine and bubble sextants; and the identification of the naked-eye stars and planets.

UPPER DIVISION COURSES

Lower division courses in astronomy are not prerequisite to upper division courses unless specified.

100. The Historical Development of Astronomy. (3) II.

Mr. Herrick

Prerequisite: upper division standing. Not open to students who have taken or are taking Astronomy 1A or 101.

A survey of astronomy, the historical development of its methods and ideas, and its relation to other fields of thought.

101. General Astronomy. (3) I, II.

Mr. Leonard, Mr. Popper

Prerequisite: plane analytic geometry.

A survey of the whole field of astronomy, designed primarily for students majoring in a physical science or mathematics, and required of students majoring in astronomy. Open to properly qualified lower division students. Course 2 may be elected for observational and laboratory work in connection with this course.

102. Stellar Astronomy. (3) I.

Mr. Leonard

Prerequisite: course 101 or its equivalent, or course 100 and consent of the instructor.

A review of stellar astronomy, with special emphasis on the results of modern researches. Not open to students who have taken or are taking Astronomy 117B.

* Not to be given, 1956-1957.

104. **Practical Astronomy.** (3) I. Mr. Popper
Prerequisite: Astronomy 4, Physics 1D or 2B, and Mathematics 3B.
Fundamental stellar coördinates; time and latitude; star catalogs; telescopes; principles of photometric and spectrographic observations.
- 104C. **Practical Astronomy Laboratory.** (1) I. Mr. Popper
Prerequisite or concurrent: course 104.
Work with the astronomical transit instrument and the equatorial telescope.
- 104D. **Practical Astronomy Laboratory.** (1) II. Mr. Popper
Prerequisite: course 104.
Work in astronomical photometry and spectroscopy.
107. **The Reduction of Observations.** (3) II. Mr. Herrick
Prerequisite: Mathematics 3B-4A.
Astronomical photogrammetry and other techniques employed in the handling of observational data. The theory of errors and least squares.
112. **Rocket Navigation.** (3) I. Mr. Herrick
Prerequisite: Mathematics 3B-4A.
The astronomical aspects of the rocket problem; celestial mechanics.
115. **The Determination of Orbits.** (3) II. Mr. Herrick
Prerequisite: Mathematics 3B-4A.
The theory and calculation of preliminary orbits and ephemerides of comets and minor planets.
- 117A-117B. **Astrophysics.** (3-3) Yr. Mr. Popper
Prerequisite: Mathematics through 4A and Physics 1A-1B-1C-1D or their equivalents. Astronomy 117A is prerequisite to 117B.
The physics of the Sun, stars, and stellar systems.
118. **Meteoritics.** (3) II. Mr. Leonard
Open to students whose major subject is a physical science or mathematics, and to others with similar prerequisites.
The science of meteorites and meteors.
199. **Special Studies.** (1 to 4) I, II. The Staff
Prerequisite: consent of the instructor.
Investigation of special problems or presentation of selected topics chosen in accordance with the preparation and the requirements of the individual student.

GRADUATE COURSES

215. **Advanced Orbit Theory.** (3) I. Mr. Herrick
Prerequisite: course 115.
218. **Advanced Meteoritics.** (3) II. Mr. Leonard
Prerequisite: course 118.
- 225A-225B. **Celestial Mechanics.** (3-3) Yr. Mr. Herrick
Prerequisite: course 112.
- 299A-B-C. **Advanced Study and Research.** (2 to 6) I, II.
- 299A. **Celestial Mechanics.** Mr. Herrick
- 299B. **Astrophysics.** Mr. Popper
- 299C. **Meteoritics.** Mr. Leonard

BACTERIOLOGY

Anthony J. Salle, Ph.D., *Professor of Bacteriology (Chairman of the Department)*.

Meridian Ruth Ball, ScD., *Associate Professor of Bacteriology*.

Gregory J. Jann, Ph.D., *Associate Professor of Bacteriology*.

M. J. Pickett, Ph.D., *Associate Professor of Bacteriology*.



Benjamin G. Fishkin, M.D., *Lecturer in Bacteriology*.

Gordon H. Ball, Ph.D., *Professor of Zoology*.

Orda A. Plunkett, Ph.D., *Professor of Botany*.

COLLEGE OF LETTERS AND SCIENCE

Letters and Science List.—All undergraduate courses in bacteriology are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Bacteriology 1; Chemistry 1A-1B, 5A, 8, 9; Zoology 1A, 1B; Physics 2A-2B; a modern foreign language. Recommended: Zoology 4.

The Major.—Bacteriology 103, 105, 106; Chemistry 108A, 108B; also 7 units of upper division work in related subjects, these to be selected from the following series: Bacteriology 104, 106C, 107, 108, 112; Public Health 145, 162; Botany 119, 126; Biophysics 191A-191B; Zoology 101A, 111, 111C, 111H, 119, 130A; Chemistry 106, 107, 108C, 108D, 109A, 109B; Entomology 126; Home Economics 114; Irrigation and Soils 110A. Courses are to be chosen with the approval of the department.

Curriculum for Medical Technicians.—Students who plan a career in public health laboratory work must have a bachelor's degree in bacteriology. The following courses are required for the major: Bacteriology 103, 105, 106, 107, 108; Botany 126; Chemistry 106 instead of 108A-108B; Zoology 4, 111, 111C, 111H.

For practicing in the clinical laboratory field in California it is desirable to have a bachelor's degree with a major in bacteriology. The same courses required of those entering the public health laboratory field must be taken.

Subsequent to graduation an apprenticeship in an approved laboratory is required for eligibility to take the State examination for a license.

LOWER DIVISION COURSES

1. **Introductory Bacteriology and Microbiology.** (4) I, II. Mr. Salle
Lecture and laboratory. Prerequisite: Chemistry 1A or 2A. Students who have credit for course 6 will receive only 3 units for course 1.

A general introduction to microbiology. Designed for students majoring in bacteriology and related fields.

6. **General Bacteriology.** (2) II. Mr. Pickett
Not open to students who have had course 1.
A cultural course for nontechnical students.

UPPER DIVISION COURSES

103. **Advanced Bacteriology.** (5) I. Mr. Pickett
Lecture and laboratory. Prerequisite: course 1 and consent of the instructor.

The more advanced principles of the life activities, growth, and morphology of bacteria. The etiology of disease.

- 104. Soil Bacteriology. (2) II.** Mr. Jann
Lecture and laboratory. Prerequisite: course 1.
The microscopic flora of soil: the morphology, function, and metabolism of soil bacteria.
- 105. Serology. (4) II.** Mrs. Ball
Lecture, one hour; laboratory, nine hours. Prerequisite: course 103 and consent of the instructor.
The theory and practice of serological methods.
- 106. Metabolism of Bacteria. (2) I.** Mr. Jann
Lecture and discussion. Prerequisite: course 1 and Chemistry 8, 9.
Chemical studies of fats, carbohydrates, proteins, and nucleic acids of bacteria; nutrition of bacteria; effect of vitamins on their growth; enzymes of bacteria and their reactions; respiration; respiratory enzymes; coenzymes; anaerobiosis; putrefactions; protein-sparing action; fermentations; bacterial photosynthesis; bacterial metabolic methods.
- 106C. Metabolism of Bacteria Laboratory. (2) I.** Mr. Jann
Concurrent or prerequisite: course 106.
- 107. Public Health Bacteriology. (4) I.** Mrs. Ball
Lecture, one hour; laboratory, nine hours. Prerequisite: course 103. Designed for students who plan careers in the fields of public health and clinical bacteriology.
A study of diagnostic procedures.
- 108. Hematology. (2) II.** Mr. Fishkin
Lecture, one hour; laboratory, two hours. Prerequisite: senior standing and consent of the instructor.
Diagnostic procedures used for the study of normal and pathological blood cells.
- 112. Advanced Microbiology. (1) II.** The Staff
Prerequisite: courses 106 and 107.
Lectures and discussions covering bacterial genetics, metabolism, virology, and infectious diseases.
- 195. Proseminar. (2) I, II.** The Staff
Prerequisite: course 103.
Library problems.
- 199A-199B. Problems in Bacteriology. (2-2) Yr.** The Staff
Prerequisite: consent of the instructor.

MICROBIOLOGY

GRADUATE COURSES

- 210. Advanced Bacterial Physiology. (3-3) Yr.** Mr. Salle
Prerequisite: Bacteriology 106.
Physiological activities of microorganisms in the light of more advanced principles.
- 251A-251B. Seminar in Microbiology. (1-1) Yr.** Mr. Ball, Mr. Plunkett
- †252. Seminar in Medical Microbiology. (1) II.** Mr. Pickett
- †253. Seminar in Immunology. (1) I.** Mrs. Ball
- †254. Seminar in Microbial Physiology. (1) I.** Mr. Jann

† To be given even numbered years only.

‡ To be given odd numbered years only.

†255. Seminar in General Virology. (1) II.

293A-293B. Research in Microbiology. (2-5; 2-5) Yr.

The Staff

RELATED COURSE (See page 364)

Life Sciences 370. Methods and Materials for Teaching Life Science.

(3) II.

Mr. Cowles, Mr. Herbst

BIOPHYSICS

(A Department of the School of Medicine)

The Department of Biophysics offers certain courses which are open to qualified graduate students who are not pursuing the professional curriculum of the School of Medicine. For information concerning these courses and advanced degrees available, see the ANNOUNCEMENT OF THE SCHOOL OF MEDICINE, LOS ANGELES, and the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

BOTANY

Fredrick T. Addicott, Ph.D., *Professor of Botany.*

Carl C. Epling, Ph.D., *Professor of Botany and Curator of the Herbarium.*

Karl C. Hamner, Ph.D., *Professor of Botany and Director of the Botanical Garden (Chairman of the Department).*

Arthur W. Haupt, Ph.D., *Professor of Botany.*

F. Harlan Lewis, Ph.D., *Professor of Botany.*

Orda A. Plunkett, Ph.D., *Professor of Botany.*

Flora Murray Scott, Ph.D., *Professor of Botany.*

Anton Lang, Ph.D., *Associate Professor of Botany.*

Bernard O. Phinney, Ph.D., *Associate Professor of Botany.*

Samuel G. Wildman, Ph.D., *Associate Professor of Botany.*

Mildred E. Mathias (Mildred Mathias Hassler), Ph.D., *Assistant Professor of Botany (Vice-Chairman of the Department)*

Henry J. Thompson, Ph.D., *Assistant Professor of Botany.*



David Appleman, Ph.D., *Professor of Plant Nutrition.*

Jacob B. Biale, Ph.D., *Professor of Subtropical Horticulture.*

Preparation for the Major.—Botany 1; Chemistry 1A-1B or the equivalent; and one or more of the following courses which are prerequisite to certain upper division courses in botany: Botany 2, 3, 6; Chemistry 8.

The Major.—Twenty-four units of upper division botany, of which 8 units may be replaced by upper division courses in related fields with the approval of the Division. Upper division credit will be allowed for lower division botany courses taken in the upper division after completion of 13 units of lower division botany courses.

Requirements for Advanced Degrees.—For students who expect to become candidates for advanced degrees in botany, the following courses or their equivalents are required: Botany 2, 3, 6, 107, 140. Depending upon the special

† To be given even numbered years only.

field of interest of the candidate, one or more of the following courses may be required: Bacteriology 1; Chemistry 5A, 9, 108A-108B, 109A-109B; Floriculture 146, 148; Geography 118; Geology 2 and 3, or 5; Mathematics C, D, 1-3A, 5A; Horticulture 111; Zoology 1A-1B, 101A, 101C.

LOWER DIVISION COURSES

1. **General Botany. (5) I.** Miss Mathias, Mr. Hamner
Lecture, three hours; laboratory, six hours. No prerequisite.
An introduction to the plant sciences.
2. **Plant Morphology. (4) II.** Mr. Haupt
Lecture, two hours; laboratory, six hours. Prerequisite: course 1 or equivalent.
The evolution of the plant kingdom, dealing with the comparative morphology of all the great plant groups.
3. **Field Botany. (4) II.** Mr. Lewis
Lecture, two hours; laboratory or field, six hours.
An introduction to the life habits, interrelationships, and classification of native and ornamental plants.
6. **Plant Anatomy. (4) II.** Miss Scott
Lecture, two hours; laboratory, six hours. Prerequisite: course 1 or equivalent.
The microscopic study of the structure and development of higher plants in relation to the functions of the tissues.

UPPER DIVISION COURSES

Botany 1 or equivalent is prerequisite to all upper division courses, except 103.

103. **Botany of Economic Plants. (2) II.** Miss Scott
Designed for students of economics, geography, agriculture, and botany. Biology 1 is recommended.
The general morphology, classification, ecology, and geographic distribution, origin, and uses of economic plants.
- 105A. **Algae and Bryophytes. (4) I.** Mr. Haupt
Lecture, two hours; laboratory, six hours. Prerequisite: courses 1 and 2, or equivalent.
A study of the structure, development, and phylogenetic relationships of the principal orders of fresh-water and marine algae, and of liverworts and mosses.
- 105B. **Morphology of Vascular Plants. (4) II.** Mr. Haupt
Lecture, two hours; laboratory, six hours. Prerequisite: courses 1 and 2, or equivalent.
Structure, development, and phylogenetic relationships of the principal groups of ferns, fern-allies, and seed plants.
107. **Introduction to Plant Physiology. (4) I.** Mr. Lang, Mr. Wildman
Lecture, two hours; laboratory, six hours. Prerequisite: course 1 and Chemistry 1A-1B and 8, or equivalent. Course 6 desirable.
The fundamental aspects of water relations, mineral nutrition, photosynthesis, respiration, metabolism, and growth, development and reproduction of higher plants, including biochemical mechanisms.

- *111. Plant Cytology. (3) I.** Miss Scott
Lecture, one hour; laboratory, six hours. Prerequisite: courses 1, 2, 6, and 107.
Structure and physiology of the cell.
- *112. Experimental Plant Anatomy. (3) II.** Mr. Phinney
Lecture, one hour; laboratory, six hours. Prerequisite: courses 1, 6, 107, and 140.
Quantitative aspects of development and differentiation in higher plants.
- 113. Physiological Plant Anatomy. (3) I.** Miss Scott
Lecture, one hour; laboratory, six hours. Prerequisite: courses 1, 6, and 107.
A survey of the tissues of the higher plants in relation to function.
Offered in alternate years.
- 119. Mycology. (3) I.** Mr. Plunkett
Lecture, one hour; laboratory, six hours. Prerequisite: courses 1 and 2, or equivalent.
Structure, development, and classifications of the important genera and species of fungi. For students in botany, bacteriology, agriculture, and forestry.
- 126. Medical Mycology. (4) II.** Mr. Plunkett
Lecture, two hours; laboratory, six hours. Prerequisite: courses 1, 2, and 119 or Bacteriology 1.
An introduction to the morphology, physiology, and taxonomy of the pathogenic fungi which cause disease in man and the domestic animals. This course is designed for students in bacteriology, parasitology, and medicine.
- 131. Physiology of Fungi. (3) I.** Mr. Plunkett
Lecture, one hour; laboratory, six hours. Prerequisite: courses 119 or 126 and Chemistry 8.
A survey of the interrelation of fungi to their environment, including factors influencing growth, nutrition, metabolism, and reproduction.
- 140. Plant Genetics. (4) I.** Mr. Phinney
Lecture, three hours; laboratory, three hours. Prerequisite: course 1 or equivalent.
Principles of heredity, with special reference to plants. Laboratory work involving breeding experiments with plant and animal materials.
- 141. Plant Cytogenetics. (4) I.** Mr. Lewis
Lecture, three hours; laboratory, three hours. Prerequisite: course 140 or Zoology 130.
The fundamentals of cytogenetics. Heredity as related to cytogenetical phenomena, with special reference to plants.
- 142. Biochemical Genetics. (2) I.** Mr. Phinney
Lecture, two hours. Prerequisite: introductory course in genetics, and Chemistry 8.
Aspects of gene action determined through the study of metabolic pathways in fungi and chemical systems in higher plants. The evaluation of the gene as a reduplicating unit at the chemical level.
- 151. Taxonomy of Seed Plants. (3) I.** Miss Mathias
Lecture, one hour; laboratory, six hours. Prerequisite: courses 1 and 3, or equivalent.
The fundamentals of systematic botany. A survey of the orders and families commonly met with in the native and cultivated floras.

* Offered in alternate years. Not to be given, 1956-1957.

- 152. Advanced Systematic Botany. (3) II.** Mr. Lewis
Lecture, one hour; laboratory or field, six hours. Prerequisite: courses 1, 3, and 151, and consent of the instructor.
Field and laboratory study of natural variation in relation to systematics.
- 153. Determinants of Evolution. (2) I.** Mr. Epling
Lecture and discussion, two consecutive hours. Prerequisite: consent of the instructor.
The processes of evolutionary change in natural populations. A student may concurrently initiate an experimental project as Botany 199 and continue it as part of Botany 154.
- 154. Experimental Evolution. (2) II.** Mr. Epling
Discussion, one hour; laboratory and field work, two hours. Prerequisite: consent of the instructor.
A laboratory and field course designed to acquaint a student with techniques employed.
- 160. Plant Physiology. (3) II.** Mr. Biale, Mr. Lang, Mr. Wildman
Lecture and discussion, three hours. Prerequisite: consent of the instructor. Recommended: course 107, Chemistry 108A.
A critical analysis of selected topics pertaining to metabolism and growth of plants, with emphasis on the experimental approach.
- 161. Experiments in Plant Physiology. (2) II.** Mr. Biale, Mr. Lang, Mr. Wildman
Laboratory, six hours. Prerequisite: course 160 to be taken concurrently, and consent of instructor.
An advanced course illustrating the experimental study of the topics considered in Botany 160. Designed primarily for students expecting to do research in the botanical or horticultural sciences, or other research involving plant physiology and plant biochemistry.
- 190. Research Methods in Morphology. (4) I.** Mr. Haupt
Lecture, one hour; laboratory, nine hours. Prerequisite: consent of the instructor.
The theory and methods of preparing plant tissues and materials for microscopic study.
Offered in alternate years.
- 199A-199B. Problems in Botany. (2-4; 2-4) Yr.** The Staff
Prerequisite: senior standing.

GRADUATE COURSES

- 211A*-B*-C-D-E*-F*. Advanced Plant Physiology. (2) I, II.** Mr. Addicott, Mr. Appleman, Mr. Biale, Mr. Hamner, Mr. Lang, Mr. Wildman
Lectures, two hours.
A survey of the entire field of plant physiology, covering a period of three years. Open to all students interested in plant physiology; may be entered any semester. A. Structure of cells, water relations, absorption; B. Translocation, mineral nutrition; C. Photosynthesis, respiration; D. Respiration (concluded), nitrogen metabolism, other metabolisms unique to plants; E. Growth and growth regulators; F. Development and reproduction, environmental factors and plant growth.
- 252A-252B. Seminar in Principles and Theories of Botany. (2-2) Yr.** Mr. Phinney

* Not to be given, 1956-1957.

- 253A-253B. Seminar in Plant Anatomy. (1-1) Yr. Miss Scott
- 254A-254B. Seminar in Plant Physiology. (1-1) Yr.
Mr. Addicott, Mr. Appleman, Mr. Biale,
Mr. Hamner, Mr. Lang, Mr. Wildman
- 255A-255B. Seminar in Systematics. (1-1) Yr.
Miss Mathias, Mr. Lewis, Mr. Thompson
- 256A-256B. Seminar in Plant Morphology. (1-1) Yr. Mr. Haupt
- 257A-257B. Seminar in Mycology. (1-1) Yr. Mr. Plunkett
- 258A-258B. Seminar in Genetics. (1-1) Yr. Mr. Lewis, Mr. Phinney
Special topics covering all aspects of genetics, differing each semester
for three years. Students may enter in any semester.
- 259A-259B. Seminar in Evolutionary Genetics. (1-1) Yr. Mr. Epling
- 278A-278B. Research in Botany. (2-6; 2-6) Yr. The Staff

RELATED COURSES IN OTHER DEPARTMENTS OR DIVISIONS

- Bacteriology 1. Fundamental Bacteriology.
- Biology 1. Fundamentals of Biology.
- Geology 120. Paleobotany.
- Irrigation and Soils 110A. Soil and Plant Interrelations.
- Floriculture and Ornamental Horticulture 131A-131B. Taxonomy and Ecology of Ornamental Plants.
- Floriculture and Ornamental Horticulture 136. General Floriculture.
- Floriculture and Ornamental Horticulture 139. Advanced Floriculture.
- Floriculture and Ornamental Horticulture 146. Plant Breeding.
- Life Sciences 370. Methods and Materials for Teaching Life Science.
- Plant Pathology 120. Plant Diseases.
- Subtropical Horticulture 100. Systematic Pomology.
- Subtropical Horticulture 101. Citriculture.
- Subtropical Horticulture 102. Subtropical Fruits Other Than Citrus.
- Subtropical Horticulture 110. Plant Propagation.
- Subtropical Horticulture 111. Respiration and Respiratory Enzymes.
- Subtropical Horticulture 113. Fruit Physiology and Storage Problems.
- Zoology 101A, B, C. General Physiology.
- Zoology 130, 131. Genetics.

BUSINESS ADMINISTRATION

- †Ralph M. Barnes, Ph.D., *Professor of Production Management and Professor of Engineering.*
- Joseph H. Bonneville, Ph.D., *Visiting Professor of Finance.*
- Ralph Cassady, Jr., Ph.D., *Professor of Marketing.*
- *John C. Clendenin, Ph.D., *Professor of Finance.*
- Ira N. Frisbee, M.B.A., C.P.A., *Professor of Accounting.*
- Benjamin Graham, B.S., *Regents' Professor of Finance.*
- Neil H. Jacoby, Ph.D., LL.D., *Professor of Business Economics and Policy (Chairman of the Department).*
- Harold D. Koontz, Ph.D., *Professor of Business Policy and Transportation.*
- Howard Scott Noble, M.B.A., C.P.A., LL.D., *Professor of Accounting.*
- George W. Robbins, M.B.A., *Professor of Marketing.*
- Lewis C. Sorrell, Ph.D., *Visiting Professor of Management Theory and Transportation.*

† Sabbatical leave in residence, fall semester, 1956-1957.

* In residence spring semester only, 1956-1957.

- George A. Steiner, Ph.D., *Professor of Management Theory and Director, Division of Research.*
- J. Frederick Weston, Ph.D., *Professor of Finance.*
- William F. Brown, Ph.D., *Associate Professor of Marketing.*
- Albert B. Carson, Ph.D., C.P.A., *Associate Professor of Accounting.*
- Fred E. Case, M.B.A., D.C.S., *Associate Professor of Real Estate and Urban Land Economics.*
- Ralph C. Hoerber, J.D., Ph.D., *Visiting Lecturer in Business Law.*
- Wilbert E. Karrenbrock, Ph.D., *Associate Professor of Accounting.*
- Paul Kircher, Ph.D., C.P.A., *Associate Professor of Accounting.*
- Wayne L. McNaughton, Ph.D., *Associate Professor of Personnel Management and Industrial Relations.*
- *Philip Neff, Ph.D., *Associate Professor of Business Economics.*
- Alfred Nicols, Ph.D., *Associate Professor of Business Economics.*
- *Frank E. Norton, Ph.D., *Associate Professor of Business Economics.*
- *Cyril J. O'Donnell, Ph.D., *Associate Professor of Business Organization and Policy.*
- Harry Simons, M.A., C.P.A., *Associate Professor of Accounting.*
- R. Clay Sprowls, Ph.D., *Associate Professor of Business Statistics.*
- Robert Tannenbaum, Ph.D., *Associate Professor of Personnel Management and Industrial Relations.*
- John R. Van de Water, A.B., J.D., *Associate Professor of Industrial Relations and Business Law.*
- Robert M. Williams, Ph.D., *Associate Professor of Business Economics and Statistics.*
- C. Joseph Clawson, Ph.D., *Assistant Professor of Marketing.*
- James M. Gillies, Ph.D., *Assistant Professor of Real Estate and Urban Land Economics.*
- *Richard M. Heins, Ph.D., *Assistant Professor of Insurance.*
- James R. Jackson, Ph.D., *Assistant Professor of Business Administration.*
- Irving Pfeffer, Ph.D., *Assistant Professor of Insurance.*
- John C. Scheib, Ph.D., *Assistant Professor of Production Management.*
- Irving Weschler, Ph.D., *Assistant Professor of Personnel Management and Industrial Relations.*
- John Barry, B.S., *Acting Assistant Professor of Production Management.*
- Tibor Fabian, B.S., *Acting Assistant Professor of Business Administration.*
- John M. Lishan, M.A., *Acting Assistant Professor of Business Administration.*
- Arthur K. Marshall, LL.M., *Acting Assistant Professor of Business Law.*
- Frederick Massarik, M.A., *Acting Assistant Professor of Personnel Management.*
- Thomas Petit, M.A., *Acting Assistant Professor of Marketing.*
- Eugene Voorhees, LL.B., *Acting Assistant Professor of Business Law.*
- Erling A. Breckan, M.B.A., *Acting Instructor in Production Management.*
- Elwood S. Buffa, M.B.A., *Lecturer in Production Management.*
- Robert Wendell Buttrey, A.B., C.P.A., *Lecturer in Accounting.*
- John G. Carlson, M.B.A., *Lecturer in Production Management.*
- Joseph D. Carrabino, M.B.A., *Lecturer in Production Management.*
- Malcolm F. Heslip, Ph.D., *Lecturer in Business Administration.*

* Absent on leave, 1956-1957.

† In residence spring semester only, 1956-1957.

Paul Prasow, Ph.D., *Lecturer in Personnel Management.*
Ronald C. Roeschlaub, LL.B., M.A., *Lecturer in Business Law.*
Joseph C. Schabacker, M.B.A., *Lecturer in Business Administration.*
Warren Schmidt, Ph.D., *Lecturer in Personnel Management.*
Leon C. Steres, B.S., C.P.A., *Lecturer in Accounting.*
Robert B. Andrews, M.B.A., *Associate in Business Administration.*
Dewey Cruise, M.B.A., LL.B., *Associate in Business Administration.*
Michal Ingraham, M.B.A., *Associate in Business Administration.*
Benjamin Z. Katz, M.B.A., *Associate in Business Administration.*
Paul T. McElhiney, M.A., *Associate in Business Administration.*
Anelise N. Mosich, M.B.A., *Associate in Business Administration.*

School of Business Administration

Curricula requirements for Bachelor of Science degree, Master of Business Administration degree, and Doctor of Philosophy degree are described on pages 47-53.

College of Letters and Science

Letters and Science List.—Courses 3, 131, 133, 135, 160. For regulations governing this list, see page 6.

LOWER DIVISION COURSES

1A-1B. Elementary Accounting. (3-3) Beginning either semester.

Mr. Noble in charge

Prerequisite: sophomore standing. This course consists of two one-hour lectures per week, one two-hour laboratory per week, and four one-hour examinations which are scheduled at 4:00 p.m. on the second Tuesday of each month during the semester. Attendance in all parts is compulsory for all students enrolled in the course. 1A is prerequisite to 1B.

3. Fundamentals of Accounting. (4) I, II.

Mr. Carson

Prerequisite: sophomore standing or higher. Not available for credit toward degrees of the School of Business Administration.

Treats the basic concepts and practices of accounting, with the object of developing a comprehension of, and ability to use, financial statements in personal business and civic affairs. Does not emphasize the procedures and techniques of accounting practice.

UPPER DIVISION COURSES

Unless otherwise indicated in the course description, an upper division Business Administration course is open only to students registered in the School of Business Administration or the Graduate School of Business Administration, to students in other colleges or schools the curricula of which officially prescribe the course, and to students who secure the written approval of the Dean of the School of Business Administration.

I. Business Economics

100. Theory of Business. (3) I, II.

Mr. Fabian, Mr. Lishan, Mr. Norton, Mr. Nicols, Mr. Neff, Mr. Williams

Prerequisite: course 115 (may be taken concurrently). Required of all business administration students in their first semester of residence.

Effort of the enterprise to secure profits, nature of demand for its products. Costs and production. Allocation of resources through competition. Forms of market competition. Relation of size to efficiency. Markets for productive factors. Incentives and growth.

101. Business Fluctuations and Forecasting. (3) I, II.

Mr. Fabian, Mr. Lishan, Mr. Nicols, Mr. Williams, Mr. Norton, Mr. Neff

Prerequisite: courses 100, 115; and Economics 135 (may be taken concurrently). Required of all business administration students in their second semester of residence immediately following course 100.

How the enterprise reacts to general economic fluctuations and how its decisions, in turn, affect them. Important forces in past fluctuations. Behavior of indices of business activity. Appraisal of forecasting techniques. Entrepreneurial and public policies to mitigate business fluctuations.

II. Business Law**105A-105B. Business Law. (3-3) Beginning either semester.**

Mr. Cruise, Mr. Hoerber

Not open to students who have credit for course 108. Required of all business administration students. 105A shall be taken in the student's first semester in residence; 105B in the second semester.

Law in its relationship to business. Contracts, agency, and property are considered in the first semester; bailments, sales, negotiable instruments, and business organizations in the second semester. 105A is prerequisite to 105B.

106. General Laws Relating to Property. (3) I, II.

Mr. Marshall

Prerequisite: course 105A-105B or 108.

Real and personal property; nature and kinds, types of ownership, methods of acquisition and disposal, rights of husband and wife, community and separate, intangibles, automobiles, security devices, rights and remedies of creditors, copyrights and patents, associated nonproperty relationships.

107. The Law of Wills, Estates, and Trusts. (3) II.

Prerequisite: course 105A-105B or 108.

Testate and intestate succession; types, requirements, and revocation of wills; schemes of testamentary disposition; protection against disinheritance; probate and administration; nature, kinds, and formation of trusts; subject matter of trusts; trustee and beneficiary; trust administration.

108. Legal Analysis for Business Managers. (4) I, II.

Mr. Van de Water
May be substituted for 105A and 105B; and shall be completed in the first or second semester in residence. Not open to students who have credit for 105A or 105B.

The manager-legal counsel relationship; nature, sources, and relative authority of law; nature of evidence and proof; nature of legal concepts; nature of judicial process; analysis and application of fundamental legal principles.

III. Business Communication and Office Management

For courses in Business Communication and Office Management, see under Department of Business Education, page 119.

IV. Business Statistics**115. Business Statistics. (3) I, II.**

Mr. Williams, Mr. Sprowls

Lectures, three hours; laboratory, two hours. Students who have credit for Economics 140 will receive no credit for this course. Required of all business administration students in their first semester of residence.

Sources of statistical data; construction of tables, charts, and graphs; statistical distributions and their measurement; introduction to probability

theory, market analysis, consumer sampling, and quality control; index numbers; correlation; time-series analysis: trend, seasonal, business cycles; business forecasting; statistics of national income.

116A-116B. Statistical Inference in Business. (3-3) Yr. Mr. Sprowls

Prerequisite: course 115 or the equivalent.

An intermediate course in the principles of statistical inference, with emphasis upon fundamental ideas and applications to problems of a business and economic nature. Among the topics studied are probability theory; sampling distributions; estimating and testing hypotheses about means, proportions, and standard deviations; contingency tables; analysis of variance; simple and multiple regression and correlation; design of sampling surveys; sequential sampling; nonparametric tests.

117. Index Numbers and Time Series. (3) II. Mr. Williams

Prerequisite: course 115 or the equivalent.

The theory of index number construction. Analysis of the important business indexes in current use. Methods of time series decomposition; secular trend, cyclical fluctuations, seasonal, and irregular variation.

118. Business Research Methods. (3) I. Mr. Jackson

Prerequisite: course 115 or the equivalent.

Research philosophy and methodology and the application of specific research techniques to actual business problems. These problems will be made possible by the cooperation of various concerns in Southern California.

V. Accounting

120. Intermediate Accounting. (3) I, II.

Mr. Karrenbrock, Mr. Mosich, Mr. Simons

Required of all business administration students in their first semester in residence.

Adjustments, working papers, statements from incomplete data, cash and receivables, inventories, investments, fixed assets, intangibles and deferred charges, liabilities, capital stock and surplus, installment accounting, statement analysis, and application of funds.

120G. Survey of Accounting Principles. (3) I, II. Mr. Kircher

Prerequisite: graduate status.

The nature, fundamental mechanisms, and central problems of business accounting, with particular emphasis on the problems of periodic income measurement. Basic principles of cost and profit-volume analysis. Preparation and interpretation of the major accounting reports.

120M. Managerial Accounting. (3) II.

Prerequisite: courses 1A, 1B. May be elected by students in fields of concentration other than accounting to meet core course requirement in accounting.

Basic concepts of accounting; procedures for financial reporting; systems and internal control; cost estimates budgets; interpretation of administrative reports.

121. Advanced Accounting. (3) I, II. Mr. Karrenbrock

Prerequisite: course 120.

Partnerships, joint ventures, agencies and branches, consolidated balance sheets, consolidated profit and loss statements, statements of affairs, receiverships, realization and liquidation statements, estates and trusts, and actuarial accounting problems.

122. Cost Accounting. (3) I, II.

Mr. Carson

Prerequisite: course 120.

The nature, objectives, and procedures of cost accounting and cost control; job costing and process costing; theory and practice of accounting for manufacturing overhead; cost budgeting and control; cost reports; joint-product and by-product costing; distribution cost; standard costs; differential cost analysis; profit-volume relationships and break-even analysis.

123. Auditing. (3) I, II.

Mr. Steres

Prerequisite: course 121.

Accounting investigations, balance sheet audits, and detailed audits performed by public accountants. Valuation, audit procedure, working papers, and audit reports.

125. Fund Accounting and Accounting Systems. (3) I, II. Mr. Kircher

Prerequisite: course 120 or 120M.

Fund accounting; fund theory; governmental and other institutional operations; budgets and records for the general fund and special funds. Accounting systems: design of systems; control procedures; methods of data processing, including the use of electronic equipment.

127. Federal Tax Accounting. (3) I, II.

Mr. Buttrey

Prerequisite: course 121 or consent of the instructor.

A study of the current federal revenue law as related to individual, partnership, and corporation income taxation, estate taxes, and gift taxes.

128. Advanced Accounting Problems. (5) I, II.

Mr. Simons

Prerequisite: courses 121, 122, 123, 127; 125 (may be taken concurrently).

Review of contemporary accounting theory, with emphasis upon pronouncements of the American Institute of Accountants, American Accounting Association, and Securities and Exchange Commission. Application of such theory to advanced problems of the kind contained in examinations for C.P.A. certification.

VI. Finance

Economics 135 is required of all students in the School of Business Administration.

131. Business Finance. (3) I, II.

Mr. Bonneville, Mr. Weston

A study of the forms and sources of financing business firms large and small, corporate and non-corporate. The emphasis is on financial planning and developing judgment in formulating decisions on financial problems. Financial policies are also considered in their social, legal, and economic effects.

132. Credit Management. (3) I, II.

Mr. Weston

Prerequisite: course 131.

Problems and policies in the extension of business and personal credit, associated with both credit sales and cash loans by non-financial and financial institutions. Credit terms, credit agencies, credit policies, and collection methods. Factoring, other specialized credit sources, and developments in lending technology.

133. Investment Principles and Policies. (3) I, II.

Mr. Bonneville, Mr. Clendenin

Problems 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.

134. Investment Analysis. (3) I, II.

Mr. Clendenin

Prerequisite: courses 120, 133.

Examination of specific industries, companies, and securities from an investment point of view; sources of information; techniques of analysis; measurement of risks, returns, and investment values; evaluation of corporate credit; preparation of reports. Annual report of business corporations, and current cases are studied.

VII. Risk-Bearing and Insurance**135. Principles of Insurance. (3) I, II.**

Mr. Heins, Mr. Pfeffer

Basic principles of risk and insurance and their applications to business management and personal affairs. Analyses of concepts and methods of handling risks; insurance carriers, contracts, and underwriting; loss prevention and settlement; government insurance programs; economic functions of insurance.

136. Life Insurance. (3) I, II.

Mr. Heins, Mr. Pfeffer

Prerequisite: course 135.

Studies of the nature, and of the business and personal uses of life insurance and annuities; contracts; policy conditions; selection of risks; types of carriers; mathematical bases; group, wholesale, and industrial insurance; organization, management, regulation, taxation, and investment policy of legal reserve companies.

137. Property Insurance. (3) I.

Mr. Heins, Mr. Pfeffer

Prerequisite: course 135.

A study of fire, ocean marine, inland marine, and closely allied property insurance lines. A thorough analysis is made of insurable interest, policies, forms, endorsements, ratemaking, underwriting, loss prevention, and loss settlement.

138. Casualty Insurance. (3) II.

Mr. Heins, Mr. Pfeffer

Prerequisite: course 135.

Studies of the principles and personal and business uses of casualty insurance. Workmen's compensation, liability, automobile, aviation, accident and health, theft, boiler and machinery, plate glass, credit and title insurance, and fidelity and surety bonding are analyzed.

VIII. Production Management**140. Elements of Production Management. (3) I, II.**

Mr. Breckan, Mr. Buffa, Mr. Carrabino, Mr. Carlson, Mr. Scheib

Lectures, two hours; laboratory, two hours. Required of all business administration students.

Principles, methods, and procedures related to the efficient utilization of resources in production. Specialization of process and labor; product and process analysis; production planning and control; materials procurement and control; methods improvement; time study; wage determination; selection of plant location; layout planning; production organization.

141. Plant Layout and Materials Handling. (3) I, II.

Mr. Barnes, Mr. Buffa

Lecture, two hours; laboratory, three hours. Prerequisite: course 140 or consent of the instructor.

A study of the management techniques for developing effective plant layout and material-handling methods; process analysis, operation sequence

analysis, economic analysis; location and layout of production departments, maintenance facilities, employee service facilities, offices. Laboratory work involves the development of a complete factory layout plan.

142. Production Planning and Control. (3) II. Mr. Buffa, Mr. Carlson
Prerequisite: course 140 or consent of the instructor.

A study of the problems and methods of planning the efficient utilization of capital, labor, equipment, and materials. Sales forecasting; production planning; production control-scheduling, routing, dispatching, and expediting; labor layout; materials planning and control; capital budgets.

143. Motion and Time Study. (4) I, II. Mr. Barnes

Lectures, two hours; laboratory, four hours. Prerequisite: course 140 or consent of the instructor.

An analysis of motion and time study as a management tool. Work simplification and motion economy; analyzing operations; time standards and their calculation; rates and allowances; motion picture film analysis; the motion study report; for both management and nonmanagement students.

144. Line-Production Methods. (3) II. Mr. Barnes, Mr. Buffa

Prerequisite: course 141 and consent of the instructor.

A study of the special problems and methods in line production. Equipment selection; material movement; balancing operations with the line; establishing the line; special considerations in production and material control; obtaining flexibility in the line; possible uses and variations in line production.

145. Industrial Purchasing. (3) II. Mr. Buffa

Prerequisite: course 140 or consent of the instructor.

A study of purchasing and procurement in industry and government. Purchasing policies and organization; coördination with production schedules and materials planning; optimum quantity and price; vendor relations; follow-up and expediting; receiving and inspection; purchasing research.

147. Job Evaluation and Wage Incentives. (3) I, II. Mr. Buffa

Lecture, two hours; laboratory, two hours. Prerequisite: course 140 or consent of the instructor.

Theory, techniques, and procedures of job evaluation and wage incentives as a basis for managerial procedures. Development and evaluation of alternate means of determining the relative value of jobs, and conversion to actual base rates. Design, evaluation, and administration of wage incentive plans.

IX. Personnel Management and Industrial Relations

150. Elements of Personnel Management. (3) I, II.

Mr. McNaughton, Mr. Massarik, Mr. Prasow, Mr. Weschler

Required of all business administration students.

A critical examination of the principles, methods, and procedures related to the effective utilization of human resources in organizations. Historical development and objectives of personnel management, individual differences, labor budgeting, job analysis, recruitment, selection, placement, training, transfer and promotion, wage and salary administration, hours of work, accident prevention, employee health, personnel services, motivation and morale, management-union relations.

152. Leadership Principles and Practice. (3) I, II.

Mr. Massarik, Mr. Schmidt, Mr. Tannenbaum, Mr. Weschler

Knowledge and skills leading to effectiveness in interpersonal relations. Understanding one's self as a leader, and others as individuals and as mem-

bers of working groups. Understanding of group process, including group leadership. Practice in methods and procedures available to managers in effectively dealing with subordinates, peers, and superiors.

153. Managerial Adjustments to Labor Law. (3) I, II. Mr. Van de Water
Prerequisite: course 150.

History and consequences for business policy of (a) law governing collective relationships between employers, employees, and their representatives and (b) law concerned with employee welfare, including wages, hours, working conditions, and industrial accident compensation. Criteria for evaluating labor law, with special attention to the role of management in the improvement of legislation.

†**154. Labor Markets and Wage Structures.** (3) I, II. Mr. McNaughton
Prerequisite: courses 100 and 150.

The theory characteristics of labor markets and wage structures considered as a basis for managerial policies and procedures in wage and salary administration.

X. Marketing

160. Elements of Marketing. (3) I, II. Mr. Clawson, Mr. Katz, Mr. Petit
Required of all business administration students.

A survey of the major marketing methods, institutions, and practices. The subjects of retailing, wholesaling, distribution channels, marketing legislation, advertising, cooperative marketing, pricing, marketing research, and marketing costs are treated from the standpoint of consumers, middlemen, and manufacturers.

162. Retail Store Management. (3) I, II. Mr. Cassady, Mr. Brown
Prerequisite: course 160.

A study of retailing from the standpoint of management. Includes the case-method treatment of such problems as buying, sales promotion, inventory planning and control, pricing, style merchandising, and general management problems.

163. Advertising Principles. (3) I, II. Mr. Brown, Mr. Clawson
Lecture, two hours; laboratory, two hours. Prerequisite: course 160.

A survey of the field of advertising—its use, production, administration, and economic implications. Includes the study of advertising psychology, practice in the preparation of advertisements, consideration of methods of market research and copy testing, and analysis of advertising campaign planning and sales coordination.

165. Sales Management. (3) I, II. Mr. Robbins, Mr. O'Donnell
Prerequisite: course 160 or consent of the instructor.

A case-method study of sales strategy from the managerial viewpoint. Includes merchandising policies, distribution policies, forecasting and planning, sales method and campaigns, pricing, sales department organization, management of the sales force, and budgetary control of sales.

168. Advertising Policy. (3) II. Mr. Brown
Lecture, two hours; laboratory, two hours. Prerequisite: course 163 and consent of the instructor, to be granted on the basis of the applicant's training or experience in such fields as art, composition, psychology, and political science.

Intended for students planning a career in advertising, this course em-

† Business Administration 154 will not be offered during 1956-1957. Students who are required to present course 154 as a part of the field of concentration in Personnel Management and Industrial Relations will substitute Economics 150 without special petition.

phasizes such management problems as the definition of advertising objectives, selection of campaign themes, determination of the budget, and use of research in planning the program and measuring its effectiveness.

169. Marketing Policies. (4) I, II.

Mr. Cassady, Mr. Brown

Lecture, two hours; laboratory, two hours. Prerequisite: course 160 and senior standing.

A course designed to analyze policies which are important in marketing management. Special attention is given to the use of research in solving marketing problems, the theory of pricing and price policies as related to marketing, and certain types of restrictive legislation as they affect the distribution of goods and services. Readings are assigned for background purposes. The case method is utilized as a basis for class discussion. Laboratory periods provide practice in the application of principles to the distribution of a selected commodity.

XI. Transportation and Traffic Management

170. Transportation and Traffic Management. (3) I, II. Mr. Koontz

Prerequisite: Economics 173 or consent of the instructor.

Emphasizes principles governing the use by business managers of the services of air, surface (rail, truck, bus, pipeline), and water transportation. Treats problems of selection of transportation alternatives, traffic organization and management, and features of transportation services affecting business policies.

171. Motor Carrier Management. (3) II.

Mr. McElhiney

Prerequisite: Economics 173 or consent of the instructor.

The specific operational environment of motor transportation and the principles and problems involved in the management of firms in this industry; includes impact of public highway policy, facilities, industry structure, costs, operations, rates, regulatory problems, and intercompany relationships.

172. Rail Transport Management. (3) I.

Mr. Koontz

Prerequisite: Economics 173 or consent of the instructor.

Application of management principles and techniques to such problems faced by railroad managements as traffic analysis, organization, service, operations, costs, rates, labor, financing, and intercarrier relationships.

173. Air Transport Management. (3) II.

Mr. Koontz

Prerequisite: Economics 173 or consent of the instructor.

Application of management principles and techniques to such problems faced by air-line managements as traffic analysis, organization, facilities, acquisition, scheduling, operations, costs, rates, labor, financing, intercarrier relationships, and airport terminal management.

174. Water Transport Management. (3) I, II.

Mr. McElhiney

Prerequisite: course 173 or consent of the instructor.

Analysis of management principles and problems involved in ocean, intercoastal, coastwise, and inland waterways ship operation including, among other topics, equipment acquisitions, documentation, regulation, competition, rate policy, and organization.

XII. Real Estate and Urban Land Economics

180. Elements of Real Estate and Urban Land Economics. (3) I, II.

Mr. Case, Mr. Gillies

Basic elements which influence managerial policy in the urban real estate field; an analysis of major influences affecting city location and growth;

major elements of policy in appraising, managing, financing, marketing, developing, and subdividing urban property; the role of private and governmental institutions in influencing the use of urban land.

181. Valuation of Real Property. (3) II.

Mr. Case

Prerequisite: course 180 or consent of the instructor.

The character of land value; principles of land valuation and their relation to income, residential, and special-purpose properties. A discussion of the relationships of social, economic, and political influences to trends in property values; current appraisal theory.

182. The Building Industry and Urban Land Use. (3) I.

Mr. Gillies

Prerequisite: course 180 or consent of the instructor.

The structure and nature of the construction industry; the housing problem; the housing market; economic aspects of urbanization; industrial location and regional development; impact of the housing industry in an unstable economy.

183. The Management of Urban Real Estate Operations. (3) II.

Prerequisite: course 180 or consent of the instructor. Mr. Gillies

The initiation and development of managerial policy relating to the development of raw or improved land; the financing, building, developing, management, and marketing of urban real estate; the effects of private and governmental institutions on managerial operations in urban real estate.

XIII. Management Theory and Policy**190. Organization and Management Theory. (3) I, II.**

Mr. Heslip, Mr. Koontz, Mr. O'Donnell, Mr. Sorrell

Prerequisite: second-semester senior standing. Required of all business administration students.

A study of the principles of business management. Emphasis is placed upon the application of these principles to the general, as distinguished from the functional, management of enterprise by means of readings and case studies.

199A-199B. Special Studies in Business Administration. (1-4; 1-4) Yr.

The Staff

Prerequisite: senior standing and consent of the instructor and the Dean by special petition available in the Office of the Dean.

GRADUATE COURSES†**210. Operations Analysis. (3) II.**

Mr. Jackson

Prerequisite: consent of the instructor.

Evaluation of the basic concepts and philosophy of quantitative methods such as linear programming, operations research, information theory, game theory, and systems analysis. Solutions to typical problems will be included.

216. Advanced Statistical Inference in Business. (3) I.

Mr. Sprowls

A course in sampling surveys. The planning of such surveys; estimation of population characteristics and their precision in simple random samples, stratified samples, systematic samples, and multi-stage samples.

217. Quantitative Methods of Business Forecasting. (3) II. Mr. Williams

Advanced study of time series. An intensive analysis of statistical and econometric methods of business forecasting.

† Graduate students who have had little or no previous preparation in business administration should consult the School of Business Administration for a condensed program of prerequisite courses restricted to graduate students.

- 218. Selected Topics in Business Statistics. (3) II.** Mr. Sprowls
Special topics in statistical methods. Current developments in statistical theory and practice. Analysis of recent literature.
- 221A. Seminar in Accounting Problems I. (3) I.** Mr. Frisbee
Consideration of basic problems in presenting balance sheets and income and surplus statements, particularly from the standpoint of the public accountant; studies in the accounting methods and problems of specific industries.
- 221B. Seminar in Accounting Problems II. (3) II.** Mr. Frisbee
Advanced study of problems in federal and state income, franchise, gift, and estate taxes; aims to convey an understanding of source materials and research methods for ascertaining current rulings and trends in laws and regulations.
- 222. Seminar in Industrial Accounting. (3) II.** Mr. Carson
Prerequisite: course 122.
A study of industrial and cost accounting problems, theories of cost allocation and absorption; problems of cost budgeting and control. Current cost accounting literature is examined in connection with case studies.
- 224. Accounting Data for Management Purposes. (3) I.** Mr. Kircher
A study of accounting procedures to provide management with data to make decisions; types of data required for planning and control; availability and reliability of such data in accounting systems; provision of special-purpose data; conditions of good internal reporting.
- 229. Seminar in Accounting Theory. (3) I, II.** Mr. Noble
A survey of accounting literature, with emphasis on the development of basic accounting concepts. An attempt is made to explain contemporary practice as it has evolved in accordance with basic theory and expanding demands for accounting information.
- 230. Seminar in Money Rates and Money Markets. (3) I.** Mr. Clendenin
Prerequisite: Economics 135 and course 133 or 131, or consent of the instructor.
A study of American money markets. Sources of funds for bond investment, mortgage loans, stock financing, and small business financing; the demand for such funds; the interest rates and yields from investments which result from supply-demand relationships.
- 231. Business Financial Policy. (3) I.** Mr. Weston
Prerequisite: course 131 or 133, or consent of the instructor.
A study of the social and economic consequences of business financial policies. Topics include projections of aggregate sources and uses of business funds, dividend policy and business saving, possible financing gaps, business and social aspects of mergers and reorganization.
- 232. Problems of Business Finance. (3) II.** Mr. Weston
Prerequisite: course 130 or 133, or consent of the instructor.
Application of principles of finance to the financial management of business enterprises. The program includes reading assignments on principles and methods of finance, and individual student reports of financial problems of particular importance.
- 233. Seminar in Investments. (3) II.** Mr. Clendenin
Prerequisite: course 120 or 133, or consent of the instructor.
Discussion of current problems faced by individual and institutional investors; critical review of special studies made by members of the class on topics relating to investment.

- 235. Problems in Insurance Management. (3) I, II.** Mr. Heins, Mr. Pfeffer
Prerequisite: course 135 or consent of the instructor.
Advanced consideration of the problems of insurance management. Treats the actuarial, underwriting, investment, marketing, and regulatory problems relating to insurance activities.
- 236. Life Insurance in Business and Estate Management. (3) I.** _____
Prerequisite: courses 135, 136, 107; or consent of the instructor.
An advanced study of business life insurance and estate programming with emphasis on the analysis, conservation, management and disposition of the individual or business estate.
- 237. Property and Casualty Insurance in Business Management. (3) II.** _____
Prerequisite: courses 135, 137, 138, 106; or consent of the instructor.
An advanced treatment of the property and liability risks found in business enterprise with emphasis on the role of the risk manager in the firm.
- 239. Risk and Risk Bearing. (3) I, II.** Mr. Heins, Mr. Pfeffer
Prerequisite: course 135 or consent of the instructor.
Advanced consideration of the theory of risk and risk bearing. The analysis of alternative ways of meeting risk and uncertainty, the scope and limits of insurance, and the economics of insurance.
- 240A-240B. Seminar in Industrial Plant Management. (3-3) Yr.** Mr. Barnes
A study of the problems and policy decisions encountered at the coördinative, or plant management level. Basic production policies and organization; determination of production methods; coördinating production activities; industrial risk and forecasting; business indicators; social aspects of production.
- 241A-241B. Seminar in the Dynamics of Industrial Technology. (3-3) Yr.** Mr. Barnes
The managerial problems and policy decisions concerning technological research; budgeting for research; contributions of fundamental, engineering, and market research; management of research and development; research and industrial progress; social aspects of technological change; product diversification and standardization; annual models.
- 242. Advanced Methods in Production Control. (3) II.** _____
Prerequisite: courses 142, 210; or consent of the instructor.
The application of newly developed techniques to production planning and scheduling; probability models in inventory control; linear planning and scheduling; priority function scheduling; the use of high-speed computers in production management.
- 249A-249B. Seminar in the Scientific Approach to Management. (3-3) Yr.** Mr. Barnes
A study of the historical development of the scientific approach to management. Analysis of the contributions of the pioneers, Taylor, Gilbreth, Gantt, Cooke, Fayol, and others. Evaluation of current trends. Case studies in application to all fields of management.
- 251A-251B. Seminar in Personnel Administration. (3-3) Yr.** Mr. McNaughton, Mr. Weschler.
Consideration, at an advanced level, of factors underlying the formation and execution of managerial policies relating to the selection, development, adjustment, and motivation of individual employees. Emphasis on independent investigations and presentations by students.

252. Seminar in the Management of Industrial Relations. (3) I.

Mr. McNaughton, Mr. Tannenbaum

Consideration, at an advanced level, of the collective bargaining process, the labor-management agreement, the administration of the contract, and the impact of public policy on the management of industrial relations. Case studies, field trips, and visiting lecturers will be part of the seminar curriculum.

261. Seminar in Marketing Institutions. (3) I.

Mr. Cassady

Lays a ground work for sound investigative procedures in solving marketing problems. Intensively studies marketing institutions (chain store, wholesaler, market research agency, etc.), and the legal environment in which they operate (Sherman, Clayton, and Federal Trade Commission Acts, Fair Trade Laws, Unfair Practices Acts, etc.).

262. Seminar in Price Policies. (3) II.

Mr. Cassady

Relates economic theory and price policy. Rigorous consideration is given to such concepts as demand, theory of competition, market classification, price leadership, geographical pricing schemes, and price discrimination, followed by analysis of the price policies of individual firms in which these concepts are utilized. A firm grasp of economic theory is a prerequisite.

270. Transportation Management. (3) I, II.

Mr. Sorrell

Prerequisite: Economics 173 or consent of the instructor.

Exploration, through individual research and analysis and group discussion, of the basic managerial problems and policies of transport firms. External relationships which strongly condition internal policy are considered. A functional approach to transportation, dealing with all agencies.

280. Management of Real Estate Enterprises. (3) I. Mr. Case, Mr. Gillies

Prerequisite: course 180, 181 and 182 or 183.

Advanced consideration of principles and policies applicable to the management of real estate enterprises, including the marketing, financing, evaluation, and operation of urban space. Research reports required.

282. Seminar in Urban Land Utilization. (3) II.

Mr. Case, Mr. Gillies

Prerequisite: course 180, 181 and 182 or 183.

Intensive study of forces affecting land use, with emphasis upon processes of city growth, nature of metropolitan structure; and problems of urban land use, including business location. Original land use, including business location. Original research on a selected problem required.

290. Seminar in Business Organization. (3) I.

Mr. Jacoby

Concepts of human organizations and their structures. Principles of design of business organizational structures. Effecting changes in organizations. Growth and degeneration of organizations. Analysis of selected literature. Current research and experimentation. Students present book analyses and research reports for class discussion.

291. Seminar in Planning and Control. (3) II.

Mr. Koontz

Seminar in the principles and techniques of the management functions of planning and control. Emphasis is placed on the general management aspects of these functions. The implementation of objectives through policy formulation and control to assure the reality of plans are dealt with through examination of literature, special research reports, and case analyses.

292. Seminar in Leadership Theory. (3) II.

Mr. Tannenbaum, Mr. Weschler

Prerequisite: course 152 or consent of the instructor.

A study of the variables determining interpersonal influence. Criteria of effective leadership. Leadership theory; characteristics of leaders, followers, and situations. Consideration of current research. Communication—the medium of leadership; modifying behavior—the techniques of leadership; morale and job satisfaction—the personal impact of leadership. Selection and development of leaders.

293. Seminar in the Philosophy of Enterprise Control. (3) I.

Mr. O'Donnell

A study of the business enterprise as a social institution, with emphasis on the changing purposes of social action. Adjustments of the firm to changes in the social environment. Ethical problems in management. Social responsibilities of the business manager.

298. Seminar in Business Policies. (3) II.

Mr. Jacoby

Aims to develop capacity to solve the problems of organization, personnel, and policy formation encountered at and around the top levels of management. Students prepare reports on a series of complex business cases for analysis and discussion in class.

299. Research in Business Administration. (1 to 4) I, II

The Staff

Prerequisite: consent of the instructor and the Dean by special petition available in the office of the Assistant Dean for Student Affairs.

BUSINESS EDUCATION

Samuel J. Wanous, Ph.D., *Professor of Office Management and Business Education (Chairman of the Department).*

*Erwin M. Keithley, Ed.D., *Associate Professor of Office Management and Business Education.*

Lawrence W. Erickson, Ed.D., *Assistant Professor of Office Management and Business Education.*

Richard S. Perry, Ed.D., *Instructor in Office Management and Business Education.*

—————, *Instructor in Office Management and Business Education.*

Lucille P. Irvine, M.Ed., *Lecturer in Office Management and Business Education.*

The majors in business education are offered in the College of Applied Arts and provide specialization in secretarial training, bookkeeping and accounting, general business, and merchandising. These majors prepare students for teaching on high school and college levels. Students desiring to prepare for administrative secretarial positions should enroll for the major in office administration.

Preparation for the Major.—Courses 3A–3B, 5, Business Administration 1A–1B, Economics 1A–1B, Psychology 1A, 1B or 33, English 1A, Speech 1A, Geography 5A–5B. In addition, students not completing Psychology 1B must take 3 units of science.

Business Education 4A–4B, or equivalent, is required for the majors which include office administration.

The Major.—At least 36 units of coordinated upper division courses which may be taken in one of six areas of specialization.

* In residence spring semester only, 1956–1957.

1. Office Administration.

Courses 110, 111, 112, 113, 114, 115; Business Administration 105A, 160; either one course chosen from Business Administration 105B, 135, 150, 180 or Business Administration 120 and one additional upper division accounting course; and electives approved by the departmental adviser to bring the total to 36 units. Prepares students for teaching and administrative secretarial positions.

2. Accounting.

Courses 110, 112, 113, 114, 115; Business Administration 105A, 120, 160; one additional upper division accounting course; one course chosen from Business Administration 105B, 135, 150, 180, Business Education 111; and electives approved by the departmental adviser to bring the total to 36 units.

3. General Business.

Courses 110, 111 (or Business Administration 120 and one additional upper division accounting course), 112, 113, 115; Business Administration 105A, 160; one course chosen from Business Administration 105B, 150, Economics 150, 195; and electives approved by the departmental adviser to bring the total to 36 units.

4. Merchandising.

Courses 110, 111 (or Business Administration 120 and one additional upper division accounting course), 112, 113, 115, 370C; Business Administration 105A, 160, 162, 163, 165; and electives approved by the departmental adviser to bring the total to 36 units.

5. Office Administration, Accounting, and General Business.

Courses 110, 111, 112, 113, 114, 115; Business Administration 105A, 120, 160; one additional upper division accounting course; and one course chosen from Business Administration 105B, 150, Economics 150, 195; and electives approved by the departmental adviser to bring the total to 36 units.

6. Accounting, General Business, and Merchandising.

Courses 110, 112, 113, 115; Business Administration 105A, 120, 160, 162, 163, 165; one course chosen from Business Administration 105B, 150, Economics 150, 195; and one additional upper division accounting course.

Graduate Division.—Students in business education may earn the following graduate degrees: Master of Business Administration in the School of Business Administration; Master of Education, Master of Arts, or Doctor of Education in the School of Education. For further information see the announcements of the School of Business Administration, the School of Education, and the Graduate Division, Southern Section.

Requirements for Teaching Credentials.—Candidates for the special secondary credential in business education or for the general secondary credential with a major or minor in business education should consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

LOWER DIVISION COURSES**3A-3B. Secretarial Training. (2-2) Beginning either semester.**

Mr. Erickson, _____

A study of typewriting in which the groundwork is laid for a thorough understanding of office management and business teaching problems. Principles of operating various kinds of typewriters, special adaptations of each, and bases of speed and accuracy development are included.

4A-4B. Secretarial Training. (3-3) Beginning either semester.

Mrs. Irvine, _____

A study of shorthand in which the groundwork is laid for a thorough understanding of office management and business teaching problems. An analysis of various techniques used in mastery of technical vocabularies and speed in writing and reading shorthand from dictation is included.

5. Introduction to Business Education. (3) I, II.

Mr. Perry

Orients students to the field of business and business education. Covers, in survey form, functions, characteristics, organization, and problems of business. Serves as a foundation for later specialized study, and directs the thinking of students to possible careers. Open only to lower division students.

10. Personal Investments. (1) II.

Mr. Clendenin

A study of personal investment policy, the nature and value of corporate stocks and bonds, the securities markets, investment companies, public bonds, and saving institutions. Not open for credit to business administration majors or students having credit for Home Economics 144.

UPPER DIVISION COURSES**110. Business Communications. (3) I, II.**

Mr. Keithley, Mr. Perry

Prerequisite: course 3A or its equivalent.

Designed to give students an understanding of the services of written communications to business, training in the writing of communication forms in typical business situations, and a review of correct English usage in business writing.

111. Applied Secretarial Practice. (3) I, II.

Prerequisite: courses 3A-3B, 4A-4B.

Study of stenographic office problems, including the development of expert skill and ability in transcription. A consideration of the principles underlying the editing of dictated letters and reports and of the requirements and standards of stenographic positions in civil service as well as in various types of private offices.

112. Management of Office Services. (3) I, II.

Mrs. Irvine

Prerequisite: course 3A or its equivalent.

A study of procedures, standards, and methods of measurement related to office services. An introductory consideration of human relations problems in the office, and their solutions. The development of an understanding of the uses of various types of office machines.

113. Office Organization and Management. (3) I, II.

Mr. Erickson, Mr. Keithley

Analysis of functions of various office departments, their organization and management. Methods used in selecting and training office personnel; office planning and layout; selection and care of office supplies and equipment; methods and devices used to improve operating efficiency; types and uses of office appliances; techniques for performing office duties.

114. Business Report Writing. (2) I, II.

Mr. Baldwin, Mr. Perry, Mr. Keithley

Prerequisite: course 3A, or equivalent, and course 110.

A study of the processes of investigation and presentation of business problems and their solutions. Training in methods of collecting, organizing, and interpreting data, with emphasis upon writing the elements of a final report.

115. **Management of Office Personnel.** (3) I, II. Mr. Erickson
Prerequisite: course 113.

An analysis of the principles, methods, and procedures of effective utilization of office personnel. Recruiting, selecting, inducting, training, compensating, promoting, and managing employee relations. A study of standardization of procedures, job analyses and job descriptions, production standards, and control methods.

116. **Office Systems and Procedures.** (3) II. Mr. Keithley
Prerequisite: course 113.

Study of principles of good office systems, techniques used in making systems and machine-utilization surveys, motion economy applied to office jobs, and tools used by methods analysts.

GRADUATE COURSES

210. **Case Studies in Office Management.** (2) II. Mr. Keithley
299. **Independent Study in Business Education.** (2 to 4) I, II The Staff

PROFESSIONAL COURSES IN METHOD

- 370A. **Methods of Teaching Secretarial Subjects.** (2) I. Mr. Wanous

A survey and evaluation of the methods and materials used in teaching typewriting, shorthand, transcription, and office training to secondary school pupils. Also considered are achievement standards, grading plans, measurement devices, and procedures for adapting instruction to various levels of pupil ability.

- 370B. **Methods of Teaching Bookkeeping and Accounting.** (2) II. Mr. Wanous

A study of the devices, methods, and materials used in teaching bookkeeping, business arithmetic, and related business subjects. A consideration of course objectives, curricular placement, units of instruction, and testing and teaching methods.

- 370C. **Methods of Teaching General Business and Merchandising** (2) I. Mr. Erickson

A study of the devices, methods, and materials used in teaching general business and merchandising subjects. Emphasis placed upon study of current practices, objectives, teaching aids, testing, and evaluation of instructional materials.

CHEMISTRY

¹Francis E. Blacet, Ph.D., *Professor of Chemistry.*

Donald J. Cram, Ph.D., *Professor of Chemistry.*

Max S. Dunn, Ph.D., *Professor of Chemistry.*

Clifford S. Garner, Ph.D., *Professor of Chemistry.*

Theodore A. Geissman, Ph.D., *Professor of Chemistry.*

Wendell H. Griffith, Ph.D., *Professor of Chemistry, and Professor of Physiological Chemistry in the School of Medicine.*

Thomas L. Jacobs, Ph.D., *Professor of Chemistry.*

James D. McCullough, Ph.D., *Professor of Chemistry.*

James B. Ramsey, Ph.D., *Professor of Chemistry (Chairman of the Department).*

¹Hosmer W. Stone, Ph.D., *Professor of Chemistry.*

Saul Winstein, Ph.D., *Professor of Chemistry.*

William G. Young, Ph.D., *Professor of Chemistry.*

¹ In residence first semester only, 1956-1957.

William R. Crowell, Ph.D., *Professor of Chemistry, Emeritus.*
 G. Ross Robertson, Ph.D., *Professor of Chemistry, Emeritus.*
 Daniel E. Atkinson, Ph.D., *Associate Professor of Chemistry.*
 Paul S. Farrington, Ph.D., *Associate Professor of Chemistry.*
 Ralph A. James, Ph.D., *Associate Professor of Chemistry.*
 William G. McMillan, Jr., Ph.D., *Associate Professor of Chemistry.*
 *Robert L. Pecsok, Ph.D., *Associate Professor of Chemistry.*
 Robert L. Scott, Ph.D., *Associate Professor of Chemistry.*
 *Kenneth N. Trueblood, Ph.D., *Associate Professor of Chemistry.*
 Daniel Kivelson, Ph.D., *Assistant Professor of Chemistry.*
 Edward Leete, Ph.D., *Assistant Professor of Chemistry.*
 Charles A. West, Ph.D., *Assistant Professor of Chemistry.*
 Joseph G. Bower, Ph.D., *Instructor in Chemistry.*
 William C. Drinkard, Ph.D., *Instructor in Chemistry.*
 Francis L. Scott, Ph.D., *Lecturer in Chemistry.*



George C. Kennedy, Ph.D., *Professor of Geochemistry.*

Admission to Courses in Chemistry.—Regular and transfer students who have the prerequisites for the various courses are not thereby assured of admission to those courses. The department may deny admission to any course if a grade D was received in a course prerequisite to that course, or if in the opinion of the department the student shows other evidence of inadequate preparation.

Letters and Science List.—All undergraduate courses in chemistry are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Required: Chemistry 1A–1B, 5A, Physics 1A,‡ 1C, Trigonometry, Mathematics 1–3A, 3B, 4A (or the alternative sequence 5A–5B, 6A), English 1A, and a reading knowledge of German.§ Recommended: an additional course in chemistry.

Students should note that the lower division curriculum prescribed for the College of Chemistry at Berkeley differs from the curriculum leading to the degree of Associate in Arts in the College of Letters and Science at Los Angeles.

The Major.—The minimum requirement for the major in chemistry is Chemistry 5B (3), 110A–110B (6), 112A–112B (10), which courses should normally be completed by the end of the junior year, 111 (4), and two additional courses in chemistry, of which at least one must include laboratory work, selected from the following group: 103, 107, 108A or 108A and 108C, 108B or 108B and 108D, 121, 125, 126A, 126B, 130A, 130B, 131, 132, 137. Students who find their principal interest is organic chemistry should take Chemistry 126A–126B and Chemistry 103 in the senior year; if their principal interest is in physical chemistry, Chemistry 130A–130B and Chemistry 125 should be taken and advanced courses in physics and mathematics are recommended.

The following courses outside of chemistry are also required and should be finished as early as possible (some may be taken in the lower division): English 106S,|| Mathematics 4B or 6B, Physics 1D.

* Absent on leave, 1956–1957.

‡ Physics 2A may be substituted for 1A with consent of a departmental adviser. For students who combine a chemistry major and a premedical major, Physics 2A–2B may be substituted for the sequence 1A, 1C, 1D; consent of a departmental adviser required.

§ The equivalent of German 1, 2, and 3PS. German 3PS may be completed in the upper division.

|| English 1B is acceptable in place of English 106S if (a) it was completed before September, 1951; or if (b) it was completed before transfer from another major or curriculum or before transfer from another institution.

Completion of the major in chemistry automatically meets the minimum requirements for eligibility to full membership in the American Chemical Society in the minimum time of two years after graduation.

Transfer Students.—Students who transfer to the University of California, Los Angeles, with a grade of C or better in the equivalent of Chemistry 8 and 9 will be accepted in Chemistry 112B. Such transfers who have already taken Chemistry 112A–112B or an equivalent course will be permitted to count this toward the major with the consent of a departmental upper division adviser.

Upper Division Credit.—Upper division credit will be allowed for not more than three courses from the group 5A, 5B, 8, 9, 112A, and 112B, provided that such courses were taken by the student while in the upper division, and provided further that not more than two of these courses were in organic chemistry. This allowance of upper division credit is permissible in any University curriculum.

Graduate Study.—The Department of Chemistry offers programs of study and research leading to the M.S. and Ph.D. degrees in chemistry and to the M.S. and Ph.D. degrees in biological chemistry. Prospective candidates for advanced degrees in chemistry may specialize in any of the following fields: analytical, biological, inorganic, organic, or physical chemistry.

The general University requirements for the M.S. degree are given on page 64; the Department of Chemistry makes use of Plan I, the Thesis Plan. The general University requirements for the Ph.D. degree are given on page 66. The student is not required to earn the M.S. degree before undertaking work for the Ph.D. degree. More detailed information regarding admission to and requirements for graduate study may be found in the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION, or by writing to the Graduate Adviser, Department of Chemistry, University of California, Los Angeles 24, California.

LOWER DIVISION COURSES

Certain combinations of courses involve limitations of total credit, as follows: 2A and 1A, 9 units; 2 and 1A, 7 units; 8, 9, and 112A, 6 units; 8 and 112A, 5 units.

1A. General Chemistry. (5) I, II.

Mr. McCullough, Mr. Stone

Lecture, three hours; laboratory and quiz, six hours. Prerequisite: high school chemistry. (Chemistry 2A will be accepted in place of high school chemistry, and for outstanding students high school physics and three years of high school mathematics is another acceptable alternative.) Required in the colleges of Agriculture, Chemistry, and Engineering, and of pre dental, pre medical, pre mining, pre pharmacy, and pre optometry students; also of majors in applied physics, bacteriology, chemistry, geology, and physics and of medical technicians, and of students in home economics (curriculum 4) in the College of Applied Arts.

A basic course in principles of chemistry, with special emphasis on chemical calculations.

1B. General Chemistry. (5) I, II.

Mr. Blacet, Mr. Garner

Lecture, three hours; laboratory and quiz, six hours. Prerequisite: course 1A. Required in the same curricula as course 1A.

Continuation of course 1A, with special applications to the theory and technique of qualitative analysis; periodic system; structure of matter. A brief introduction to organic chemistry is included.

2. Introductory Chemistry. (3) I, II. Mr. Cram, Mr. Leete, Mr. Trueblood

Lecture, three hours. An introductory course emphasizing the principles of chemistry and including a brief introduction to elementary organic chemis-

try. The course may be taken for credit in physical science by students following curricula not requiring laboratory work in such field of study. Not open for credit to students who have credit for course 2A.

2A. Introductory Chemistry. (5) I, II.

Mr. Cram, Mr. Leete, Mr. Trueblood

Lecture, three hours; laboratory and quiz, four hours. This course satisfies the chemistry requirements for nurses as prescribed by the California State Board of Nursing Examiners; it is required of certain home economics majors in the College of Applied Arts.

An introductory course emphasizing the principles of chemistry and including a brief introduction to elementary organic chemistry. Not open for full credit to students who have credit for course 2.

5A. Quantitative Analysis. (3) I, II.

Mr. Farrington, Mr. Pecsok, Mr. Stone

Lecture, discussion, and quiz, two hours; laboratory, six hours. Prerequisite: course 1A-1B. Required of chemistry majors, economic geologists, petroleum engineers, public health, sanitary, and municipal engineers, medical technicians, and of premedical, College of Chemistry, metallurgy, and certain agriculture students.

Principles and technique involved in fundamental gravimetric and volumetric analyses.

5B. Quantitative Analysis. (3) I, II.

Mr. Farrington, Mr. Pecsok

Lecture, discussion, and quiz, two hours; laboratory, six hours. Prerequisite: course 5A. Required of chemistry majors, economic geologists, and College of Chemistry students.

A continuation of course 5A but with greater emphasis on theory, analytical problems in acidimetry and alkalimetry, oxidimetry, electrolytic deposition, and semiquantitative procedures.

8. Elementary Organic Chemistry. (3) I, II.

Mr. Cram, Mr. Geissman, Mr. Jacobs

Prerequisite: course 1A-1B; concurrent enrollment in course 9 is advisable. This course is required of premedical and pre dental students, majors in petroleum engineering, sanitary and municipal engineering, home economics, public health, and some agriculture majors. Students in certain curricula which require only Chemistry 1A and 8 are warned that they will not be admitted to Chemistry 8 on the Los Angeles campus unless they have completed Chemistry 1B or equivalent.

An introductory study of the compounds of carbon, including both aliphatic and aromatic derivatives.

9. Methods of Organic Chemistry. (3) I, II.

Mr. Leete, Mr. F. L. Scott

Lecture and quiz on principles of laboratory manipulation, two hours; laboratory, six hours. Prerequisite or concurrent: course 8. Required of premedical and pre dental students, and majors in petroleum engineering.

Laboratory work devoted principally to synthesis, partly to analysis.

10. Organic and Food Chemistry. (4) I.

Mr. Cram, Mr. Jacobs

Lecture, three hours; laboratory, three hours. Prerequisite: courses 1A and 1B, or 2A. Arranged primarily for majors in home economics.

An introductory study of the compounds of carbon, including both aliphatic and aromatic derivatives.

UPPER DIVISION COURSES

Certain combinations of courses carry limitations of total credit, as follows: 106 and 108A, 6 units; 109A and 110A, 3 units; 109B and 110B, 3 units.

103. Qualitative Organic Analysis. (3) I, II. Mr. Young
Lecture, discussion, and quiz, two hours; laboratory, six hours. Prerequisite: courses 5A-5B, 8 and 9, or 112A-112B.
Classification, reactions, and identification of organic compounds.

106. Clinical Chemistry. (5) II. Mr. West
Lecture, three hours; laboratory, six hours. Prerequisite: courses 5A, 8, and 9. Required in the curriculum for medical technicians. May not be offered as part of the major in chemistry.
Chemistry and metabolism of foodstuffs and animal tissues. Qualitative and quantitative analysis of blood, urine, and other biological materials.

107. Amino Acids and Proteins. (3) I. Mr. Dunn
Lecture, three hours. Prerequisite: courses 5A, 8 and 9, or 5A, 112A-112B.
A detailed treatment of the chemistry and metabolism of amino acids, polypeptides, and proteins.

108A-108B. Principles of Biochemistry. (3-3) Yr. Mr. Atkinson, Mr. West
Lecture, three hours. Prerequisite: courses 5A, 8 and 9, or 5A, 112A-112B.
Discussion of the basic principles of the biochemistry of plants and animals, with particular reference to chemical composition and physiological processes.

108C-108D. Methods of Biochemistry. (2-2) Yr. Mr. Atkinson, Mr. West
Lecture, discussion, and quiz, one hour; laboratory, five hours. Prerequisite: courses 5A, 8 and 9 or 5A, 112A-112B. Concurrent or prerequisite: course 108A-108B.
The preparation, analysis, and quantitative studies of metabolites in plants and animals, including amino acids, carbohydrates, enzymes, lipides, peptides, proteins, purines, pyrimidines, sterols, and vitamins.

109. General Physical Chemistry. (4) I. Mr. Garner, Mr. James, Mr. Trueblood
Lecture and demonstration. Prerequisite: course 5A, Physics 2A-2B, Mathematics 1; recommended preparation, course 8, Mathematics 37. May not be offered as part of the major in chemistry.
Chemical principles of particular importance in the life sciences and geology.

110A. Physical Chemistry. (3) I, II. Mr. Kivelson, Mr. Ramsey, Mr. R. L. Scott
Prerequisite: course 5B, Physics 1C, and Mathematics 4A or 6A, with a minimum grade of C in each. Nonchemistry majors admitted without course 5A or 5B.

Certain fundamental principles relating to matter and energy, including the first law of thermodynamics and thermochemistry; molecular and atomic theories regarding constitution of substances; gas laws and molecular kinetic theory; colligative properties of solutions of nonelectrolytes.

110B. Physical Chemistry. (3) I, II. Mr. McMillan, Mr. Ramsey
Prerequisite: course 110A; Mathematics 4B or 6B (may be taken concurrently).
The mass-action law of chemical equilibrium and the phase rule, thermo-

dynamic derivations; electrical properties of solutions and ionic theory; electromotive force of voltaic cells, relations to free energy and entropy changes and to equilibrium constants; chemical kinetics.

110G. Physical Chemistry. (3) I, II.

Mr. Kivelson, Mr. Ramsey, Mr. R. L. Scott

Prerequisite: same as for course 110A. Open only by permission of the chairman of the department to graduate students who have not taken course 110A in this institution.

110H. Physical Chemistry. (3) I, II.

Mr. Kivelson, Mr. McMillan, Mr. Ramsey

Prerequisite: course 110A or 110G. Open only by permission of the chairman of the department to graduate students who have not taken course 110B in this institution.

111. Methods of Physical Chemistry. (4) I, II.

Mr. James, Mr. Kivelson, Mr. R. L. Scott

Lecture, two hours; laboratory, six hours. Prerequisite: course 110A; concurrent: course 110B.

Physicochemical measurements and laboratory experiments illustrating some of the important principles of physical chemistry.

112A-112B. Organic Chemistry. (5-5) Yr. Beginning either semester.

Mr. Cram, Mr. Geissman, Mr. Jacobs, Mr. Leete

Lecture, three hours; laboratory and quiz, six hours. Prerequisite: course 1A-1B. Recommended: course 5A.

A beginning course designed primarily for chemistry majors, but open to other students who desire a more comprehensive course than Chemistry 8 and 9. Organic chemistry is presented with emphasis upon the application of modern principles to structure, reactivity, methods of synthesis, and physical properties of organic compounds. Students who have had Chemistry 8 and 9 or their equivalent may, with the consent of the instructor, take 112B without having had 112A. Such students are advised that such transfer is more readily effected into the Chemistry 112B which starts in the fall semester.

121. Advanced Inorganic Chemistry. (3) I.

Mr. Stone

Lecture, discussion, and quiz, two hours; laboratory, six hours. Prerequisite: course 5B.

Equilibrium and reaction rate; periodic classification. Laboratory work principally synthetic and analytic, involving special techniques.

***125. Instrumental Methods. (3) II.**

Mr. Trueblood

Lecture, discussion, and quiz, two hours; laboratory, six hours. Prerequisite: courses 5B, 110B, 111, and Physics 1D. In the event that it is necessary to limit enrollment, admission will be based upon performance in the prerequisite courses, particularly 5B and 111.

Theory and application of instrumental methods in chemical problems. The laboratory work will include experiments in spectrophotometry, chemical microscopy, polarography, radioactivity, and various other modern techniques.

126A-126B. Advanced Organic Chemistry. (3-3) Yr.

Lecture, three hours.

Mr. Geissman, Mr. Jacobs, Mr. Winstein

Prerequisite: Chemistry 112A-112B or its equivalent. Primarily for seniors and first-year graduate students. With the consent of the instructor, course 126B may be taken without 126A by capable students who have done well in the prerequisite course, but this is not encouraged.

A comprehensive course based upon modern concepts. Substitution, elimination, and addition reactions, condensations, rearrangements, stereochemistry and free-radical chemistry.

* Not to be given, 1956-1957.

130A. Advanced Physical Chemistry. (3) I. Mr. Garner, Mr. McMillan
Lecture, three hours. Prerequisite: Chemistry 110B; Mathematics 4B; Physics 1C, 1D. Primarily for seniors and first-year graduate students.

Selected topics in modern physical chemistry, including quantum effects, nucleonics, interaction of matter with fields, intermolecular forces, chemical bond, molecular structure and the solid state.

130B. Advanced Physical Chemistry. (3) II.

Mr. McMillan, Mr. R. L. Scott

Lecture, three hours. Prerequisite: Chemistry 110B; Mathematics 4B; Physics 1C, 1D. Chemistry 130A is prerequisite except with the permission of the instructor.

A continuation of Chemistry 130A. Selected topics in modern physical chemistry, including probability and statistical methods, reaction kinetics, the imperfect gas and condensation, liquids and solutions, phase transitions, surface phenomena and high polymers.

***131. Absorption Spectra and Photochemical Reactions. (2) II.**

Prerequisite or concurrent: course 110A.

Mr. Blacet

The chemical interpretation of spectra and the study of chemical processes which are initiated by the absorption of visible and ultraviolet radiation.

132. X Rays and Crystal Structure. (2) II.

Mr. McCullough

Prerequisite: course 110A.

Symmetry of crystals; use of X rays in the investigation of crystal structure.

137. Chemistry of Bacterial Nutrition. (2) II.

Mr. Dunn

Lecture, two hours. Prerequisite: approved courses in bacteriology and biochemistry.

Detailed studies of bacterial nutrition and metabolic products. Microbiological assays of vitamins and amino acids.

****199. Problems in Chemistry. (3) I, II.**

The Staff

Prerequisite: junior standing, a good scholastic record, and such special preparation as the problem may demand.

GRADUATE COURSES

202. Chemical Kinetics. (3) II.

Mr. Ramsey

A critical consideration of all important classes of chemical reactions in gaseous and condensed phases and at interfaces between phases. Experimental methods, and application of theory. Recent advances in the theory of reaction rates.

203. Chemical Thermodynamics. (3) I.

Mr. McMillan, Mr. Ramsey, Mr. R. L. Scott

Derivation and application of thermodynamic relations of particular importance in chemistry; partial molar quantities and thermodynamic properties of solutions; the concepts fugacity, activity, activity coefficient and osmotic coefficient, and their uses.

221. Physical Aspects of Organic Chemistry. (3) II.

Mr. Winstein

A course stressing mechanism. Electronic interpretations, kinetics, and stereochemistry of organic reactions are treated. The emphasis in this course is, in some years, on ionic situations and, in other years, on free radical reactions.

* Not to be given, 1956-1957.

** To be given only if laboratory space is available.

222A*-B*-C*-D-E-F*. Naturally Occurring Organic Compounds. (2) I, II.

Mr. Cram, Mr. Geissman, Mr. Jacobs, Mr. Leete

Theoretical and practical aspects of organic chemistry are discussed in terms of different classes of natural products, such as non-nitrogenous plant products, nitrogenous plant products, steroids, sugars, and fungi metabolites.

***231. Nuclear Chemistry. (3) I.**

Mr. Garner, Mr. James

Introduction to natural and artificial radioactivity; interaction of radiations with matter; detection and measurement of nuclear radiations; methods for the preparation, concentration, isolation, and identification of radioisotopes, and their application to chemical problems.

233. Statistical Mechanics. (3) I.

Mr. McMillan

Prerequisite: course 130B; Mathematics 4B. Recommended: course 203; Physics 105; Mathematics 119A, 122A-122B.

Derivation of the laws of molecular assemblies from the properties of the individual molecules, including: elementary kinetic theory of gases; thermodynamic functions for monatomic, diatomic, and polyatomic gases; chemical equilibrium; the crystalline state; theory of the general imperfect gas; condensation; and related topics.

***234. Quantum Chemistry. (3) II.**

Mr. McMillan

Prerequisite: course 130A; Physics 121; Mathematics 119B or 110B; or consent of the instructor. Recommended: course 131, Physics 105.

Elementary quantum mechanics, with particular emphasis on chemical applications. Includes: classical mechanics; early quantum theory; wave-particle dualism; statistical interpretation; Schrödinger formulation; particle in a potential well, harmonic oscillator, and rigid rotator; hydrogen atom; periodic system; approximation methods; molecules; chemical bond types; and more advanced topics as time permits.

238. Chemistry of Intermediary Metabolism. (3) I.

Mr. West

Prerequisite: course 108A-108B.

Detailed consideration of the metabolic transformation of animals and plants and the experimental methods employed in this field.

***240. Chemistry of Enzyme Action. (3) I.**

Mr. Atkinson

Prerequisite: courses 108A-108B and 108C-108D, or consent of the instructor.

Physical and chemical characteristics, natural and synthetic substrates, activators and inhibitors of enzymes and coenzymes. Mechanisms and kinetics of enzyme and coenzyme action in digestion, respiration, and the degradation and synthesis of proteins, carbohydrates, nucleic acids, and other biological substances.

260. Seminar in Chemistry. (1) I, II.

The Staff

Oral reports by graduate students on important topics from the current literature in their field of chemistry. Each student taking this course must consult the instructor in charge before enrolling, and is expected to present a report.

261. Seminar in Biochemistry. (1) I, II.

Mr. Dunn

280A-B-C-D. Research in Chemistry. (3 to 6) I, II.

The Staff

281A-B-C-D. Advanced Research in Chemistry. (3 to 6) I, II.

The Staff

CHINESE

For courses in Chinese, see under Department of Oriental Languages.

* Not to be given, 1956-1957.

CLASSICS

Frederick Mason Carey, Ph.D., *Professor of Classics.*

Wolf Leslau, Docteur ès Lettres, *Professor of Hebrew.*

Paul Friedlander, Ph.D., *Professor of Classics, Emeritus.*

Arthur Patch McKinlay, Ph.D., *Professor of Latin, Emeritus.*

*Paul Augustus Clement, Ph.D., *Associate Professor of Classics and Classical Archaeology.*

Herbert Benno Hoffleit, Ph.D., *Associate Professor of Classics.*

Albert Hartman Travis, Ph.D., *Associate Professor of Classics (Chairman of the Department).*

Jonas Carl Greenfield, Ph.D., *Acting Assistant Professor of Hebrew.*

Peter E. Corbett, M.A. (Oxon.), *Lecturer in Classics.*

Helen Florence Caldwell, M.A., *Associate in Classics.*

Letters and Science List.—All undergraduate courses in the department except Latin 370 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

The student may take the major either in Latin or in Greek.

Preparation for the Major

A. *Latin.*—Required: courses 1, 2, and 3, or two years of high school Latin and courses 2 and 3, or four years of high school Latin; courses 5A-5B, 9A-9B. Recommended: English, French, German, Greek, Italian, Spanish.

B. *Greek.*—Required: course 1-2 or two years of high school Greek; and 4A or 4B or any 2 units of 100A-B-C-D (which may be taken concurrently with courses 101 and 102). Recommended: English, French, German, Italian, Latin, Spanish.

The Major.

A. *Latin.*—Courses 102, 115, 146, 154, 157, 191, plus 6 units of upper division courses in Classics, Latin, English, French, German, Greek, Italian, Spanish, philosophy, ancient or medieval history, to be chosen with the approval of the department. (Latin 165A-B-C-D is required of students preparing for a teaching credential.)

B. *Greek.*—Courses 100A-B-C-D, 101, 102, 103, 104, 105, 114, plus 6 units of upper division courses in Classics, Latin, English, French, German, Italian, Spanish, philosophy, ancient or medieval history, to be chosen with the approval of the department.

Requirements for Admission to Graduate Courses

A candidate for admission to graduate courses in Latin or in Greek must meet, in addition to the general University requirements, the minimum requirements for an undergraduate major in Latin or Greek. If the candidate is deficient in this prerequisite, he must fulfill it by undergraduate work which is not counted toward his graduate residence.

Requirements for Master's Degree

For the general requirements, see page 64. The department favors the Comprehensive Examination Plan.

Requirements for Admission to Candidacy for the Master's Degree in Latin

1. A reading knowledge of French or German.
2. Completion of Greek 101.
3. Completion of Classics 200.
4. A comprehensive examination in (a) the translation of Latin prose and verse into English, (b) Latin literature, (c) Roman history, and (d) Latin

* In residence spring semester only, 1956-1957.

composition. Requirements (b) through (d) may be met by passing certain courses with an average grade of B or better: (b) by Latin 180A-B; (c) by History 111B or 113A-B; and (d) by Latin 165A-B-C-D.

Requirements for Admission to Candidacy for the Master's Degree in Greek

1. A reading knowledge of French or German.
2. Completion of Latin 5A or Latin 5B.
3. Completion of Classics 200.
4. A comprehensive examination in (a) the translation of Greek prose and verse into English, (b) Greek literature, (c) Greek history, and (d) Greek composition. Requirements (b) through (d) may be met by passing certain courses with an average grade of B or better: (b) by Greek 180A-B; (c) by History 111A or 112A-B; and (d) by Greek 100A-B-C-D.

COURSES WHICH DO NOT REQUIRE A KNOWLEDGE OF GREEK, LATIN OR HEBREW

Classics 118, 170A-170B, 272A-B-C-D.

Latin 40, 180A-180B.

Greek 40, 180A-180B.

Hebrew 182A-182B.

CLASSICS

UPPER DIVISION COURSES

113. **Ancient Drama.** (3) I. Mr. Travis
 The major Greek and Latin dramas in translation, with a history of the theater and dramatic productions. A knowledge of Latin and Greek is not required.
- 170A. **Greek Archaeology.** (2) I. Mr. Corbett
 A knowledge of Greek is not required.
 A short survey of the painting, sculpture, and architecture of the Minoan and Hellenic societies to the fourth century before Christ.
- 170B. **Roman Archaeology.** (2) II. Mr. Clement
 A knowledge of Greek and Latin is not required.
 The painting, sculpture, and architecture of the Hellenic society during its Hellenistic and Roman phases. This course may be taken independently of 170A.

GRADUATE COURSE

200. **History of Classical Scholarship, Bibliography, and Methodology.**
 (3) I. Mr. Carey
 Required of all candidates for the master's degree in Latin or Greek.
- 272A-B-C-D. **Seminar in Minoan and Hellenic Art and Archaeology.**
 (2) I, II. Mr. Corbett, Mr. Clement
 Prerequisite: Classics 170A, 170B, or consent of the instructor. A knowledge of Greek or Latin is not required. Any phase of this course (A, B, C, or D) may be taken independently for credit.
- *A. The Aegean Bronze Age.
 - *B. Topography and architecture of Graeco-Roman sites.
 - C. Graeco-Roman plastic arts.
 - D. Graeco-Roman painting and drawing.

LATIN

LOWER DIVISION COURSES

1. **Beginning Latin.** (4) I, II.
 Sections meet five hours weekly.

* Not to be given, 1956-1957

- 2. Latin Readings.** (4) I, II. Mr. Hoffleit, Miss Caldwell
Prerequisite: course 1 or two years of high school Latin.
Sections meet five hours weekly.
- GA. Latin Prose Composition.** (1) I, II. _____
Intended primarily for students entering with two years of high school Latin taken at least two years before matriculation in the University.
- GB. Latin Prose Composition.** (1) I, II. Miss Caldwell
Prerequisite: course 2 or GA, or two or three years of high school Latin.
- 3. Vergil.** (4) I, II. Mr. Carey, Mr. Clement
Prerequisite: course 2, or two or three years of high school Latin. Designed for students who have not studied Vergil in high school.
- 5A. A Survey of Latin Literature.** (3) I. Mr. Carey
Prerequisite: course 3, or four years of high school Latin.
- 5B. Horace: Odes and Epodes.** (3) II. Mr. Carey
Prerequisite: course 3, or four years of high school Latin.
- 9A-9B. Latin Prose Composition.** (2-2) Yr. _____, Mr. Hoffleit
Prerequisite: course 3, or three years of high school Latin.
- 40. The Latin Element in English.** (2) II. Mr. Carey
A course in vocabulary building based on the study of the many groups of English words which are derived from the Latin. A knowledge of Latin is not required.

UPPER DIVISION COURSES

- 102. Silver Latin.** (3) I. Miss Caldwell
Prerequisite: courses 5A, 5B.
- 115. Ovid: Carmina Amatoria and Metamorphoses.** (3) II. Mr. Carey
Prerequisite: course 102.
- *146. Lucretius: Selections; Vergil: Eclogues and Georgics.** (3) II. Mr. Travis
Prerequisite: course 102.
- 154. Tacitus: Annals.** (3) II. Miss Caldwell
Prerequisite: course 102.
- 157. Roman Satire.** (3) I. Mr. Travis
Prerequisite: course 102.
- ‡165A-165B. Latin Composition.** (1-1) Yr. Mr. Hoffleit, Mr. Carey
Prerequisite: course 9A-9B.
Ciceronian prose.
- 165C-165D. Latin Composition.** (1-1) Yr. Miss Caldwell, Mr. Hoffleit
Prerequisite: course 9A-9B.
Ciceronian prose.
- 180A-180B. A Survey of Latin Literature in English.** (2-2) Yr.
This course does not count on the major in Latin. Mr. Travis
A study of the literature of Rome from Ennius to Apuleius with reading in English. A knowledge of Latin is not required. 180A and 180B may be taken independently for credit.
- *191. Cicero: Selections.** (3) II. Mr. Hoffleit
Prerequisite: course 102.

* Not to be given, 1956-1957.

‡ Not to be given, 1956-1957; to be given 1957-1958.

- 199A-199B. Special Studies in Latin. (1-4; 1-4) Yr. The Staff
 Prerequisite: senior standing and at least 12 units of upper division Latin.
 Problems in classical philology.

GRADUATE COURSES

- *202. Cicero's Philosophical Works. (3) II. Mr. Hoffleit
 203. Roman Historians. (3) II. Mr. Hoffleit
 *204. Roman Prose Writers. (3) I. Mr. Travis
 Cicero's moral and political essays.
 *206. The Roman Epic. (3) II. Mr. Hoffleit
 The Roman epic from Ennius to Silius Italicus.
 *208. Livy. (3) II. Mr. Hoffleit
 210. Vergil's Aeneid. (3) I. Mr. Clement
 211. Cicero's Rhetorical Works. (3) II. Mr. Travis
 *253. Seminar in Latin Studies. (3) II. Mr. Carey
 Textual criticism.
 *254A-254B. Seminar in Latin Studies. (3-3) Yr. Mr. Carey
 Latin comedy.
 *255. Seminar in Latin Studies. (3) I. Mr. Carey
 Roman elegy.
 *256. Seminar: Ovid. (3) II. Mr. Carey
 290. Research in Latin. (1-4) I, II. The Staff

PROFESSIONAL COURSE IN METHOD

- *370. The Teaching of Latin. (3) II. _____
 Prerequisite: a foreign language minor.

GREEK

LOWER DIVISION COURSES

- 1-2. Greek for Beginners, Attic Prose. (4-4) Yr. _____
 Sections meet five hours weekly. Miss Caldwell, Mr. Carey
 4A-4B. Readings in Greek. (2-2) Yr. _____
 40. The Greek Element in English. (2) I. Mr. Carey
 A course in vocabulary building based on the study of the many groups of English words which are derived from the Greek. A knowledge of Greek is not required.

UPPER DIVISION COURSES

- *100A-100B. Prose Composition. (1-1) Yr. Mr. Clement, Miss Caldwell
 Prerequisite: course 1-2.
 100C-100D. Prose Composition. (1-1) Yr. Mr. Travis, Miss Caldwell
 Prerequisite: course 1-2.

* Not to be given, 1956-1957.

101. **Homer: Odyssey; Selections.** (3) I. Mr. Corbett
Prerequisite: course 1-2.
102. **Plato: Apology and Crito; Lyric Poets.** (3) II. Mr. Hoffleit
Prerequisite: course 101.
- †103. **Greek Drama: Euripides and Aristophanes.** (3) II. Mr. Travis
Prerequisite: courses 101, 102.
104. **Historical Prose: Herodotus and Thucydides.** (3) I. Mr. Hoffleit
Prerequisite: courses 101, 102.
105. **Greek Drama: Aeschylus and Sophocles.** (3) II. Mr. Travis
Prerequisite: courses 101, 102.
- †114. **Plato: Republic.** (3) I. Mr. Hoffleit
Prerequisite: courses 101, 102.
- 117A-117B. **Greek New Testament.** (2-2) Yr. Miss Caldwell
- *180A-180B. **A Survey of Greek Literature in English.** (2-2) Yr.
This course does not count on the major in Greek. Mr. Carey
A study of the literature of Greece from Homer to Lucian with reading
in English. A knowledge of Greek is not required. 180A and 180B may be
taken independently for credit.
- 199A-199B. **Special Studies in Greek.** (1-4; 1-4) Yr. The Staff
Prerequisite: senior standing and at least 12 units of upper division
Greek.
Problems in classical philology.

GRADUATE COURSES

- *201A. **Homer: The Iliad.** (3) I. Mr. Clement
- *201B. **Homer: The Odyssey.** (3) II. Mr. Clement
- *202. **Sophocles.** (3) I. Mr. Hoffleit
203. **Thucydides.** (3) II. Mr. Carey
- *204. **Aristophanes.** (3) I. Mr. Travis
205. **Euripides.** (3) I. Mr. Travis
290. **Research in Greek.** (1-4) I, II. The Staff

RELATED COURSES IN OTHER DEPARTMENTS

- History 111A-111B. History of the Ancient Mediterranean World.**
(3-3) Yr. Mr. Brown
- History 112A-112B. History of Ancient Greece.** (3-3) Yr. Mr. Brown
- History 113A-113B. History of Rome.** (3-3) Yr. Mr. Brown

HEBREW

LOWER DIVISION COURSE

- 5A-5B. Elementary Hebrew.** (4-4) Yr. Mr. Greenfield
Sections meet five hours weekly.

* Not to be given, 1956-1957.

† Not to be given, 1956-1957. Courses 104 and 105 are ordinarily given in alternation with courses 103 and 114, respectively.

UPPER DIVISION COURSES

- *101. Hebrew Conversation and Composition. (3) Yr.
Prerequisite: course 5A-5B or consent of the instructor.
Practice in written and oral modern Hebrew.
- 105A-105B. Intermediate Hebrew. (3-3) Yr. Mr. Leslau
Prerequisite: course 5A-5B or the equivalent.
- 110A-110B. Advanced Hebrew. (3-3) Yr. Mr. Greenfield
Prerequisite: course 105B or the equivalent.
Selected modern literary texts.
- 120A-120B. Selected Texts of the Bible. (3-3) Yr. Mr. Greenfield
Prerequisite: course 5A-5B or the equivalent.
Translation and analysis of portions of the Old Testament. Especial attention will be given to texts of primary literary and historical importance.
- *182A-182B. A Survey of Early Hebrew Literature in English. (2-2) Yr. Mr. Leslau
Prerequisite: sophomore standing or consent of the instructor.
A study of Hebrew literature from Biblical times to 1500 with readings in English. 182A and 182B may be taken independently for credit. A knowledge of Hebrew is not required.
- 183A-183B. A Survey of Later Hebrew Literature in English. (2-2) Yr. Mr. Leslau
Prerequisite: sophomore standing or consent of the instructor.
A study of Hebrew literature from 1500 to the present day, with readings in English. 183A and 183B may be taken independently for credit. A knowledge of Hebrew is not required.
- 199A-199B. Special Studies. (1-4; 1-4) Yr. Mr. Leslau
Prerequisite: consent of the instructor.
Studies in history, literature, and Semitic linguistics in accordance with the requirements of the students.

ECONOMICS

- Paul A. Dodd, Ph.D., LL.D., *Professor of Economics.*
George H. Hildebrand, Ph.D., *Professor of Economics.*
†Paul T. Homan, Ph.D., *Professor of Economics.*
Earl J. Miller, Ph.D., LL.D., *Professor of Economics.*
Dudley F. Pegrum, Ph.D., *Professor of Economics.*
Warren C. Scoville, Ph.D., *Professor of Economics.*
Marvel M. Stockwell, Ph.D., *Professor of Economics.*
Armen A. Alehian, Ph.D., *Associate Professor of Economics.*
Karl Brunner, Dr.Rer.Pol., *Associate Professor of Economics.*
Wytze Gorter, Ph.D., *Associate Professor of Economics (Chairman of the Department).*
William R. Allen, Ph.D., *Assistant Professor of Economics.*
Norman V. Breckner, M.A., *Acting Assistant Professor of Economics.*
William F. Stanton, Jr., Ph.D., LL.D., *Assistant Professor of Economics.*
Donald E. Stout, Ph.D., *Assistant Professor of Economics.*
Evelyn M. Baran, M.A., *Acting Assistant Professor of Economics.*

* Not to be given, 1956-1957.

† Absent on leave, 1956-1957.

Paul Prasow, Ph.D., *Lecturer in Economics.*

John W. Ashley, M.B.A., *Associate in Economics.*

Letters and Science List.—All undergraduate courses in economics are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Objective of the Major in Economics.—The program for the student majoring in the field of economics is designed to provide a well-balanced and carefully integrated curriculum in liberal arts leading to the A.B. degree. The requirements for and offerings in the major are intended not only to provide a well-rounded education based on a broad foundation of economics and related subjects, but also to supply basic training for students who plan to enter the professional fields of high school and junior college teaching in the social sciences or business education, law, social work, or government service. Majors who envisage a business career can arrange a plan of study which provides the basic training for such a career and the foundation for graduate work in schools of business administration. The major also provides the basic for professional graduate studies in economics.

Upper division programs are worked out for each student in consultation with a departmental adviser.

Preparation for the Major.—Required: Economics 1A–1B. Under special circumstances and by petition, a student may be permitted to substitute Economics 101 for Economics 1A–1B. This may be done only when the student is in upper division standing.

Requirements for the Major

- 1) Economics 100A and 3 units selected from 100B, 103, or 140;
- 2) One course in each of three fields in economics listed below other than the field of economic theory or Economics 140;
- 3) Twenty-four upper division units in courses offered by the Department of Economics.

Recommended Courses.—Lower division students preparing for the major in economics are strongly recommended to include in their programs Economics 13 and Business Administration 1A or 3. Majors in economics should endeavor to include courses selected from the following departments in completing their upper division programs: Anthropology and Sociology, Business Administration, Geography, History, Philosophy, Political Science, Psychology. The selection should be made on the basis of the student's proposed career and on the recommendation of his major adviser. Students who intend to pursue economics to the graduate level are encouraged to take work in mathematics at least through the first course in calculus. This applies especially to those who are interested in economic theory and statistics.

Fields:

- Economic Theory (Courses 100A, 100B, 103, 105, 143).
- Economics Institutions (Courses 106, 107, 108, 120).
- Public Finance (Courses 131A, 131B, 133).
- Money and Banking (Courses 135, 136, 137).
- Statistics (Courses 140, 141A, 141B, 142).
- Labor Economics (Courses 150, 152, 155, 156, 158).
- Government and Industry (Courses 170, 171, 173, 174).
- International Economics (Courses 195, 196, 197).

1A-1B. Principles of Economics. (3-3) Yr. Beginning either semester.

Mr. Allen, Mrs. Baran, Mr. Breckner, Mr. Miller, Mr. Scoville, Mr. Stanton, Mr. Stockwell, Mr. Stout

Lecture, two hours; discussion, one hour.

An introduction to principles of economic analysis, economic institutions,

and issues of economic policy. The first semester emphasizes allocation of resources and distribution of income through the price system. The second semester concentrates on aggregative economics, including money and banking, national income, and international trade.

13. **Evolution of Economic Institutions in America.** (3) I, II. Mr. Stout
Rise of large-scale capitalistic methods of production, influence of technology, prices, politics, ideologies, and wars.

UPPER DIVISION COURSES

Courses 1A-1B or 101 are prerequisite to all upper division courses in economics.

- 100A. **General Economic Theory.** (3) I, II. Mr. Stout, Mr. Gorter
The laws of demand, supply, returns, and costs; price and output determination in different market situations. The implications of the pricing process for the optimum allocation of resources.
- 100B. **General Economic Theory.** (3) II. Mr. Gorter
Theory of employment and income; theory of factor pricing and income distribution; present state and prospects of capitalism in relation to welfare and economic progress.
101. **Economic Principles and Problems.** (3) I, II.
Mr. Alchian, Mr. Allen, Mr. Miller, Mr. Stanton
Designed for non-economics majors. A one-semester course presenting the principles of economics with applications to current economic problems. Satisfies the prerequisite to all upper division courses in economics. Not open to students with credit for 1A-1B.
103. **History of Economic Theory.** (3) I. Mr. Allen, Mr. Homan
An historical survey of the major systems of economic thought.
105. **Business Cycles.** (3) I. Mr. Breckner
Prerequisite: course 135.
The measurement, causes, and control of economic fluctuations.
106. **Individualism and Collectivism.** (3) II. Mr. Hildebrand
An examination of the economic assumptions and implications of the literature of liberalism, socialism, communism, and anarchism, from classical antiquity to the present, with special attention to conceptions of economic reform and organization, and to the place of the state in the economic scheme.
107. **Comparative Economic Systems.** (3) I, II. Mr. Scoville
An analysis of capitalist and planned economies as exemplified by the United States, Soviet Union, Great Britain, etc. Alternative systems are compared with respect to their economic goals, theories of economic organization, institutions, and developmental processes. Problems of economic planning are emphasized.
108. **Development of Economic Institutions.** (3) I. Mr. Scoville
Rise of capitalism, especially in Western Europe, with emphasis on its basic institutions, such as private property, profit motive, price system; comparative rates of growth of different countries; protestantism and capitalism; critical evaluation of the concept of the Industrial Revolution.
- 131A-131B. **Public Finance.** (3-3) Yr. Mr. Stockwell
Public expenditures; causes and significance of their increase; sources of public revenue; governmental budgets; financial administration; the public debt; fiscal policy.

- 133. Federal Finance. (3) II.** Mr. Breckner
Prerequisite: course 135.
An analysis of the federal tax structure, federal expenditures, and the federal debt structure, and their relationship to the level of employment and income, resource allocation, and the distribution of income.
- 135. Money and Banking. (3) I, II.**
Mrs. Baran, Mr. Breckner, Mr. Brunner, Mr. Clendenin, Mr. Miller
The principles and history of money and banking, with principal reference to the experience and problems of the United States.
- 136. Techniques of Monetary Control. (3) I.** Mr. Brunner
Prerequisite: course 135.
The nature of monetary controls; monetary developments as related to prices, production, and national income; monetary policies in the interwar and postwar periods; monetary policy and domestic economic stabilization.
- *137. Comparative Banking Systems. (3) II.** _____
Prerequisite: course 135.
Comparative study of the banking systems in the principal financial centers of the world.
- 140. Introduction to Statistical Methods. (3) I.** Mr. Alchian
Principles and methods of utilizing statistical data; presentation and statistics of a given set of data; probability; methods of statistical inference with economic applications; bivariate correlation, time series, and index numbers.
- †141A-141B. Statistical Methods. (3-3) Yr.** Mr. Alchian
Prerequisite: course 140 or the equivalent.
Emphasis on ability to perform statistical studies and specific applicability of the results. Probability, multisamples, correlation, time series, and sampling procedures.
- 142. Quantitative Economic Analysis. (3) II.** Mr. Alchian
Prerequisite: course 140 or the equivalent.
Quantitative aspects of the main economic magnitudes and their relationships. Implications of extent of quantitative knowledge on validity of economic theory.
- 143. Introduction to Mathematical Economics. (3) I.** Mr. Brunner
Basic concepts and operations of mathematical logic and their application to economic analysis. Differentiation of functions, maximum and minimum problems in economics. Linear systems in economics, matrices, vectors and determinants and their elementary properties.
- 150. Labor Economics. (3) I, II.** Mr. Hildebrand, Mr. Pollard
Economic analysis of trade union philosophies and practices; theoretical exploration of basic influences affecting real wages and employment, with examination of the relevant statistical record; internal wage policies of the firm; union-management relations and the public economy.
- 152. Social Insurance. (3) II.** Mrs. Baran
Basis of the social security program; unemployment insurance, workmen's compensation, old age pensions, insurance against sickness.
- *155. History and Problems of the Labor Movement. (2) I.** _____
The origin and development of trade-unionism in the United States; theory of collective bargaining, methods and practices of contemporary unionism; the legal status of unionism.

* Not to be given, 1956-1957.

† Not to be given in 1956-1957; however, students may enroll in Business Administration 116A-116B and receive credit for work toward the economics major.

156. Labor Law and Legislation. (3) I.

Prerequisite: course 150.

The social and economic basis of the law regulating employer-employee relationships. Analysis of the implications of federal and state legislation for collective bargaining; economic effects of laws regulating wages, hours of work, and other labor standards.

158. Collective Bargaining. (3) I, II.

Mr. Prasow

Prerequisite: course 150.

Theory and practice of collective bargaining; mediation and arbitration of industrial disputes; grievance procedures and administration of labor-management agreements; government intervention in collective bargaining.

170. Economics of Industrial Control. (3) I, II.

Mr. Pegrum

The institutional patterns of regulation; the economics of industrial production and pricing; the control of competitive enterprise, combinations and monopolies and their control; governmental regulation and economic planning.

171. Public Utilities. (3) I.

Mr. Stanton

The economics of public service corporations; the economic problems of regulation; state and national problems arising from the development of public utilities; public ownership.

173. Economics of Transportation. (3) I, II.

Mr. Pegrum

The economic characteristics of transport; the functions of the different transportation agencies; rate structures; problems of state and federal regulation; coordination of facilities. The current transportation problem.

174. Ocean Transportation. (3) I.

Historical development of ships and shipping; trade routes; principles of ocean transportation; rates and documentation; ports and terminals; subsidies; American Merchant Marine; coordination of transportation.

195. Principles of International Trade. (3) I, II. Mr. Allen, Mr. Gorter

An introduction to the principles and mechanisms of international trade; foreign exchange, the balance of payments, comparative costs, the exchange of goods and services and the gain from trade. Effects of trade restrictions. Analysis of selected current international economic problems and policies in the light of the principles presented.

196. International Trade Policies. (3) II.

Mr. Gorter

Prerequisite: course 195 or consent of the instructor.

Governmental regulations of international transactions. Bilateral and multilateral trade agreements. Import quotas. Dumping and international cartels. International commodity agreements. The international trade of planned economies. The development of United States foreign trade policy and its impact upon the world economy. The General Agreement on Tariffs and Trade.

197. International Finance. (3) I.

Mr. Allen

Prerequisite: course 135 or 195.

The mechanics of international capital movements. International investment and national welfare. The problem of loan repayment. The International Monetary Fund, the Export-Import Bank, and the International Bank for Reconstruction and Development.

199. Special Problems in Economics. (1-3) I, II.

The Staff

Admission by special arrangement with the appropriate instructor and the chairman of the department.

GRADUATE COURSES

- 201A-201B. **Price and Distribution Theory.** (3-3) Yr. Mr. Alchian
(Formerly 251A-251B.)
202. **Macro-Economics: Theory of Employment, Income and Money.** (3)
(Formerly 255.) Mr. Brunner
203. **Analytical Methods and Concepts. Seminar.** (3)
(Formerly 257.) Mr. Alchian, Mr. Brunner
250. **History of Economic Thought. Seminar.** (3) Mr. Allen, Mr. Homan
Prerequisite: Economics 103 or consent of the instructor.
- *252. **Recent Trends in Economic Thought. Seminar.** (3) Mr. Homan
- *253. **Economic Policy. Seminar.** (3) II. Mr. Homan and the Staff
254. **Economic Fluctuations and Growth. Seminar.** (3) Mr. Brunner
256. **Statistical Economics. Seminar.** (3) Mr. Alchian
- *258. **Monetary Policy. Seminar.** (3) Mr. Homan
- 260A-260B. **Industrial Organization, Price Policies and Regulation.**
Seminar. (3-3) Yr. Mr. Pegrum
Students may repeat 260B for credit with consent of the instructor.
261. **Public Finance. Seminar.** (3) Mr. Stockwell
262. **Evolution of Economic Institutions in the United States. Seminar.**
(3) Mr. Scoville, Mr. Stout
263. **Evolution of Economic Institutions in Western Europe. Seminar.**
(3) Mr. Scoville
- *264. **Economics of Welfare. Seminar.** (3) _____
- *265. **Theories and Problems of Economic Planning. Seminar.** (3) _____
- 266A-266B. **International Economics. Seminar.** (3-3) Yr. Mr. Gorter
- 268A-268B. **Economic Growth of Underdeveloped Areas. Seminar.**
(3-3) Yr. Mr. Allen, Mr. Stout
- *270A-270B. **History and Problems of Organized Labor. Seminar.** (2-2) Yr. _____
- 271A-271B. **Wage Theory and Wage Policies. Seminar.** (3-3) Yr.
Mr. Hildebrand
- *272. **Industrial Relations. Seminar.** (3) _____
- *273. **Social Insurance. Seminar.** (2) _____
290. **Special Problems.** (1-6 units each semester) I, II. The Staff

* Not to be given, 1956-1957.

EDUCATION

- Francis L. Bacon, M.A., L.H.D., LL.D., *Visiting Professor of Education.*
 Warren B. Baller, Ph.D., *Visiting Professor of Education.*
¹Jesse A. Bond, Ed.D., *Professor of Education and Director of Training.*
¹William S. Briscoe, Ed.D., *Professor of Education.*
 John A. Hockett, Ph.D., *Professor of Education and Associate Director of Elementary Training.*
 David F. Jackey, Ph.D., *Professor of Education.*
 Einar W. Jacobsen, Ph.D., *Visiting Professor of Education.*
 B. Lamar Johnson, Ph.D., *Professor of Education and Assistant Director of Training.*
 Edwin A. Lee, Ph.D., *Professor of Education (Chairman of the Department).*
 Malcolm S. MacLean, Ph.D., *Professor of Education.*
 F. Dean McClusky, Ph.D., *Professor of Education.*
 Lloyd N. Morrisett, Ph.D., *Professor of Education.*
 David G. Ryans, Ph.D., *Professor of Education.*
 May V. Seago (May V. Seago Gowan), Ph.D., *Professor of Education.*
 Corinne A. Seeds, M.A., *Professor of Elementary Education and Principal of the University Elementary School.*
 Paul H. Sheats, Ph.D., *Professor of Education.*
 Lawrence E. Vredevoe, Ph.D., *Professor of Education.*
 Samuel J. Wanous, Ph.D., *Professor of Business Education and Office Management.*
¹Flaud C. Wooton, Ph.D., *Professor of Education.*
 ———, *Visiting Professor of Education.*
 Katherine L. McLaughlin, Ph.D., *Professor of Education, Emeritus.*
 Junius L. Meriam, Ph.D., *Professor of Education, Emeritus.*
 Charles Wilken Waddell, Ph.D., *Professor of Education, Emeritus.*
 J. Harold Williams, Ph.D., *Professor of Education, Emeritus.*
 Fredrie P. Woellner, Ph.D., LL.D., *Professor of Education, Emeritus.*
 Melvin L. Barlow, Ed.D., *Associate Professor of Education.*
 Wilbur H. Dutton, Ed.D., *Associate Professor of Education and Associate Director of Secondary Training.*
 Clarence Fielstra, Ph.D., *Associate Professor of Education.*
 Abbott Kaplan, Ph.D., *Associate Professor of Education.*
 Evan R. Keislar, Ph.D., *Associate Professor of Education.*
 George F. Kneller, Ph.D., *Associate Professor of Education.*
 Donald A. Leton, Ph.D., *Assistant Professor of Education.*
 William H. Lucio, Ph.D., *Associate Professor of Education and Assistant Director of Training.*
 Lorraine M. Sherer, Ed.D., *Associate Professor of Education.*
 Harvey L. Eby, Ph.D., *Associate Professor of Education, Emeritus.*
 Ethel I. Salisbury, M.A., *Associate Professor of Elementary Education, Emeritus.*
¹A. Garth Sorenson, Ph.D., *Assistant Professor of Education.*
 ———, *Assistant Professor of Education.*
 ———, *Assistant Professor of Education.*
- ◇
- Aubrey L. Berry, Ed.D., *Lecturer in Education.*

¹ In residence fall semester only, 1956-1957.

- Attilio Bissiri, Ed.D., *Lecturer in Education, Physical Sciences.*
 Howard A. Campion, Ed.D., *Lecturer in Education.*
 Helen Christianson, Ph.D., *Lecturer in Education and Supervisor of Early Childhood Education.*
 Robert B. Haas, Ed.D., *Lecturer in Education.*
 Lyle Herbst, M.A., *Lecturer in Education, Life Sciences.*

Training Department

- Jesse A. Bond, Ed.D., *Director of Training.*
 John A. Hockett, Ph.D., *Associate Director of Elementary Training.*
 Wilbur H. Dutton, Ed.D., *Associate Director of Secondary Training.*
 B. Lamar Johnson, Ph.D., *Assistant Director of Junior College Training.*
 William H. Lucio, Ph.D., *Assistant Director of Elementary Training*

Supervisors of Training

- Elizabeth K. Cooper, Ed.D., *Elementary.*
 Ruth H. Drewes, M.A., *Elementary.*
 Evelyn W. Lindstrom, A.B., *Elementary.*
 Jo M. Stanchfield, A.B., *Elementary.*
 Winifred P. von Boenigk, A.B., *Elementary.*



- Freeman Ambrose, M.A., *Secondary, English.*
 Attilio Bissiri, Ed.D., *Secondary, Mathematics and Science.*
 Helen Chute Dill, M.A., *Secondary, Music.*
 Marie S. Drent, B.A., *Secondary, Communication Skills.*
 Donald T. Handy, Ed.D., *Secondary, Physical Education for Men.*
 Allen A. Hogle, A.B., *Secondary, Social Studies.*
 Cecelia Irvine, Ph.D., *Secondary, Social Studies.*
 Oscar M. Jiminez, A.B., *Secondary, Foreign Languages.*
 Edward B. Johns, Ed.D., *Secondary, Health Education.*
 Ethel M. Martin, Ed.B., *Secondary, Home Economics.*
 Ralph A. Masteller, M.A., *Secondary, Business Education.*
 Ellen C. Millisor, Ed.D., *Secondary, Physical Education for Women.*
 Gladys G. Wilson, M.A., *Secondary, Art.*

UNIVERSITY ELEMENTARY SCHOOL

- Corinne A. Seeds, M.A., *Principal.*
 Helen Sue Read, B.S., *Supervisor.*
 Helen Christianson, Ph.D., *Supervisor of Early Childhood Education.*
 Sterling S. Stott, M.A., *Counselor.*
 Diana W. Anderson, M.A., *Supervisor, Physical Education.*
 Sandra R. Bernstein, A.B., *Demonstration Teacher, Third Grade.*
 Lola C. Binney, B.S., *Supervisor, Third Grade.*
 Cynthiana Brown, M.A., *Demonstration Teacher, First Grade.*
 Edwin D. Cooke, Jr., A.B., *Demonstration Teacher, Fifth Grade.*
 Eleanore Cornberg, A.B., *Demonstration Teacher, Kindergarten.*
 Charlotte A. Crabtree, M.A., *Demonstration Teacher, Sixth Grade.*
 Janet R. Ecki, A.B., *Demonstration Teacher, Second Grade.*
 Emma S. Griffith, M.A., *Supervisor, Fifth Grade.*
 Marjorie F. Kluth, M.A., *Supervisor, Music.*

- Mee Lee Ling, A.B., *Supervisor, Second Grade.*
 Blanche Ludlum, M.A., *Supervisor, Nursery School.*
 Penrod Moss, A.B., *Supervisor, Fifth Grade.*
 Robert W. Reynolds, A.B., *Supervisor, Art.*
 Bernice K. Shorter, M.A., *Demonstration Teacher, Fourth Grade.*
 Jean W. Staude, A.B., *Demonstration Teacher, Nursery School.*
 Jane Bernhardt Stryker, M.A., *Supervisor, Kindergarten.*
 Dorothy Tait, A.B., *Supervisor, Fourth Grade.*
 Margaret F. Tougaw, B.Ed., *Supervisor, First Grade.*
 Ruth S. White, M.A., *Supervisor, Elementary School.*

City Training Schools

ELEMENTARY SCHOOLS

- Alice B. Armstrong, A.B., *Principal, Brockton Avenue Elementary School.*
 George F. Grimes, M.S., *Principal, Nora Sterry Elementary School.*
 Esther McGinnis, B.Ed., *Principal, Clover Avenue Elementary School.*
 Genevieve L. McMahon, A.B., *Principal, Fairburn Avenue Elementary School.*
 Amber Mildred Wilson, B.S., *Principal, Warner Avenue Elementary School.*

Training teachers and demonstration teachers in these schools are carefully chosen for their ability as teachers and as supervisors by the University supervisory staff and approved by the public school authorities. The personnel varies from year to year.

JUNIOR AND SENIOR HIGH SCHOOLS

- James W. Lloyd, M.A., *Principal, University High School.*
 Carroll O. Lockridge, M.A., *Vice-Principal, University High School.*
 Doris H. Miller, M.S., *Vice-Principal, University High School.*
 Frances C. Brooks, A.B., *Counselor, University High School.*
 Thomas A. Campbell, M.A., *Principal, Emerson Junior High School.*
 Jotty Falvo, M.A., *Vice-Principal, Emerson Junior High School.*
 Mabel-Ella Campbell, M.A., *Vice-Principal, Emerson Junior High School.*
 Margaret A. Ruenitz, M.A., *Counselor, Emerson Junior High School.*
 John C. Holt, M.Ed., *Principal, Los Angeles High School.*
 Robert J. Purdy, A.B., *Principal, Webster Junior High School.*

The secondary training staff consists of about two hundred public school teachers chosen for their ability as teachers and as supervisors by the University supervisory staff and approved for such service by the public school authorities. Each ordinarily assumes responsibility for the training of not more than three student teachers at any one time.

Letters and Science List.—Courses 101, 102, 106, 110, 111, 130, 170, 197A and 197B are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

The Major.—An undergraduate major is not offered in the Department of Education at Los Angeles. Students desiring to qualify for certificates of completion leading to teaching and administration credentials should consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

UPPER DIVISION COURSES

Junior standing is prerequisite to all courses in education except course 106 and 180 which are open to high sophomores.

History and Theory of Education

101. **History of Education. (3) I.** Mr. Wooton
The development of educational thought and practice viewed as a phase of the history of Western civilization.
102. **History of Education in the United States. (3) II.** Mr. Barlow
The development of significant educational movements in America as a basis for analysis of present-day problems.
106. **Principles of Education. (3) I, II.** Mr. Kneller, Mr. MacLean
A critical analysis of the forces behind educational practice in America.

Educational Psychology

Psychology 1A, and either 1B or 33, or the equivalent, are prerequisite to all courses in educational psychology.

110. **The Conditions of Learning (3) I, II.** Miss Seagoe, Mr. Leton
Prerequisite: courses 106, 111.
Analysis of the conditions of learning as they apply to teaching.
111. **Growth and Development of the Child. (3) I, II.** Mrs. Sherer, ———
A study of physical, mental, emotional, and social development during childhood and adolescence with implications for education. Particular attention is given to problems of mental hygiene during the critical growth periods. Four periods of observation of children are required during the course in addition to regular class meetings.
112. **Adolescence. (3) I, II.** Mr. Keislar
Physical, mental, and social development during adolescence, personality formation and the learning process in relation to the secondary school.
114. **Educational Statistics. (2) I.** Mr. Ryans
Elementary descriptive statistical procedures and sampling error theory through simple analysis of variance and Chi square as applied to educational problems. Lecture and laboratory.
This course is a prerequisite for course 200A-200B, which is required of all candidates for the M.A. and Ed.D. degrees. Also, prerequisite for courses 119 and 210C-210D.
116. **The Education of Exceptional Children. (3) I.** Mr. Baller
Prerequisite: course 111 or 112 or the equivalent.
The characteristics of and educational provisions for exceptional children, including the mentally and physically handicapped, the gifted, and the delinquent.
- 117A-117B. **Principles of Guidance. (2-2) Yr.** Mr. Sorenson, Mr. Barlow
The philosophy, techniques, and present practices of guidance as applied to the problems of pupil personnel and counseling in the public schools.
The emphasis will be upon educational guidance in 117A; upon vocational guidance in 117B.

119. **Educational Measurement. (3) II.** Mr. Ryans
Prerequisite: course 114 or the equivalent.
Introduction to achievement test construction, elementary theory of measurement, survey of measurement techniques, critical study of typical tests and inventories used for estimating aptitude, achievement, attitudes, temperaments, and interests. Lecture and laboratory.

Early Childhood Education

- 123. Social Backgrounds of Child Development.** (3) I. Miss Christianson
Prerequisite: Psychology 1A and either 1B or 33.
A study of the social and emotional development of young children from infancy through early childhood as affected by varying factors in environment and guidance in the family, neighborhood, school, and community. Class work includes field trips to child health and welfare agencies, nursery schools and kindergarten-primary grades.
- 124. Arts in Childhood Education.** (3) II. Miss Christianson
Prerequisite: course 111 or the equivalent.
A study of young children and the arts as they contribute to personality development and social integration. Exploratory and creative uses of art media, building blocks, and nature materials; significance of dramatic play as a means of expression; spontaneous beginnings of music through sound experimentation, bodily rhythms, chants, and songs.
- 128A. Kindergarten-Primary Education.** (3) I, II. Mrs. Sherer
Prerequisite: course 111; Art 330 (Kindergarten-Primary) must be taken concurrently.
Organization, curricula, and procedures in the kindergarten and primary grades. Includes audio-visual work, observations at the Demonstration School, and classroom observations and/or participation in teaching. One period each week in addition to class meetings is required for these experiences.
- 128B. Kindergarten-Primary Education.** (3) I, II. Mrs. Sherer
Prerequisite: courses 111 and 128A.
Deals with children's literature, and with reading from a developmental standpoint from pre-reading experiences through the early stages of reading. One hour per week in addition to regular class meetings should be allowed for work-type experiences, including observation, participation in teaching and laboratory experiences.
- 130. Elementary Education.** (3) I, II. Mr. Hockett, Mr. Lucio
The aims, functions, and work of the elementary school in the United States, with special reference to the needs of elementary school teachers.
- 135. Curriculum for Mentally Retarded Children.** (3) II.
Prerequisite: courses 116; 111 or 112. Mr. Leton, ———
Organization, curricula, and procedures in classes for the mentally retarded.
- 139. The Elementary Curriculum.** (4) I, II. Mr. Dutton
Prerequisite: courses 111, 110.
Current conceptions of the content and organization of the elementary school curriculum, with emphasis upon the place of the skills in the total school program. In addition to the regular class hours, students must plan for two hours each week for participation in West District schools.

Educational Administration and Supervision

- 140. The Teacher and Administration.** (2) I, II. Mr. Berry
The teacher considered as a part of the educational system, and his responsibilities to the organization.
- 141. Administration of City School Systems.** (2) I, II. Mr. Jacobsen
Prerequisite: one year of teaching experience.
The principles of efficient school administration as exemplified in the practices of progressive cities.

- 142. State and County School Administration.** (2) I, II. Mr. Jacobsen
Prerequisite: consent of the instructor.
The organization and administration of state school systems, with special reference to the interrelation of federal, state, and county support and organization.
- 145. Problems in Public School Finance and Business Administration.**
(2) I, II. Mr. Briscoe, _____
Prerequisite: consent of the instructor.
Methods and problems of financing public education, including a study of the principles of public school business administration, preferred practice, and procedure.
- 147. Audio-Visual Education.** (2) I, II. Mr. McClusky
A course designed to acquaint teachers with the theories and methods of visual instruction and to furnish experience in the utilization of audio-visual aids.
- 148. Legal Bases of Public Education in California.** (2) I, II.
Prerequisite: consent of the instructor. Mr. Briscoe, _____
Organization and administration of the California school system, as given in the school law of the State and as interpreted by the rulings of the State Superintendent of Public Instruction and the Attorney General.

- 149. Field Work.** (2-4) I, II. Mr. Morrisett, Miss Seagoe
Prerequisite: Section 1. Course 243A-243B or 246.
Section 2. Course 117A-117B or 217A-217B, and approval by the Selection and Counseling Service of the School of Education.
- Section 1. Public School Supervision and Administration.** Mr. Morrisett
Supervised field work in public schools. Limited to candidates for appropriate credentials in Supervision or Administration.
- Section 2. General Pupil Personnel Services.** Miss Seagoe
Supervised field work in public schools and other community agencies. Limited to candidates for appropriate credentials in General Pupil Personnel Services.

Vocational Education

- 160. Vocational Education.** (2) I, II. Mr. Jackey
The economic and social significance of vocational education in a democracy, with particular reference to principles underlying education of less than college grade for agriculture, commerce, homemaking, and industry.
- 165. Business Education.** (3) II. Mr. Wanous
The organization, administration, and teaching of business education in secondary schools.
- 166DE. Administration and Supervision of Distributive Education.** (3) I.

Development, philosophy, and objectives of distributive education, with special emphasis on supervisory techniques and coordination of cooperative training and evening extension programs. For coordinators, and instructors for secondary, junior college, and adult level programs.

Secondary Education

- 170. Secondary Education.** (3) I, II. Mr. Vredevoe, _____
Prerequisite: Psychology 1A and either 1B or 33 or the equivalent.
A study of secondary education in the United States, with reference to the needs of junior and senior high school teachers. Special consideration is given to the different areas of the secondary school program and the imperative needs of youth.

Social and Adult Education

180. **Social Foundations of Education.** (3) I, II. ———, Mr. Kaplan
Education as a factor in social evolution. Analysis of current educational practices in the light of modern social needs.
181. **Adult Education.** (2) II. Mr. Haas, Mr. Kaplan
An analysis of the adult education movement to ascertain principles for organizing and conducting special and evening classes for mature students. Problems and methods of citizenship, Americanization, and vocational and liberal education will be considered.
194. **Principles of Guidance in the Elementary School.** (2) I. Mr. Leton
Prerequisite: courses 111 and 119.
This course includes the study of the functions of guidance personnel, the organization and administration of effective guidance programs, application of evaluation techniques, school records, techniques of child study, the in-service training of teachers, and parent education.
- 197A-197B. **Comparative Education.** (2-2) Yr. Mr. Kneller
A study of educational ideas and practices in the major countries of the world, with special emphasis on postwar developments and their implications for American education. 197A deals with the Western countries; 197B with the Near and Far East.

Special Studies in Education

Open to senior and graduate students with the consent of the instructor.

- 199A. **Studies in Business Education.** (2-4) I, II. Mr. Wanous
- 199B. **Studies in Curriculum.** (2-4) I, II.
Mr. Fielstra, Mr. Hockett, Mr. Lucio, Mr. Dutton
- 199C. **Studies in Educational Psychology.** (2-4) I, II.
Miss Seagoe, Mr. Ryans, Mr. Keislar
- 199D. **Studies in History of Education.** (2-4) I. Mr. Wooton
- 199E. **Studies in Educational Administration** (2-4) I, II.
Mr. Briscoe, Mr. Jacobsen, Mr. Morrisett, Mr. Vredevoe
- 199F. **Studies in Guidance.** (2-4) I, II. Mr. MacLean, Mr. Sorenson
- 199G. **Studies in Elementary School Supervision.** (2-4) I, II.
Mr. Fielstra, Mr. Hockett, Mr. Lucio, Miss Seeds
- 199H. **Studies in Audio-Visual Education.** (2-4) I, II. Mr. McClusky
- 199I. **Studies in Adult Education.** (2-4) I, II.
Mr. Haas, Mr. Kaplan, Mr. Sheats
- 199J. **Studies of Nursery-Kindergarten Education.** (2-4) I, II.
Miss Christianson, Mrs. Sherer
- 199K. **Studies in Vocational Education.** (2-4) I, II.
Mr. Barlow, Mr. Campion
- 199L. **Studies in Junior College Education.** (2-4) I, II. Mr. Johnson
- 199M. **Studies in Philosophy of Education.** (2-4) I, II. Mr. Kneller

GRADUATE COURSES

200A-200B. Fundamentals of Educational Research. (2-2) Yr.

Mr. Ryans and the Staff

Prerequisite: course 114 or Psychology 105A, or equivalent. 200A is prerequisite for 200B. Required of all candidates for the M.A. degree in Education and the Ed.D. degree.

Considers research reporting, including bibliographical techniques, presentation of data, the application of the scientific method to educational research, theory of research, experimental design, techniques for gathering data, and interpretation of results. Lectures; nonscheduled laboratory.

201. History of Education. (2) I.

Mr. Wooton

A survey of educational ideas and practices in the history of Western civilization. In general, not open to students with credit for Education 101.

202. History of Education in the United States. (2) II.

Mr. Barlow

A survey of educational ideas and practices in the history of America. In general, not open to students with credit for Education 102.

206A-206B. Philosophy of Education. Advanced. (2-2) Yr.

Mr. Kneller

Prerequisite: course 206A is prerequisite to course 206B.

A critical analysis of philosophic and related forces determining American educational policy and practice.

208A-208B. Social and Civic Foundations of Education. (2-2) Yr.

Mr. Kaplan, ———

Prerequisite: courses 106 and 180 or the equivalent.

Analysis of educational policies and procedures as they are affected by social and economic trends in American life.

209A-209B. The Junior College. (2-2) Yr.

Mr. Johnson

A study of the history, function, organization, and program of the junior or community college, and of the technical institute. For students interested in or contemplating teaching in the junior college.

210C-210D. Advanced Educational Psychology. (2-2) Yr.

Mr. Keislar

Prerequisite: courses 110 and 111, or 112 and 117A; 114 and 119, or the equivalent. Education 210C or 210B is prerequisite to 210D.

Exploration and critical study of current literature and research in educational psychology. This course replaces the former Education 210A-210B. Students who have credit for Education 210A will not receive credit for 210D; those who have credit for 210B will not receive credit for 210C.

217A-217B. Principles of Guidance. Advanced. (2-2) Yr.

Prerequisite: courses 110, 117A, 119. Mr. Sorenson, Mr. MacLean

The philosophy, organization, and operation of student personnel work. Designed as a part of special preparation for students intending to make counseling and guidance in school and college their profession. Admission on consultation with the instructor.

221A-221B. Secondary Education. Advanced. (2-2) Yr.

Mr. Vredevoe

Prerequisite: courses 106, 170.

21A is a critical study of basic issues and problems related to secondary education. 221B emphasizes purposes, methods, instruments, and types of evaluative programs for secondary schools. Course 221A is prerequisite to course 221B.

- 224A-224B. Vocational Education. Advanced. (2-2) Yr.** Mr. Barlow
Prerequisite: course 160 or the equivalent.
An advanced course in the principles of vocational education, designed especially for supervisory and administrative personnel and candidates for the doctorate in education. Admission upon consultation with the instructor.
- 226A-226B. Business Education. (2-2) Yr.** Mr. Wanous
For teachers and students of graduate standing interested in problems related to the organization and supervision of business training on high school and junior college levels. Admission on consultation with the instructor.
- 240A-240B. Organization and Administration of Education. (2-2) Yr.** Mr. Briscoe, Mr. Jacobsen
Prerequisite: courses 141 and 145, or the equivalent. 240A is prerequisite to 240B.
An advanced course in the organization and administration of public education in the United States. Required of all candidates for the doctorate in education. Open to teachers of experience who wish to qualify for the administration credentials.
- 241A-241B. School Surveys. (2-2) Yr.** Mr. Morrisett
A critical study of the techniques and findings of school surveys combined with practice in making studies of school systems. Admission on consultation with the instructor. Not open for credit to students who have credit for Education 241C-241D.
- *241C-241D. School Surveys. (2-2) Yr.** Mr. Barlow
A critical study of the techniques and findings of vocational education surveys for school systems. The emphasis will be upon techniques and practice in 241C; upon evaluation, follow-up, supervision, and administrative implication in 241D. Not open for credit to students who have credit for Education 241A-241B.
- 243A-243B. Administration of Secondary Education. (2-2) Yr.** Mr. Vredevoe
For teachers of experience who desire to qualify for the secondary school supervision or secondary school administration credential. Admission on consultation with the instructor
- 246. Administration of Elementary Education. (2) I.** Mr. Lucio
For teachers of experience who desire to qualify for the elementary school supervision or elementary school administration credential. Problems in organization and administration of the modern elementary school. Admission on consultation with the instructor.
- 247A-247B. Audio-Visual Education. Advanced. (2-2) Yr.** Mr. McClusky
For supervisors and administrators dealing with the problems involved in developing programs of visual education on the various levels in public school education. Admission on consultation with the instructor.
- 250A-*250B. History of Education. Seminar. (2-2) Yr.** Mr. Wooton
Prerequisite: courses 101 and 102, or 201 and 202, or the equivalent.
Limited to candidates for advanced degrees.
Specialized studies in the history of education.

* Not to be given, 1956-1957.

251A-251B. Supervision of Instruction and Curriculum. Seminar.

(2-2) Yr.

Mr. Fielstra

Open to superintendents, principals, supervisors, training teachers, and other students of graduate standing interested in the intensive study of the organization, administration, practices, and current problems of supervision of instruction. Admission on consultation with the instructor.

253A-253B. Early Childhood Education. Seminar. (2-2) Yr. Mrs. Sherer

For graduate students whose major interest is in the nursery school, kindergarten, or primary education. Admission on consultation with the instructor.

254A-254B. Experimental Education. Seminar. (2-2) Yr. Mr. Ryans

Prerequisite: courses 110, 114, 119, 200A-200B. (210A-210B or 210C-210D is desirable.)

Considers the planning of experimental and differential research.

***254C-254D. Experimental Education. Seminar. (2-2) Yr. Mr. Ryans**

Prerequisite: courses 110, 114, 119, 200A-200B. (210A-210B or 210C-210D is desirable.)

Considers the construction of aptitude tests, achievement tests, questionnaires, rating devices, and attitude scales.

255A-255B. School Administration. Seminar. (2-2) Yr.

Mr. Morrisett, Mr. Jacobsen

Prerequisite: a teaching credential and course 141 or the equivalent. Limited to candidates for the master's or doctor's degree whose major interest is school administration.

256A-256B. Philosophy of Education. Seminar. (2-2) Yr. Mr. Kneller

Prerequisite: course 106 or the equivalent; 206A-206B or the equivalent.

Limited to candidates for advanced degrees whose major interest is philosophy of education. Admission by consent of instructor.

257A-257B. Audio-Visual Education. Seminar. (2-2) Yr. Mr. McClusky

Prerequisite: course 147 or the equivalent.

Limited to candidates for advanced degrees whose major interest is audio-visual education and to students desiring to carry on research in this area.

260A-260B. Educational Psychology. Seminar. (2-2) Yr. Miss Seagoe

Prerequisite: course 210A-210B, 210C-210D, or the equivalent.

Limited to candidates for the master's or doctor's degree whose major interest is educational psychology and to students desiring to carry on research in this area.

262A-262B. The Elementary School Curriculum. Seminar. (2-2) Yr.

Mr. Hockett

Prerequisite: course 139 or the equivalent. For teachers, curriculum workers, administrators, and other graduate students interested in the intensive study of curriculum problems in the elementary school. Admission on consultation with the instructor.

266A-266B. Vocational Education and Guidance. Seminar. (2-2) Yr.

Mr. Campion

For graduate students whose major interest is in vocational education, vocational guidance, or closely related problems. Admission on consultation with the instructor.

* Not to be given, 1956-1957

- 267. Research Problems in Education. Seminar. (2) II.** Mr. Ryans
Prerequisite: course 254A-B-C-D.
Limited to graduate students whose major interest is in educational research.
The course content is different in alternate years. In even-numbered years the problems studied and the procedures employed in collegiate bureaus of educational research will be considered. In odd-numbered years the seminar will deal with the problems investigated and methodologies employed in public school research. Admission for one or both years on consultation with the instructor.
- 270A-270B. Secondary Education. Seminar. (2-2) Yr.** Mr. Vredevoe
Prerequisite: course 170. Limited to candidates for the master's or doctor's degree whose major interest is in secondary education, and to students desiring to pursue research in this area. Admission by consent of the instructor.
- 275A-275B. The Secondary School Curriculum. Seminar. (2-2) Yr.**
Mr. Fielstra
Prerequisite: course 170 or the equivalent. For teachers, curriculum workers, administrators, and other graduate students interested in the intensive study of curriculum development on the secondary school level, with emphasis on current problems and trends.
- 276A-276B. Research in Curriculum. (1-4; 1-4) Yr.** Mr. Fielstra
Prerequisite: course 275A or 275B.
For graduate students who desire to pursue independent research in the curriculum.
- 277A-277B. Counseling Theory and Practice. Seminar. (2-2) Yr.**
Mr. MacLean
Prerequisite: courses 117A-117B, 217A-217B, or the equivalent.
Limited to candidates for advanced degrees whose major interest is counseling, and to selected high school and college counselors. Admission on consultation with the instructor.
- 279A-279B. The Junior College. Seminar. (2-2) Yr.**
Mr. Johnson, Mr. MacLean
Prerequisite: course 209A-209B or the equivalent.
For graduate students whose major interest is higher education. In 1956-1957 the emphasis will be upon the junior college, the technical institute, or closely related areas of study. In 1957-1958 the emphasis will be upon college and university problems. Admission for one or both years on consultation with the instructor.
- 281A-281B. Adult Education. Seminar. (2-2) Yr.**
Mr. Sheats, Mr. Kaplan
Prerequisite: course 181 or the equivalent. For teachers, supervisors, administrators, and lay leaders interested in professional problems in adult education.
- 292A-292B. Research in Educational Administration. (1-4; 1-4) Yr.**
Mr. Briscoe, Mr. Morrisett, Mr. Jacobsen
Prerequisite: teaching experience in elementary or secondary schools.
- 298A-298B. Research in Education. (2-6; 2-6) Yr.** The Staff
Limited to candidates for the Doctor of Education degree who have been advanced to candidacy.

COURSES PREPARATORY TO SUPERVISED TEACHING

330. Teaching in Elementary Schools. (4) I, II.

Miss Seeds

Prerequisite: courses 110, 111, and a C average or better for all work taken in the University of California.

Teaching and learning in the elementary school. Preparation of curriculum materials; study of procedures and methods, including the evaluation of outcomes. Prerequisite to all supervised teaching for the Kindergarten-Primary or General Elementary credentials. The course prepares for and leads to definite placement in supervised teaching. Three hours of participation in Social Studies are required each week. Only 2 units of credit given if Education 131A has been completed previously.

370. Teaching in Secondary Schools. (3) I, II.

Mr. Bond, ———

Prerequisite: senior standing, Education 170, or 209A and one course selected from the following courses: 101, 102, 106, 112, 119, 140, 180.

Teaching and learning in the secondary school. Preparation of curriculum materials; study of procedures and methods, including the evaluation of outcomes. Prerequisite to all supervised teaching for the general secondary or junior college credentials. The course prepares for and leads to definite placement in supervised teaching.



Other courses in teaching methods in special subjects will be found listed in the 300 series, Professional Courses in Method, in the offerings of the various departments, and in the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

SUPERVISED TEACHING

All candidates for supervised teaching must secure approval of Selection and Counseling Service at least one semester prior to application for assignment.

Supervised teaching is provided in (1) the University Elementary School, comprising a nursery school, kindergarten, and the elementary grades; (2) a number of especially selected elementary and secondary schools in Los Angeles and Santa Monica. Special provisions for demonstration have been made at the University Elementary School and at the following schools in Los Angeles City: Warner Avenue Elementary School, Emerson Junior High School, Webster Junior High School, and University High School.

The work in supervised teaching is organized and administered by the directors of training and a corps of supervisors and training teachers, chosen by the University authorities.

All candidates for supervised teaching must obtain the recommendation of a University physician prior to assignment. Formal application for assignment must be made at the Office of the Director of Training about the middle of the semester preceding that in which such teaching is to be done.

Undergraduate candidates for kindergarten-primary, elementary, and special secondary teaching must have maintained at least a C average in all courses in education, in all courses comprising the major, and in all work completed at the University of California.

*For Permit to Teach in Child Care Centers***N334. Supervised Teaching in the Nursery School. (2-4) I, II.**

Open to candidates seeking permit to teach in child-care centers, and to others preparing to teach in nursery schools, parent-child observation classes, and parent cooperatives. Does not meet the requirement in supervised teaching for kindergarten-primary or general elementary credentials.

For Kindergarten-Primary and General Elementary Credentials

- K335A-K335B. Supervised Teaching: Kindergarten-Primary. (4-4) I, II.**
Prerequisite: senior standing, Education 128A, 128B, Art 330, Music 330, and Physical Education 330.
Required of all candidates for the kindergarten-primary credential. One of the teaching assignments must be in the kindergarten and the other in grades 1, 2, or 3.
- K336. Supervised Teaching: Kindergarten-Primary. (1-4) I, II.**
Supplementary teaching which may be elected by the student or, in certain cases, required by the department.
- E335A-E335B. Supervised Teaching: General Elementary. (4-4) I, II.**
Prerequisite: senior standing, Education 139 and 330, Art 330, Music 330, and Physical Education 330.
Required of all candidates for the general elementary credential. One of the assignments will be in the upper elementary grades and the other in a lower elementary grade.
- E336. Supervised Teaching: General Elementary. (1-4) I, II.**
Supplementary teaching which may be elected by the student or, in certain cases, required by the department.

For Special Secondary Credentials

- Art**—A year sequence of 3 units per semester (total of 6 units) is required as follows:
- A375. Supervised Teaching in Art. (3) I, II.**
Prerequisite: senior standing, Education 170, Art 370A, approval of the Department of Art and the Director of Training.
- and*
- A376. Supervised Teaching in Art. (3) I, II.**
Prerequisite: senior standing, Education 170, Art 370A-370B, 375, approval of the Department of Art and the Director of Training.
- Business Education**—A year sequence of 3 units per semester (total of 6 units) is required as follows:
- B375 and B376. Supervised Teaching in Business Education. (3-3) I, II.**
Prerequisite: senior standing, Education 170, 4 units from Business Education 370A, 370B, 370C, 370D, 2 of which may be taken concurrently with Education B375, approval of the Department of Business Education and the Director of Training.
- Home Economics**—A year sequence of 3 units per semester (total of 6 units) is required as follows:
- H375. Supervised Teaching in Home Economics. (3) I, II.**
Prerequisite: senior standing, Education 170, Home Economics 370, approval of the Department of Home Economics and the Director of Training.
- and*
- H376. Supervised Teaching in Home Economics. (1-3) I, II.**
Prerequisite: senior standing, Education 170, Home Economics 370, approval of the Department of Home Economics and the Director of Training.

Music—A year sequence of 3 units per semester (total of 6 units) is required as follows:

M375. Supervised Teaching in Music. (3) I, II.

Prerequisite: high junior standing, Music 369, approval of the Department of Music and the Director of Training.

and

M376. Supervised Teaching in Music. (3) I, II.

Prerequisite: senior standing, Education 170, Music 369, 370, M375, approval of the Department of Music and the Director of Training.

Mentally Retarded—

MR376. Supervised Teaching: Mentally Retarded. (4) I, II.

Prerequisite: Education 135; and at least 8 units of supervised teaching for the general elementary credential or 6 units for the general secondary credential.

MR376 does not displace any portion of the required 8 units of student teaching for the general elementary credential or 6 units for the general secondary credential.

Physical Education—A year sequence of 3 units per semester (total of 6 units) is required as follows:

P375 and P376. Supervised Teaching in Physical Education. (3-3) I, II.

Prerequisite: senior standing, Education 170, Physical Education 370 (Men), or 326A-326B and 327A-327B (Women); approval of the Department of Physical Education and the Director of Training.

Speech Correction—

SC376. Supervised Teaching: Speech Correction. (4) I, II.

Prerequisite: Speech 142A-142B; and at least 8 units of supervised teaching for the general elementary credential or 6 units for the general secondary credential.

SC376 does not displace any portion of the required 8 units of student teaching for the general elementary credential or 6 units for the general secondary credential.

For General Secondary Credentials

A year sequence of 3 units per semester (total of 6 units) is required as follows:

Required for the University-Recommended General Secondary Credential

G377—Supervised Teaching, Major; and G378—Supervised Teaching, Minor: General Secondary. (3-3) I, II.

General prerequisites: regular graduate status, Education 170, 370.

Special methods courses in majors and in minors as follows: Art: courses 370A, 370B; Business Education: 2 units from Business Education 370A, 370B, 370C, 370D; English (and Speech): English 370; French: course 370; German: course 370; Health Education: Physical Education 145B; Home Economics: course 370; Mathematics: course 370; Music: course 370; Physical Education (Men): courses 370, 145B; Physical Education (Women): courses 326A-326B, 327A-327B; Spanish: course 370 (may be taken concurrently with supervised teaching); Speech and Speech-English: Speech 370.

Approval of the department of the undergraduate major subject and consent of the Director of Training.

*Required for the General Secondary Credential, Students in
Unclassified Graduate Status*

384A—Supervised Teaching, Major; and 384B—Supervised Teaching, Minor: General Secondary. (3-3) I, II.

General prerequisites: unclassified graduate status, Education 170, 370.

Special methods courses in majors and in minors as follows: Art: courses 370A, 370B; Business Education: 2 units from Business Education 370A, 370B, 370C, 370D; English (and Speech): English 370; French: course 370; German: course 370; Health Education: Physical Education 145B; Home Economics: course 370; Mathematics: course 370; Music: course 370; Physical Education (Men): courses 370, 145B; Physical Education (Women): courses 326A-326B, 327A-327B; Spanish: course 370 (may be taken concurrently with supervised teaching); Speech and Speech-English: Speech 370.

Scholarship averages:

- 1) 1.5 or better in all courses comprising the undergraduate college major subject
- 2) 1.5 or better in all upper division courses
- 3) 1.5 or better in all courses subsequent to the bachelor's degree.

Approval of the department of the undergraduate major subject and consent of the Director of Training.

Supplementary Teaching

383. Supervised Teaching. Supplementary teaching in any secondary field. (1-6) I, II.

Prerequisite: previous student teaching or regular public school teaching experience; Education 170; and consent of the Director of Training.

For the School Psychologist Credential

SP376. Supervised Teaching: School Psychologist. (4) I, II.

Prerequisite: at least 4 units of supervised teaching for the general elementary credential or 3 units of supervised teaching for the general secondary credential, and Psychology 167A.

For the Junior College Credential

G379. Supervised Teaching: Junior College. (4) I, II.

Prerequisite: regular graduate status, Education 209A or 209B and 370; approval of the department concerned and consent of the Director of Training. Restricted to candidates for the junior college credential alone, who intend to teach classes in a junior college.

For the Junior High School Credential

J374. Supervised Teaching: General Junior High School. (2-6) I, II.

Prerequisite: course E335A-E335B or a minimum of 6 units of teaching in a special field.

Supervised Teaching for More Than One Credential

1. **Kindergarten-Primary and General Elementary Credentials:**
Education K335A-K335B and E335A; or E335A-E335B and K335A.

2. **General Elementary and General Junior High School Credentials:**
E335A-E335B and J374 (in a minor field).
3. **General Elementary and Special Secondary Credentials:**
A minimum of 6 units of teaching in the special field, and E335A.
4. **General Elementary and General Secondary Credentials:**
E335A-E335B and G377 or G378; or G377, G378, and E335A.
5. **Special Secondary and General Junior High School Credentials:**
A minimum of 6 units of teaching in the special field, and J374 (in a minor field).
6. **Special Secondary and General Secondary Credentials:**
A minimum of 6 units of teaching in the special field, and G378.
7. **Junior College and General Secondary Credentials:**
G379 and G377, or G378, or 384A, or 384B.

ENGINEERING

- Morris Asimow, Ph.D., *Visiting Professor of Engineering.*
- Roy Bainer, M.S., *Professor of Engineering and Professor of Agricultural Engineering, Resident at Davis.*
- *John Landes Barnes, Ph.D., *Professor of Engineering.*
- †Ralph M. Barnes, Ph.D., *Professor of Engineering and Professor of Production Management.*
- Richard Bellman, Ph.D., *Visiting Professor of Engineering.*
- L. M. K. Boelter, M.S., *Professor of Engineering (Chairman of the Department).*
- A. W. Boldyreff, Ph.D., *Visiting Professor of Engineering.*
- George Brown, Ph.D., *Visiting Professor of Engineering and Visiting Professor of Mathematics.*
- Harry W. Case, Ph.D., *Professor of Engineering and Professor of Psychology.*
- Reno Cole, M.S., *Visiting Professor of Engineering.*
- Edward P. Coleman, Ph.D., *Professor of Engineering.*
- *C. Martin Duke, M.S., *Professor of Engineering.*
- Alan E. Flanigan, Ph.D., *Professor of Engineering.*
- H. Kurt Forster, Ph.D., *Professor of Engineering.*
- Hans Friedrich, Ph.D., *Visiting Professor of Engineering.*
- Louis L. Grandi, M.S., *Professor of Engineering.*
- W. D. Hershberger, Ph.D., *Professor of Engineering.*
- Martin R. Huberty, Engr., *Professor of Engineering and Professor of Irrigation.*
- *Walter C. Hurty, M.S., *Professor of Engineering (Vice-Chairman of the Department).*
- W. Julian King, M.E., *Professor of Engineering.*
- Tung Hua Lin, D.Sc., *Professor of Engineering.*
- *Joseph F. Manildi, Ph.D., *Professor of Engineering.*
- †Wendell E. Mason, M.S., M.E., *Professor of Engineering (Vice-Chairman of the Department).*
- John H. Mathewson, M.S., *Professor of Engineering.*

* Absent on leave, 1956-1957.

† Sabbatical leave in residence fall semester, 1956-1957.

‡ In residence fall semester only, 1956-1957.

- John W. Miles, Ph.D., *Professor of Engineering.*
 Wesley L. Orr, C.E., *Professor of Engineering (Vice-Chairman of the Department).*
 Russell L. Perry, M.E., *Professor of Engineering and Professor of Agricultural Engineering.*
 Arthur F. Pillsbury, Engr., *Professor of Engineering and Professor of Irrigation.*
 Louis A. Pipes, Ph.D., *Professor of Engineering.*
 Thomas A. Rogers, Ph.D., *Professor of Engineering.*
 *Daniel Rosenthal, Ph.D., *Professor of Engineering.*
 Howard S. Seifert, Ph.D., *Visiting Professor of Engineering.*
 William F. Seyer, Ph.D., *Professor of Engineering.*
 Francis R. Shanley, B.S., *Professor of Engineering.*
 A. H. Reesor Smith, B.A., *Visiting Professor of Engineering.*
 John B. Smyth, Ph.D., *Visiting Professor of Engineering.*
 Craig L. Taylor, Ph.D., *Professor of Engineering and Professor of Physiology.*
 Edward H. Taylor, M.S., *Professor of Engineering.*
 William T. Thomson, Ph.D., *Professor of Engineering.*
 Baldwin M. Woods, Ph.D., *Professor of Engineering, Emeritus.*
 *Samuel Terrill Yuster, Ph.D., *Professor of Engineering.*
 Abe M. Zarem, Ph.D., *Visiting Professor of Engineering.*
 Charles T. Boehnlein, Ph.D., *Associate Professor of Engineering.*
 John Brahtz, Ph.D., *Associate Professor of Engineering.*
 Harry Buchberg, M.S., *Associate Professor of Engineering.*
 Albert F. Bush, M.S., *Associate Professor of Engineering.*
 Bonham Campbell, A.B., E.E., *Associate Professor of Engineering.*
 *John M. English, Ph.D., *Associate Professor of Engineering.*
 John C. Harper, D.Sc., *Associate Professor of Engineering.*
 Thomas E. Hicks, Ph.D., *Associate Professor of Engineering.*
 Richard D. Johnston, M.S., *Associate Professor of Engineering.*
 Ellis F. King, M.S., E.E., *Associate Professor of Engineering.*
 William J. Knapp, D.Sc., *Associate Professor of Engineering.*
 Joseph W. McCutchan, M.S., *Associate Professor of Engineering.*
 Bruce R. Mead, Ph.D., *Associate Professor of Engineering.*
 *John R. Moore, B.S., *Visiting Associate Professor of Engineering.*
 George E. Mount, Ph.D., *Associate Professor of Engineering and Associate Professor of Psychology.*
 John M. Salzer, D.Sc., *Visiting Associate Professor of Engineering.*
 Frederick W. Schott, Ph.D., *Associate Professor of Engineering.*
 *DeForest L. Trautman, Ph.D., *Associate Professor of Engineering.*
 Myron Tribus, Ph.D., *Associate Professor of Engineering.*
 William D. Van Vorst, Ph.D., *Associate Professor of Engineering.*
 Willis H. Ware, Ph.D., *Visiting Associate Professor of Engineering.*
 Harold W. Mansfield, *Associate Professor of Engineering, Emeritus.*
 John A. Aseltine, Ph.D., *Visiting Assistant Professor of Engineering.*
 John Baxter, M.S., *Visiting Assistant Professor of Engineering.*
 Andrew Charwat, Ph.D., *Assistant Professor of Engineering.*
 *Thomas J. Connolly, Ph.D., *Assistant Professor of Engineering.*

* Absent on leave, 1956-1957.

† In residence spring semester only, 1956-1957.

- Harold Davis, Ph.D., *Assistant Professor of Engineering.*
 Glen Dodd, M.S., *Visiting Assistant Professor of Engineering.*
 Darell B. Harmon, Ph.D., *Assistant Professor of Engineering.*
 Walter J. Karplus, Ph.D., *Assistant Professor of Engineering.*
 Don Lebell, Ph.D., *Visiting Assistant Professor of Engineering.*
 John H. Lyman, Ph.D., *Assistant Professor of Engineering.*
 David Medved, Ph.D., *Visiting Assistant Professor of Engineering.*
 Montgomery Phister, Jr., Ph.D., *Visiting Assistant Professor of Engineering.*
 Ernest Wade, M.S., *Visiting Assistant Professor of Engineering.*
 *Louis G. Walters, Ph.D., *Assistant Professor of Engineering.*
 Cravens L. Wanlass, M.S., *Visiting Assistant Professor of Engineering.*
 James Wenzel, M.S., *Visiting Assistant Professor of Engineering.*
 George A. Zizicas, Ph.D., *Assistant Professor of Engineering.*
 Miles H. Anderson, Ed.D., *Lecturer in Engineering.*
 Fred H. Blanchard, *Lecturer in Engineering.*
 John C. Dillon, B.S., *Lecturer in Engineering.*
 Milton A. Franks, B.S., *Lecturer in Engineering.*
 Henry C. Froula, M.A., M.S., *Lecturer in Engineering.*
 Lynn Grasshoff, M.S., *Lecturer in Engineering.*
 Richard H. Haase, B.S., M.B.A., *Lecturer in Engineering.*
 Gerald L. Hassler, Ph.D., *Lecturer in Engineering.*
 John R. Huffman, M.S., *Lecturer in Engineering.*
 *Earl Janssen, M.S., *Lecturer in Engineering.*
 Levi J. Knight, M.S., *Lecturer in Engineering.*
 Charles F. Knowlton, Jr., B.S., *Lecturer in Engineering.*
 Russell R. O'Neill, M.S., *Lecturer in Engineering.*
 William C. Pomeroy, Sr., Ph.D., *Lecturer in Engineering.*
 John Rex, A.B., *Lecturer in Engineering.*
 Fred E. Romie, B.S., *Lecturer in Engineering.*
 John M. Server, Jr., B.S., *Lecturer in Engineering.*
 George J. Tauxe, M.S., *Lecturer in Engineering.*
 James R. Allder, M.S., *Associate in Engineering.*
 Robert Brenner, M.S., *Associate in Engineering.*
 Edward C. Deland, M.A., *Associate in Engineering.*
 T. F. Kirkwood, M.A.A.E., *Associate in Engineering.*
 Albert F. Klinge, M.S., *Associate in Engineering.*
 Bernard Kwate, B.S., *Associate in Engineering.*
 Adin E. Mathews, M.S., *Associate in Engineering.*
 William R. Mieks, M.S., *Associate in Engineering.*
 Gerhard F. Paskusz, M.S., *Associate in Engineering.*
 Shirli A. Reithard, M.S., *Associate in Engineering.*
 Allen B. Rosenstein, M.S., *Associate in Engineering.*
 Louis A. Selogie, B.S., *Associate in Engineering.*
 Harry C. Showman, B.S., *Associate in Engineering.*
 John Staudhammer, M.S., *Associate in Engineering.*
 A. S. Odeh, M.S., *Assistant in Engineering.*

Letters and Science List.—Courses 1A, 1B, 2, 4A, 15A-15B, 15AB, 102B, 102C, 155A.

Enrollment in engineering courses is permitted to students from other col-

* Absent on leave, 1956-1957.

leges who are undertaking curricula in which engineering courses are prescribed. A non-engineering student may be admitted to engineering courses by petition approved by the Dean of his College and by the Dean of the College of Engineering. Except for service courses, enrollment in Engineering courses normally is open only to students in the College of Engineering.

SERVICE COURSES

Enrollment in the following courses is open to any University student who is qualified. Service courses may not be accepted toward a degree in Engineering.

1A. Surveying. (3) I, II.

Lecture, two hours; field work, three hours. Prerequisite: trigonometry.

Principles and practices in measurement of distances, directions, and elevations. Construction and use of common surveying instruments, such as tape, compass, level, transit, and plane table. Problems in elementary surveying.

2. Descriptive Geometry. (3) I, II.

Mr. McCutchan in charge

Lecture, one hour; laboratory, five hours. Prerequisite: one year of high school drafting, plane geometry. Recommended: solid geometry.

The principles of descriptive geometry and their application to the solution of engineering problems.

18. Materials of Production and Construction. (3) I.

Prerequisite: Chemistry 1A or 2.

Mr. Knapp in charge

The study of the characteristics and uses of the common materials of production and construction: wood, ferrous and nonferrous metals, concrete, plastics, ceramics, and glass. Processing of these materials.

108D. Properties of Art Ceramic Materials. (3) I.

Mr. Knapp

Prerequisite: Art 117A.

Composition of ceramic materials and products. Properties of ceramic bodies and glazes, and calculation methods for compounding. Occasional field trips will be scheduled. For students in Applied Arts.

149A. Construction Methods and Equipment. (3) II.

Mr. Server

Prerequisite: courses 1A, 18; Business Administration 1A.

A study of building construction procedures and the equipment used for them. Field trips.

149B. Construction Costs and Estimates. (3) II.

Prerequisite: course 149A (may be taken concurrently).

A study of building construction estimates and costs. Practice in the preparation of estimates and bids. Field trips.

LOWER DIVISION COURSES

1B. Surveying. (3) I, II.

Lecture, two hours; field work, three hours. Prerequisite: courses 1A, or 4A, 4B.

Plane and geodetic surveys, triangulation; precise leveling; engineering astronomy; hydrographic surveys; topographic surveys, including application of photogrammetry.

4A. Introduction to Engineering Systems. (3) I, II.

Mr. Grandi in charge

Demonstration and lecture, two hours; laboratory, six hours.

Concurrent or prerequisite: Mathematics 5A, Chemistry 1A.

Introduction to engineering systems. Measurements of geometrical and

performance parameters of such systems as an energy conversion system and a transportation system including both traffic and material flow. Geometrical measurements of the output of a production plant and of land are included. Graphical presentation of results of laboratory measurements. Introduction to the statistical representation of data. Introduction to engineering analysis. Field trips may be scheduled.

4B. Introduction to Design. (3) I, II. Mr. Grandi in charge

Demonstration and lecture, two hours; laboratory, six hours.

Prerequisite: course 4A; concurrent or prerequisite: Mathematics 5B, Chemistry 1B, Physics 1A.

Introduction to elementary design, including experimental design, of a structure, machine, circuit, or process, for the satisfaction of a given need. Graphical computations and analyses and preparation of working drawings and specifications. Introduction to the general method of engineering design. Case studies of engineering designs, including possible field trips.

4C. Introduction to Engineering Materials. (3) I, II.

Mr. Rosenthal, Mr. Grandi

Lecture, two hours; laboratory, three hours.

Prerequisites: course 4B; Chemistry 1B, Physics 1A, Mathematics 5B.

Importance of materials in engineering. Internal structures and general properties of solids, metals, nonmetals (ceramics), natural and synthetic organic materials, fluids. Experimental demonstration of important properties and illustration of their application in engineering, including field trips.

4D. Introduction to Engineering Processes. (3) I, II.

Lecture, one hour; laboratory, six hours. Mr. Grandi in charge

Prerequisite: course 4C.

Concurrent prerequisites: course 15B, Physics 1C, Mathematics 6B.

Manufacturing, construction, chemical and sanitation processes which combine or separate materials, considered as engineering systems. Measurement and control of mechanical and human variables. Field trips may be scheduled.

6. Engineering Drawing. (3) I, II. Mr. McCutchan in charge

Lecture, one hour; laboratory, five hours.

Prerequisite: course 2 or 4B.

An advanced course, based on A.S.A. standards of drawing and drafting room practice, correlating technical sketching and drafting with engineering design and production.

8. Properties of Materials. (2) I, II. Mr. Mead in charge

Prerequisite: Chemistry 1A.

The properties of materials; applications to engineering systems; dependency of properties on internal structure; structures and properties of metals and alloys and their response to thermal and mechanical treatments; structures and properties of nonmetallic materials; properties of fluids; properties and structures of some naturally occurring and synthetic organic materials.

10B. Processing of Engineering Materials. (2) I, II.

Lecture, one hour; laboratory, three hours. Mr. Showman in charge

Prerequisite: course 8 or 4C, Chemistry 1B.

Study of modern manufacturing processes; casting, cutting, plastic working, fastening (welding, riveting), finishing, gaging, introductory quality-control; emphasis in laboratory on mechanical and physical properties as functions of processing variables, and on reporting the results of laboratory investigations orally, by letter, and by formal report.

†12. **Survey and Problems in Agricultural Engineering.** (2) II.

Prerequisite: sophomore standing.

Mr. E. H. Taylor

Historical and modern applications of engineering to farm life. Study of hydrology in relation to agricultural engineering; soil and soil erosion; farm machinery and structure; elementary problems in agricultural power applications and mechanics.

15A-15B. **Elementary Mechanics.** (3-3) Yr. Beginning either semester.

Mr. E. H. Taylor in charge

Lecture, two hours; laboratory, three hours.

This is a unified course covering elementary topics of analytical mechanics and strength of materials.

15A, prerequisite: course 8 or 4C (latter to be taken concurrently), Physics 1A, Mathematics 4A or 6A (may be taken concurrently).

Composition and resolution of coplanar force systems, equilibrium of coplanar force systems, simple stress calculations, frames, continuously distributed loads, moments of areas, beam stresses. Algebraic and graphic methods will be employed.

15B, prerequisite: course 15A, Mathematics 4B or 6B (may be taken concurrently).

Composition and resolution of noncoplanar force systems, equilibrium of noncoplanar force systems, friction, torsion, states of stress and strain, deflection of beams, statically indeterminate beams, combined axial and bending loads, eccentric loads, columns, cables.

15AB. **Elementary Mechanics.** (6) I, II.

Mr. E. H. Taylor in charge

Lecture, three hours; laboratory, six hours.

Prerequisite: course 8 or 4C (latter may be taken concurrently), Physics 1A, Mathematics 4B or 6B (may be taken concurrently).

Combination of courses 15A and 15B.

30. **Elementary Biotechnology.** (3) I, II.

Mr. C. L. Taylor

Prerequisite: Chemistry 1A, Physics 1A, Mathematics 5A or 3B.

Principles of human biology selected as related to engineering and industry. An introduction to the use of anatomical, physiological, and psychological information and methods of analysis in engineering planning, design, and operations.

96. **Engineering in Civilization.** (3) I, II.

Mr. Campbell

Readings selected from the writings of great engineers, scientists, and architects whose work illustrates the influence of engineering and technology on mankind. Attention also given to the general contributions and historical significance of these works. Discussion sessions planned and conducted with the aid of an interdepartmental committee. For students in the College of Engineering.

97. **Elementary Analysis of Engineering Practice.** (3) I, II.

Mr. Knight in charge

Prerequisite: satisfactory completion of one semester's work in residence in the College of Engineering, Los Angeles, and participation in cooperative work-study program in engineering.

Analysis of the physical operation and plant of representative industries or engineering agencies. Role of the engineer in safety, economy, and use of human and natural resources. Written and oral reports required.

† To be given if a sufficient number of students enroll.

UPPER DIVISION COURSES

Satisfactory completion of the Engineering Examination, Upper Division, is prerequisite to all upper division courses.

100A. Circuit Analysis. (3) I, II.

Mr. Schott in charge

Prerequisite: Mathematics 110AB or 110C (may be taken concurrently).

Elements of electrical circuit analysis, with emphasis on solutions of circuit problems; analogues and duals; applications of steady state and transient analysis to linear electrical, mechanical, and thermal systems.

100B. Electrical Machines. (3) I, II.

Mr. Mathews in charge

Prerequisite: courses 100A; 104A (may be taken concurrently).

Study of the principles and applications of the basic types of electrical and electromagnetic machines and equipment, with special emphasis on their use in the conversion of energy. Occasional field trips may be scheduled.

100C. Electrical Power Operation and Distribution. (3) I.

Mr. Grandi

Prerequisite: courses 100B, 104B.

Electrical power generation and distribution systems are considered from the viewpoint of equipment, operations, transmission and distribution, and system economics. Occasional field trips will be scheduled.

***101. Irrigation Institutions and Economics. (2)**

Mr. E. H. Taylor

Water rights, irrigation institutions, and organizations.

102B. Engineering Dynamics. (3) I, II.

Mr. Thomson in charge

Prerequisite: course 15B or a course in analytical mechanics—statics (equivalent to Engineering 35, Berkeley campus), Mathematics 110AB or 110C (may be taken concurrently).

Fundamental ideas of dynamics; kinematics and kinetics of particles and rigid bodies; motion relative to moving reference frames; work-energy and impulse-momentum relationships; an introduction to oscillatory motion. Vector analysis methods are introduced in the treatment of most of these subjects.

102D. Introduction to Mechanical Vibrations. (2) II.

Mr. Thomson

Prerequisite: course 102B.

Introduction to fundamentals of mechanical vibrations, types of oscillatory motions, Fourier components. Study of free and forced vibrations, damping, vibration isolation, balancing of rotors, theory of vibration-measuring instruments. Coupled oscillations, vibration absorbers, and analogies.

103A. Elementary Fluid Mechanics. (3) I, II.

Mr. E. H. Taylor in charge

Prerequisite: courses 102B, 105A. Recommended to be taken concurrently: course 105B.

An introductory course dealing with the application of the principles of mechanics to the flow of compressible and incompressible fluids. Includes hydraulic problems of flow in closed and open conduits. Occasional field trips may be scheduled.

103B. Intermediate Fluid Mechanics. (3) I.

Mr. E. H. Taylor

Prerequisite: courses 103A, 105B.

The dynamics of nonviscous and viscous fluids; potential motion, vortex motion, Navier-Stokes equation, boundary layers, turbulence, compressibility. Emphasis is placed on the applications of theory to various practical systems which involve fluid motion.

* To be given when there is sufficient demand.

104A. Junior Engineering Laboratory. (3) I, II. Mr. E. F. King in charge

Prerequisite: course 100A (may be taken concurrently).

Laboratory, six hours per week. Additional three hours required for preparation, calculations, and reports. Introductory experiments illustrating the properties of engineering materials. Applications of circuit theory to electrical, mechanical, thermal, acoustical, and fluid systems. Measurements and instrumentation. Required and elective experiments. Occasional field trips may be scheduled.

104B. Junior Engineering Laboratory. (3) I, II. Mr. E. F. King in charge

Prerequisite: courses 100A, 104A; 108B (may be taken concurrently).

Concurrent: courses 100B, 103A.

Laboratory, six hours per week. Additional three hours required for preparation, calculations, and reports. Introductory experiments on the operation and application of machines, and on the behavior of engineering structures. Measurements and instrumentation. Occasional field trips may be scheduled.

104C-104D. Senior Engineering Laboratory. (4-4) Yr. Beginning either semester.

Mr. E. F. King in charge

Laboratory, eight hours, some of which may be devoted to lecture and/or demonstration.

Additional four hours required in preparation of reports.

Prerequisite: completion of all required freshman, sophomore, and junior courses.

A year laboratory course containing a group of integrated experiments common to all engineering fields, a group of elective experiments particularly applicable to the several fields of engineering, and a senior project. Occasional field trips may be scheduled.

105A. Heat Transfer and Thermodynamics. (3) I, II.

Mr. Tribus in charge

Prerequisite: Mathematics 110AB or 110C (may be taken concurrently).

Concepts of temperature, heat, and work. First and second laws of thermodynamics. Properties of perfect and real gases. Thermodynamic properties of fluids. Relationships among thermodynamic functions and applications to properties of matter.

105B. Heat Transfer and Thermodynamics. (3) I, II.

Mr. Tribus in charge

Prerequisite: course 105A. Recommended to be taken concurrently: course 103A.

Applications of thermodynamic principles to flow of fluids, compression and expansion processes, vapor and gas power cycles, refrigeration. Heat transfer by conduction, convection, and radiation. Mixtures of gases and vapors, psychrometric principles, thermochemistry and chemical equilibrium, the third law.

†105C. Intermediate Thermodynamics. (3) II.

Mr. Harper

Prerequisite: course 105B.

General treatment of first and second laws, including systems of variable mass and availability concepts. Mathematical relationships among thermodynamic functions, with applications from the areas of chemistry, physics, and engineering. The phase rule, and chemical and physical equilibrium. The third law. Introduction to the kinetic theory of gases, statistical mechanics, and nonequilibrium thermodynamics.

† To be given if a sufficient number of students enroll.

- 106A. Machine Design.** (4) I, II. Mr. Mason in charge
Lecture, two hours; laboratory, six hours.
Prerequisite: courses 6, 102B.
Application of the principles of mechanics, physical properties of materials, and shop processes to the design of machine part; empirical and rational methods are employed; lectures, problems, and projects.
- 106B. Product Design.** (3) II. Mr. Mason in charge
Lecture, one hour; laboratory, six hours.
Prerequisite: course 106A or 106C.
Engineering and economic calculations involved in the design and manufacture of industrial products; design for function, safety, and appearance; sketching and rendering.
- 106C. Structural Design.** (3) I, II. Mr. English in charge
Lecture, two hours; laboratory, three hours.
Prerequisite: courses 107A, 108B.
Design methods and standards for member, connections, and simple structures of reinforced concrete, steel, and timber. General procedures in engineering design. Individual structural design projects.
- 106F. Design of Timber Structures.** (3) I. Mr. Duke in charge
Prerequisite: courses 106C, 107A.
Mechanical properties of wood. Review of design of timber columns and beams. Timber connections, eccentricity, combined stresses. Trusses, panels, diaphragms. Theory and economics of timber design. Experimental stress analysis of timber structures. Special timber design and construction types. Comprehensive advanced design project. Field trips.
- 107A. Analysis of Framed Structures.** (3) I, II. Mr. English in charge
Prerequisite: course 108B.
Analysis of beams and framed structures—simple, compound, and complex; applications of superposition and influence lines; deflections of beams and framed structures. Introduction to analysis of indeterminate beams and framed structures by superposition, energy of strain, slope deflection, and moment distribution methods.
- 107B. Advanced Analysis of Framed Structures.** (3) II. Mr. English in charge
Prerequisite: course 107A.
Extension of principles covered in Engineering 107A to the general solution of more complicated determinate and indeterminate framed structures. Principles of limit analysis of frames and trusses. Analysis of rings and arches including those with variable moment of inertia. Influence lines for indeterminate structures. Safety of structures.
- 107G. Analysis of Shell Structures.** (3) I. Mr. Shanley
Prerequisite: course 108B.
Analysis for shear, bending, and torsional buckling of columns, plates, and shells; properties of aircraft structural materials; brief description of load factors and load distribution for aircraft structures.
- 107H. Elasticity and Plasticity.** (3) II. Mr. Rosenthal
Prerequisite: course 108B; Mathematics 110AB or 110C (may be taken concurrently).
Advanced strength of materials. Experimental and analytical solutions of plane state of stress (strain gage technique, photoelasticity, X-ray stress analysis, etc.). Elements of plasticity. Criteria of flow and fracture.

- 107J. Advanced Analysis of Shell Structures. (3) II.** Mr. Shanley
Prerequisite: course 107G.
Analysis of stiffened and unstiffened shell structures, including frames, bulkheads, cutouts, general instability; pressure loading, allowable stresses, applied buckling theory.
- 108A. Strength of Materials. (3) I, II.** Mr. E. H. Taylor in charge
Prerequisite: course 8 or 4C; a course in analytical mechanics—statistics (equivalent to Engineering 35, Berkeley campus); Mathematics 4B or 6B (may be taken concurrently).
Stress, strain, and elasticity; thin shells, welded and riveted joints; shafts and helical springs; beams, shear, moment, flexural stress, shearing stress, deflection, unsymmetrical loading; column-theory; combined stresses. Not open for credit to students who have had courses 15A or 15B.
- 108B. Strength of Materials. (2) I, II.** Mr. Shanley in charge
Prerequisite: course 15B or 108A, or the equivalent.
Review of stress-strain relationships, including inelastic behavior, strain energy, combined stresses; stress concentration and fatigue; bending theory, including curved beams, inelastic behavior, composite beams, unsymmetrical loading; shear flow theory, including shear center, torsion of thin shells, deflections; inelastic buckling of columns, plates, and shells; energy methods of deflection analysis; introduction to analysis of statically indeterminate structures and relaxation methods.
- 108C. Properties of Ceramic Materials. (3) I.** Mr. Knapp
Prerequisite: senior standing in engineering.
Structure of some ceramic materials in the crystalline and glassy states, and relation to certain physical and chemical properties. Equilibria of ceramic mixtures and certain thermodynamic applications.
- 108G. Introduction to Physical Metallurgy. (3) I, II.** Mr. Flanigan
Lecture, two hours; laboratory, three hours.
Prerequisite: upper division standing in engineering.
A fundamental study of metals and alloys, the dependency of properties on structure, and the influence of mechanical and thermal treatments on structure and properties. Metal crystals. Plastic deformation, work hardening and recrystallization. The role of alloying elements. Alloy diagrams. Precipitation hardening. Transformations in alloys of iron and carbon. Commercial treatments and processes.
- 108H. Processing of Metals. (3) II.** Mr. Asimow
Prerequisite: course 108G.
Metal shaping processes and associated problems involving plastic and fluid flow, heat transfer, metallurgical and chemical reactions, forces and energy. Design of equipment and interrelation of process and product design.
- 108J. Principles of Soil Mechanics. (3) I.** Mr. Tauxe
Prerequisite: courses 103A, 108B; Geology 5 recommended.
Soil as a foundation for structures and as a material of construction. Soil formation, properties, classification, tests. Shear failure and earth pressures. Compaction. Consolidation. Bearing capacity. Stresses in earth masses. Field techniques for exploration and design.
- 109. Irrigation Engineering. (3) II.** Mr. E. H. Taylor
Prerequisite: course 103A (may be taken concurrently).
Use of irrigation water, hydrology of irrigation water supplies; design, operation, and maintenance of irrigation and drainage systems.

110A. Route Surveying. (3) I.

Lecture, two hours; field work, three hours. Prerequisite: course 1B or the equivalent.

Simple, compound, and reversed curves; transition spirals and vertical curves; reconnaissance and preliminary surveys including field work; design of alignment and grades for a proposed route, and preparation of construction plans and profiles.

110B. Higher Surveying and Geodessy. (2) II.

Prerequisite: course 1B, or the equivalent.

Properties of the spheroid, field methods of observation, criteria and tests of acceptable field data, calculation of spherical excess, eccentricity, geodetic formulas, least square adjustment of triangulation, computations of lengths and geodetic positions, computation of coordinates on the Lambert Grid. Occasional field trips may be scheduled.

110C. Photogrammetry and Airphoto Interpretation. (2) II.

Lecture and laboratory.

Prerequisite: courses 1A or 4A and 4B

Fundamental principles of photogrammetry and their uses on engineering projects. Airphoto interpretation related to mapping, location of transportation facilities and drainage. Techniques of measurement on photographs pertaining to distances, directions, and elevations, including laboratory work.

112A. Basic Electronics. (3) I, II.

Mr. E. F. King

Prerequisite: course 100A. Not open for credit to those who have had Physics 118A.

Atomic structure of solids, work function, thermionic and photoelectric emission, secondary emission. Motion of charges in electric and magnetic fields. Physical structure of electron tubes. Characteristic curves. Equivalent circuits, methods of analysis of circuits employing electron tubes. Theory of operation of rectifiers, amplifiers, and oscillators. Application of electron tubes to engineering devices and systems. Occasional field trips and/or guest lectures will be scheduled.

112B. The Communication of Information. (3) I,† II. Mr. Hershberger

Prerequisite: course 112A.

Delineation of the fundamental problem of communication between human beings, with emphasis on factors common to all systems. The course includes a study of information theory, signals and their spectra, and the factors that determine system performance as distortion, element variation, and band width; noise, and the characteristics of the human voice and sense organs. Illustrative material is drawn from telephony, radar, television, computers, and automatic control systems.

112C. Applied Electromagnetic Theory. (3) I, II. Mr. Hershberger

Prerequisite: senior standing in engineering.

Application of electromagnetic theory to engineering problems, including treatment of transmission lines, electromagnetic waves, wave guides, antennas, and cavities.

112D. Nonlinear Electronics. (3) I, II.

Mr. E. F. King in charge

Prerequisite: courses 100A, 112A.

A second course in engineering electronics, with emphasis on electronic circuits. The basic circuits common to all fields of electronics are studied. Course content includes tuned, untuned, small and large signal amplifiers; an introduction to feedback amplifiers; sinusoidal and nonsinusoidal wave gen-

† To be given in the evening.

erators (oscillators) and an introduction to modulation and demodulation circuits. The elements of magnetic amplifiers are studied. Occasional field trips and/or guest lectures may be scheduled.

***113A-113B. The Engineer and His Professional Duties. (2-2) Yr.**

Mr. Boelter in charge

Enrollment limited to twenty students per section.

Prerequisite: senior standing in engineering.

Oral and written reports on various subdivisions of knowledge, with emphasis on the sociohumanistic periphery of engineering. Class meetings will be devoted to the subjects of the history of technology, business organization, personal efficiency, professional codes and ethics, industrial procedures, and engineering-report writing. The course serves as training in the professional duties of the engineer.

120. Principles of Engineering Investment and Economy. (3) I, II.

Prerequisite: courses 100B, 103A, 105B. Mr. English in charge

Derivation of formulas used in investment theory; analysis of financial statements and cost accounting methods; analysis of original and alternative investments; equipment replacement problems; influence of personnel factors; quality control; studies in the economy of governmental projects.

121. Engineering Aerodynamics. (3) I, II.

Mr. Hurty

Prerequisite: course 103A (may be taken concurrently); Mathematics 110AB or 110C.

Physical properties of air, Bernoulli's theorem, aeronautical nomenclature, experimental methods, airfoil characteristics, induced angle of attack, induced drag, aspect ratio effects, scale effect, compressibility effects, airfoil selection, high lift devices, aircraft engines and propellers from the viewpoint of airplane performance, static stability and control.

130A. Environmental Biotechnology. (3) I. Mr. C. L. Taylor in charge

Prerequisite: course 105A (may be taken concurrently), Physics 1D, Mathematics 6B.

Physical, physiological, and psychological phases of the interaction between man and thermal, atmospheric, radiant, and mechanical agents and energies in the environment. Emphasis is laid upon the requirements for adequate environment control by engineering means.

130B. Machine and Systems Biotechnology. (3) II.

Mr. C. L. Taylor in charge

Prerequisite: junior standing in engineering.

Introduction to the methods and results pertinent to engineering design which involve the man-machine relationship. Discussion of modes of analysis and representative applications to visual, auditory, and other sensory displays. Limits of human capacity for correlating and applying information as functional links in engineering systems. Occasional field trips may be scheduled.

131A. Industrial Sanitary Engineering. (3) I.

Mr. Bush

Prerequisite: senior standing in engineering.

Quantitative consideration of industrial environment. Evaluation of atmospheric contaminants, sampling methods and analysis, design of ventilation systems (hoods, local exhaust principles, exhausters and collectors), airflow measurements, industrial atmospheric pollution regulations. Consideration of fundamentals of problems of evaluation, disposal of liquid and solid waste involving the design of disposal systems.

* 118A to be given fall and spring semesters; 118B to be given when there is sufficient demand.

- 143A. Oil Field Development. (3) I.** Mr. Yuster
Prerequisite: course 103A; course 105B (may be taken concurrently).
Origin, accumulation, and properties of petroleum; petroleum reservoirs, exploration methods, drilling methods, mud technology, well completion, logging methods, and core analysis. Field trips will be made.
- 143B. Oil and Gas Production. (3) II.** Mr. Yuster
Prerequisite: course 143A or consent of the instructor.
Oil and gas production mechanisms; internal gas drive, water drive, gravity drainage, recycling; thermodynamic relations, reservoir forces, fundamental equations, secondary recovery. Occasional field trips will be scheduled.
- 145. Tool Engineering. (3) II.** Mr. Asimow
Lecture, two hours; laboratory, two hours.
Prerequisite: course 106A (may be taken concurrently).
The selection of tooling for production; design of tools, jigs, fixtures, dies, and production-type gages; design of tooling for automatic machines, design of assembly tooling. Field trips will be scheduled.
- 148A. Elements of Construction. (3) I.** Mr. Duke
Lecture, two hours; laboratory and field trips, three hours.
Prerequisite: senior standing in engineering.
Anatomy of the industry, contracts, costs and economics, equipment and materials, construction methods, field engineering techniques, engineering analysis of current construction projects in the vicinity.
- 150. Engineering Aspects of Chemical Processes. (3) II.** Mr. Connolly
Prerequisite: course 105A; Chemistry 110A recommended.
A synthesis of the elements of design of chemical process systems, including the chemical reaction, reaction rates, thermochemistry, energy and mass balances, process equipment. A review of the unit processes and unit operations comprising chemical process systems. A survey of the organic, inorganic, and biochemical processes of principal economic importance in the United States.
- 151A. Industrial Heat Transfer. (3) I.** Mr. Romie
Prerequisite: course 105B; Mathematics 110AB or equivalent.
The study of the basic principles of heat transfer and their application to the design of industrial equipment. Steady state and transient problems of conduction by analytical and numerical methods. Free and forced convection. Transfer of radiant energy.
- 152A. Industrial Mass Transfer. (3) I.** Mr. Harper
Prerequisite: course 105B.
Physical and thermal properties of fluids; basic principles of unit operations; molecular and eddy diffusion; mass, heat, and momentum transfer; application to evaporation and psychrometric unit operation, cooling towers, etc.
- †152B. Industrial Mass Transfer. (3) II.** Mr. Harper
Prerequisite: course 152A or consent of the instructor.
Study of unit operations involving principles of mass transfer as well as heat and momentum transfer; distillation, absorption, extraction, adsorption, drying, evaporation, etc. Occasional field trips may be scheduled.
- 153. Thermal and Luminous Radiation. (3) II.** _____
Prerequisite: course 105B.
The spectral characteristics of sources and receptors of ultraviolet, visible, and infrared radiation; the spectral behavior of transmitters, reflectors

† To be given if a sufficient number of students enroll.

tors, and absorbers; gaseous radiation; geometry of radiant systems; measurement of radiation; analysis of heat transfer systems involving radiation; illumination.

155A. Engineering Aspects of Nuclear Processes. (3) I. Mr. Connolly

Prerequisite: senior standing in engineering, physics, or chemistry.

Introduction to the basic engineering principles involved in the design of nuclear reactors. Will include a review of basic physics required for engineering applications, diffusion of neutrons, reactor mechanics, and heat transfer problems in reactor design. The atomic energy program and its influence in various fields of engineering will be discussed.

156. Aircraft Propulsion and Power. (3) II. Mr. W. J. King

Prerequisite: course 105B, 103A.

A survey of theory, practice, limitations, and trends of future developments in the field of aircraft propulsion, including all types of primary and auxiliary power plant, but with particular emphasis upon gas turbines and jet propulsion.

170. Sales Engineering. (3) I. Mr. Case

Lecture, three hours.

Prerequisite: senior standing in engineering.

The principles of engineering sales will be illustrated by the case method. The selection and assembly of prefabricated components in the solution of a production and construction problem. Presentation of the service function as it is related to sales engineering. Field trips may be arranged.

171. Engineering Organization and Administration. (3) II. Mr. Case

Prerequisite: senior standing in engineering.

The principles of organization and administration as applied to engineering in industry will be considered. Special problems pertaining to the use of organization charts, the assignment of administrative responsibility, the engineering use of job descriptions, job evaluation, job analysis, and efficiency surveys as well as problems pertaining to the selection, training, and supervision of technical employees will be discussed.

172. Principles of Industrial Safety. (3) II. Mr. Mathewson

Prerequisite: junior standing in engineering.

Delineation of the over-all accident prevention problem, with emphasis on industrial concepts. Analysis and synthesis of all major elements, e.g., statistical methods, plant layout, machine and process control devices and safeguards, applicable laws and codes, nuclear radiation and other occupational health hazards, engineering and medical controls, explosion and fire prevention and protection, industrial traffic and safety organization.

174. Highway Transportation Systems. (3) I. Mr. Mathewson

Prerequisite: senior standing in engineering.

Fundamental aspects of streets and highways as transportation facilities; planning, financing, location, economics, geometric design, and physical characteristics. Traffic surveys and instrumentation; traffic control and related devices; applications of statistical techniques to traffic problems.

180. Advanced Kinematics of Mechanisms. (3) II. Mr. Boelter in charge

Prerequisite: course 102B.

Analysis and synthesis of fundamental types of mechanisms, including electric, magnetic, pneumatic, and hydraulic links. Both graphical and analytical methods are used. Applications will be considered to such devices as instruments, servomechanisms, calculating machines, conveyors, and printing presses. A field trip will be scheduled during the spring recess.

181A. Linear System Solutions by Transform Methods. (3) I, II.

Mr. Schott in charge

Prerequisite: courses 100A, 102B, 104A; Mathematics 110C or 110AB.

Formulation and solution of equations of behavior of linear electrical, mechanical, and thermal systems by the Laplace-transformation method. Applications of the transform method to lumped-parameter systems.

181C. Analysis of Servomechanisms. (3) I, II. Mr. Walters in charge

Prerequisite: course 181A.

The fundamentals of servomechanisms, including the theory of dynamic stability, analysis of servomechanisms on the transient-time-response and frequency-response bases, with applications to airplane dynamics, autopilots and computers; nonlinear elements.

181D. Analog Computations. (3) I, II. Mr. Rogers in charge

Prerequisite: Mathematics 110C or equivalent; courses 112A, 181A recommended.

A detailed study of the theory, operation, and application of analog computing devices such as the mechanical differential analyzer, thermal analyzer, network analyzer, and electronic computers and simulators. Engineering problems will be used to illustrate the operation and limits of accuracy of each device.

182A. Mathematics of Engineering. (3) II. Mr. Pipes

Prerequisite: course 181A; Mathematics 110AB or 110C.

Applications of mathematical methods to engineering problems are considered, involving systems whose parameters are "lumped" and whose mathematical formulation leads to the solution of ordinary differential or difference equations. Typical problems in the fields of electrical, mechanical, and civil engineering are discussed and used to introduce and illustrate the mathematical techniques involved.

182B. Mathematics of Engineering. (3) I. Mr. Pipes

Prerequisite: course 182A.

Applications of mathematical methods to engineering problems are considered, involving systems whose parameters are "distributed" and whose mathematical formulation leads to the solution of partial differential equations. The engineering problems are used to introduce and illustrate the mathematical procedures and are chosen from the fields of electrical, mechanical, and civil engineering.

183A. Engineering Statistics. (3) I, II‡. Mr. Coleman in charge

Lecture, two hours; laboratory, two hours.

Prerequisite: Mathematics 6B or equivalent.

Fundamental concepts and applications of probability and statistics including the population (system), sample, parameter, statistic, tests of hypotheses, confidence limits, and associated risks. Efficient computational procedures. Illustrations and engineering applications to research, design, development, production and reliability in industry.

183B. Engineering Statistics. (3) I‡, II‡. Mr. Coleman in charge

Lecture, two hours; laboratory, two hours.

Prerequisite: course 183A or the equivalent.

Bivariate normal distribution, regression, and correlation. Analysis of variance, covariance, and design of experiments. Contingency tables, chi-square tests, runs, and tests of randomness. Illustrations, applications in industrial research development, production and reliability.

‡ To be given in the evening.

197. Advanced Analysis of Engineering Practice. (3) I, II.

Mr. Knight in charge

Prerequisite: junior standing and participation in the cooperative work-study program in engineering.

Analysis and synthesis of engineering systems in industry and government, including prediction of performance and costs. Role of the engineer in design, production, and management. Written and oral reports.

198. Directed Group Studies for Upper Division Students. (1-5) I, II.

Mr. Boelter in charge

Prerequisite: senior standing in engineering; enrollment subject to approval of instructor in charge.

Group study of selected topics. Study groups may be organized in advanced engineering subjects upon approval of instructor in charge. Occasional field trips may be arranged.

The following study groups will be made available during the fall semester, 1956, and are indicative of the material which may be offered for the spring semester, 1957:

Networks, Part I, (3)

Turbomachinery and Gas Turbines: Principles of Analysis and Design, Parts I-II. (3-3)

Boundary Layer Theory with Applications to Aerodynamics. (3)

Applications of Electronic Circuits to Engineering Data. (3)

Introduction to Electronic Digital Computing Systems. (3)

Design of Optical Systems. (3)

Sampled-Data Systems and Digital Computers. (3)

Introduction to X-ray Diffraction. (3)

Introduction to Transistor Electronics. (3)

Advanced Design Techniques for Feedback Control Systems. (3)

Intermediate Circuit Theory. (3)

Systems Engineering, Operations Research. (3)

Earthquake and Blast-Resistive Design. (3)

Stochastic Processes in Engineering. (3)

The Logical Design of Digital Computing Machinery. (3)

Dynamic Programming. (3)

Architectural Background for Structural Engineers. (1)

Nonlinear Differential Equations in Engineering. (3)

Basic Magnetics. (3)

Optimum Structural Design. (2)

Hypersonic Aerodynamics. (3)

Traffic and Material Flow Systems. (3)

Inelastic Behavior of Structures. (2)

Computing Systems Design. (3)

Fundamentals of Corrosion. (3)

Digital Computers and Systems. (3)

199. Special Studies or Research for Advanced Undergraduates. (1-5) I, II.

Mr. Boelter in charge

Prerequisite: senior standing in engineering; enrollment subject to approval of instructor in charge.

Individual study and/or research on a problem normally chosen from a restricted departmental list. Enrollment is subject to the scholarship requirements imposed by the instructor concerned. Occasional field trips may be arranged.

GRADUATE COURSES

Courses in the 200 series are open only to regular graduate students and in each case the consent of the instructor must be secured. Courses will be offered only if there is sufficient demand.

200A-200B. Analytical Methods of Engineering. (3-3) Yr.

Mr. Forster in charge

Prerequisite: Mathematics 110D or the equivalent.

Application of mathematical methods to engineering problems; basic problems in the fields of fluid dynamics, heat conduction, and electromagnetic theory will be discussed.

210A-210B. Properties of Engineering Materials. (3-3) Yr.

Mr. Rosenthal in charge

Prerequisite: graduate standing in engineering.

The purpose of this course is to derive the usable properties of engineering materials from the more fundamental properties of matter. The fall semester will include: brief introduction on modern atomic physics, structure of solids (X rays), cohesive strength, and specific heat. The spring semester will be devoted to conductivity (conductors and semi-conductors), dielectric and magnetic properties. The final part of the course will deal with nonelastic behavior of solids (flow, fatigue, brittleness).

220A-220B. Fluid Dynamics. (3-3) Yr.

Mr. Miles, Mr. Taylor

Prerequisite: course 103A or the equivalent; vector algebra; partial differential equations.

Vector calculus; equations of conservation of mass, momentum, and energy for an inviscid fluid; potential and stream functions; application of complex variable theory to two-dimensional, incompressible flow; airfoil theory; free streamline problems; vortex motion; surface waves; equations of viscous, incompressible flow; very viscous flow; boundary layer theory; gas dynamics of the convergent-divergent nozzle; hodograph method; characteristics method.

†270A-270B-270C. Executive Engineering. (2-4; 2-4; 2-4) 3 semesters, beginning in the fall.

Mr. J. L. Barnes in charge

Prerequisites: acceptance to the Engineering Executive Program.

Devoted to the development and application of quantitative methods in the analysis and resolution of engineering executive problems. Initially, emphasis will be on the acquisition of a necessary degree of skill in the evaluation of recently developed analytical tools; for example, computing machine techniques, linear (and non-linear) programming, statistical methods, and communications theory. The emphasis will then shift to: (1) operations analysis; (2) case studies illustrative of the synthesis of available knowledge to produce a useful output; and (3) methods and effects of automation. Finally, the emphasis will be on the use of inductive reasoning in approaching administrative and executive problems, and the optimization of output with respect to cost-time-material-manpower.

†271A-271B. The Engineer in the General Environment. (2-4; 2-4) Yr.

Mr. Lyman in charge

Prerequisite: acceptance to the Engineering Executive Program.

Influences of history, literature, and human relations on the development and utilization of natural and human resources; the role of the engineer in applying both quantitative and historical methods to such problems as transportation, water supply, etc., in the local, national, and international communities.

† Open only to Engineering Executive Program students. Consult the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

†272A-272B. **The Engineer in the Business Environment.** (2-4; 2-4)

Mr. Manildi in charge

Prerequisite: acceptance to the Engineering Executive Program.

Theory of accounting. Analysis of financial statements with special reference to their use in and effect on engineering activity; economy of the business enterprise; organization and management of engineering activity; the relationship of the engineering function with the sales, marketing, production and financing functions.

†297. **Project Studies in Engineering Systems.** (1-4) I, II.

Mr. Boelter in charge

Prerequisite: acceptance to the Engineering Executive Program.

Studies of actual engineering systems. Technical, economic and human factors involved in the system will all be considered with particular emphasis on the interrelationship among these factors.

298. **Seminar in Engineering.** (1-5) I, II.

Mr. Boelter in charge

Seminars may be organized in advanced technical fields. Course may be repeated provided no duplication exists. Occasional field trips may be arranged.



The following seminars will be made available during the year, 1956-1957; the fall semester, 1956; and the spring semester, 1957.

Year, 1956-1957

Feedback Control Systems. (3) I, II.

Mr. Walters

Prerequisite: course 181C.

A survey of the literature in the field of automatic control systems, with particular emphasis on analytical techniques.

Advanced Biotechnology. (3) I, II.

Mr. C. L. Taylor, Mr. Lyman

Prerequisite: course 130A-130B, or consent of the instructor.

Analysis and synthesis of biotechnical aspects of engineering design and planning. Rationale and procedures for evaluating and solving environmental and man-machine problems of technology.

Fall Semester, 1956

Aircraft Preliminary Design. (3)

Mr. Brahtz

This course will be a coordinated continuous series of lectures covering the major aspects of aircraft preliminary design. The lectures will be presented by specialists from both industry and the University of California, Los Angeles. Students will be given weekly problem assignments in each area of preliminary design, plus a final course project.

Applied Physics in Engineering Research. (2)

Mr. Foster

A great number of problems in applied physics connected with engineering research will be discussed and worked out. Primarily a problem course.

Advanced Engineering Statistics. (2)

Mr. Brown

Prerequisite: courses 183A-183B.

The application of advanced statistical methods to engineering systems; extensions and additions to standard techniques covered in courses 183A-183B.

† Open only to Engineering Executive Program students. Consult the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

Mechanics of Deformable Solids. (3)

Mr. Zizicas

Prerequisite: course 108B; Mathematics 110AB or 110C; or the equivalent.

A unified graduate course dealing with the deformation of solids in both the elastic and inelastic range. Directional dependence of three-dimensional stress and strain. Stress-strain relations in the elastic and inelastic range. Differential formulation of three-dimensional elastic problems. Variational formulation of elastic problems. Differential formulation of inelastic problems. Variational formulation of inelastic problems. Typical applications to accommodate the interests of the class.

Mass Transfer. (3)

Mr. Harper

Prerequisite: courses 151A or 152A or consent of the instructor.

General principles of diffusional and mass transfer processes. Analogies among mass, heat, and momentum transfer in convection. Applications to processes such as evaporative cooling, diffusional separations, adsorption, absorption, etc.

Modern Developments in High Speed Aerodynamics. (3)

Mr. Miles

Prerequisite: consent of the instructor.

Equations of compressible flow, method of characteristics, shock and blast waves, hodograph method, linearized theory in steady and unsteady flow, boundary layers.

Microwave Research Topics. (3)

Mr. Hershberger

Prerequisite: course 112C or equivalent.

Properties of materials at microwave frequencies, selective absorption in gases and solids, paramagnetic resonance, behavior and uses of ferrites.

Advanced Topics in Vibrations. (3)

Mr. Thomson

Prerequisite: elementary vibrations.

Advanced topics relating to current vibration problems. Structures under random excitation, curved thin plates and cylinders, vibration synthesis by receptance, transients in continuous structures.

The Thermodynamics of Josiah Willard Gibbs. (3)

Mr. Tribus

Prerequisite: consent of the instructor.

A detailed study of the thermodynamic reasoning employed by Josiah Willard Gibbs in his famous papers on "Equilibrium," and "Properties of Substances."

Information Theory. (3)

Mr. J. L. Barnes

Prerequisite: course 181A and B.S. degree in engineering, physics, or mathematics.

Engineering investigation of information sources, processors, storers, transporters and sinks, with emphasis on the mathematical statistical aspects.

Spring Semester, 1957

Engineering Administration. (3)

Mr. Case

Prerequisite: course 171 or the equivalent (administrative experience).

Analysis of problems in engineering administration. The development of the philosophy and operational technique of an engineering administrative system. Research and reading in the field with preparation and analysis of case studies.

The Analysis of Heat Convection. (3)

Mr. Tribus

Prerequisite: course 151A or consent of the instructor.

A review of recent developments in the calculation of free and forced convection in various systems, including liquid metals.

Principles of Structural Safety. (3)

Mr. English

Prerequisite: courses 107A or 107G, 183A.

Structural safety is defined in terms of the economic consequences of failure or collapse. A statistical approach is made to the determination of suitable design factors for various structures subjected to uncertain loading conditions. The effects on required design factors of probable distributions of strength, control of tolerances, redundancy of structure and design inaccuracies are discussed and evaluated. Comparisons of actual failure probabilities for structures of several specific uses are made. Correlation with the principle of ultimate load design will be investigated.

Thermodynamics in Physical Metallurgy. (3)

Mr. Flanigan

Prerequisite: bachelor's degree in engineering, physics, or chemistry and at least one prior course in physical metallurgy such as 108G.

The first, second, and third laws. Fugacity, activity, and the equilibrium constant. Solutions. Phase relations, heterogeneous equilibria. Electrochemistry. Applications to metallurgical calculations.

Applications of Electromagnetic Theory. (3)

Mr. Hershberger

Prerequisite: course 112C or equivalent.

Wave guides and cavity resonators; the radiation, propagation and diffraction of electromagnetic waves.

The Dynamics of Real Fluids. (3)

Mr. Charwat

Prerequisite: course 103A or equivalent; partial differential equations; vector algebra; or consent of instructor.

Theoretical treatment of laminar or turbulent, incompressible and compressible viscous flow. Approximate solutions and important empirical work are to be included. The fundamental aspects of several related problems, viz.: heat transfer by forced convection, statistical theories of turbulence, flow of rarefied gases, etc., are to be outlined.

Rigid Body Dynamics. (3)

Mr. Thomson

Prerequisite: elementary dynamics.

Generalized coordinates, Lagrange's equation, Euler's equation, applications to gyroscopes and missiles.

Advanced Engineering Topics in Vibrations and Wave Propagation. (3)

Prerequisite: consent of instructor.

Mr. Miles

The goal of this course is a complete reading and discussion of Rayleigh's *Theory of Sound*, Volumes I and II, except Chapter XXIII (physiological acoustics).

Advanced Soil Mechanics. (3)

Mr. Tauxe

Prerequisite: course 108J, Mathematics 110AB or 110C, or equivalents.

Stress-strain relations; soil properties; bearing capacity; slope stability; seepage and flow nets; consolidation and settlement; soil stabilization; and highway, runway, and earth dam subgrades and fills.

299. Research in Engineering. (1-5) I, II.

Mr. Boelter in charge

Investigation of advanced technical problems. Occasional field trips may be arranged.

Theory of Plates. (3)

Mr. Zizicas

Prerequisite: course 108B, Mathematics 110C or 110AB, or the equivalent.

Small and large deflections of thin isotropic elastic plates. Thin anisotropic elastic plates. Thick plates. Sandwich plates. Inelastic deformations of plates. Both differential (equilibrium) and variational (energy) approach to be followed. Typical examples and applications to accommodate the interests of the class.

Transients in Linear Fields. (3)

Mr. J. L. Barnes

Prerequisite: course 181A and B.S. degree in engineering, physics, or mathematics.

Formulation and solution of equations of behavior of distributed linear invariant electrical, rigid and fluid-mechanical, and thermal systems, by the Laplace-transformation method.

PROFESSIONAL COURSE**400. Principles and Techniques of Electron Microscopy. (1) I.**

Mr. Froula

Prerequisite: a physics course including light, electricity, and magnetism; or consent of the instructor.

Fundamental principles of electron microscopy. Design and use of electron microscopes and supplementary equipment. Techniques and problems of specimen preparation. Interpretation of micrographs. Application of electron microscopy in various fields. Occasional visits to electron microscopy laboratory.

NUMERICAL ANALYSIS RESEARCH

Attention is directed to Numerical Analysis Research, the activities of which are described on page 250.

ENGLISH

Bradford Allen Booth, Ph.D., *Professor of English.*

Hugh Gilchrist Dick, Ph.D., *Professor of English.*

John Jenkins Espey, B.Litt., M.A. (Oxon.), *Professor of English.*

Majl Ewing, Ph.D., *Professor of English.*

Earl Leslie Griggs, Ph.D., *Professor of English.*

Edward Niles Hooker, Ph.D., *Professor of English.*

*Leon Howard, Ph.D., *Professor of English.*

Wesley Lewis, Ph.D., *Professor of Speech.*

Alfred Edwin Longueil, Ph.D., *Professor of English.*

William Matthews, Ph.D., *Professor of English.*

James Emerson Phillips, Jr., *Professor of English (Chairman of the Department.)*

Franklin Prescott Rolfe, Ph.D., *Professor of English.*

John Harrington Smith, Ph.D., *Professor of English.*

Hugh Thomas Swedenberg, Jr., Ph.D., *Professor of English.*

Lily Bess Campbell, Ph.D., *Professor of English, Emeritus.*

Martin Perry Andersen, Ph.D., *Associate Professor of Speech.*

¹Robert Paul Falk, Ph.D., *Associate Professor of English.*

Elise Stearns Hahn, Ph.D., *Associate Professor of Speech.*

Donald Erwin Hargis, Ph.D., *Associate Professor of Speech.*

⁴Claude Jones, Ph.D., *Associate Professor of English.*

¹Paul Alfred Jorgensen, Ph.D., *Associate Professor of English.*

*Robert Starr Kinsman, Ph.D., *Associate Professor of English.*

Charles Wyatt Lomas, Ph.D., *Associate Professor of Speech.*

Blake Reynolds Nevius, Ph.D., *Associate Professor of English.*

Ada Blanche Nisbet, Ph.D., *Associate Professor of English.*

Clifford Holmes Prator, Ph.D., *Associate Professor of English.*

¹ In residence fall semester only, 1956-1957.

* Absent on leave, 1956-1957.

- *John Frederic Ross, Ph.D., *Associate Professor of English.*
 *Daniel Vandraegen, Ph.D., *Associate Professor of Speech.*
 Llewellyn Morgan Buell, Ph.D., *Associate Professor of English, Emeritus.*
 Carl Sawyer Downes, Ph.D., *Associate Professor of English, Emeritus.*
 Harrison Manly Karr, Ph.D., *Associate Professor of Speech, Emeritus.*
 Harriet Margaret MacKenzie, Ph.D., *Associate Professor of English, Emeritus.*
 Earl Richard Cain, Ph.D., *Assistant Professor of Speech.*
 Ralph Cohen, Ph.D., *Assistant Professor of English.*
 Vinton Adams Dearing, Ph.D., *Assistant Professor of English.*
 Robert William Dent, Ph.D., *Assistant Professor of English.*
 Philip Calvin Durham, Ph.D., *Assistant Professor of English.*
 Edward Robert Hagemann, Ph.D., *Assistant Professor of English.*
 Charles Vincent Hartung, Ph.D., *Assistant Professor of English.*
 ———, *Assistant Professor of Speech.*
 Lowry Nelson, Jr., Ph.D., *Assistant Professor of English.*
 Waldo Woodson Phelps, Ph.D., *Assistant Professor of Speech.*
 Robert Roland Raymo, Ph.D., *Assistant Professor of English.*
 Ralph Richardson, Ph.D., *Assistant Professor of Speech.*
 Robert Paul Stockwell, Ph.D., *Assistant Professor of English.*
 Frank Whittemore Wadsworth, Ph.D., *Assistant Professor of English.*
 Michael J. D'Asaro, Ph.D., *Instructor in Speech.*
 Jay Henry Gellens, Ph.D., *Instructor in English.*
 Earl Roy Miner, Ph.D., *Instructor in English.*
 James Murray, Ed.D., *Lecturer in Speech.*
 Frances Clarke Sayers, *Lecturer in English.*
 Harriett Ramras, M.A., *Associate in English.*
- ◊
- George M. Savage, Ph.D., *Professor of Theater Arts.*
 Lawrence Clark Powell, Ph.D., *Lecturer in English.*
 Joseph Sheehan, Ph.D., *Assistant Professor of Psychology.*

Students must have passed Subject A (either examination or course) before taking any course in English. Regulations concerning Subject A will be found on page 22 C of this bulletin.

Letters and Science List.—All undergraduate courses in English except 370 and all undergraduate courses in speech except 122, 142A, 142B, 146, 147, and 370 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Courses 1A-1B and 46A-46B or the equivalent, with an average grade of C or higher; History 5A-5B or the equivalent (except under plan III.)

Recommended: Ancient and modern foreign languages. A reading knowledge of French or German is required for the M.A. degree. For the Ph.D. degree a reading knowledge of both French and German is required; a reading knowledge of Latin is essential for work in some fields.

The Major.—Plan I. For the general undergraduate: 24 units of English, including (1) English 117J; (2) one of the Type courses (6 units); (3) three of the Age courses (not more than two courses in adjacent ages); (4) at least 3 units of upper division American literature.

* Absent on leave, 1956-1957.

† In residence spring semester only, 1956-1957.

Plan II. For the undergraduate expecting to proceed to the M.A. or Ph.D. degree in English: the student must present, in the first half of the junior year, a program to be examined and approved by the departmental adviser to upper division students. (1) The program must comprise, at a minimum, 24 units of upper division courses in English, including (a) English 117J, to be taken in the junior year; (b) one of the Type courses (6 units); (c) three of the Age courses (not more than two courses in adjacent ages); (d) at least 3 units of upper division American literature; (e) English 151L, to be taken in the senior year. (2) At the end of the senior year the student must complete the comprehensive Final Examination. If he fails this examination he may still receive the bachelor's degree, but in order to be approved for graduate study in English, he must pass it with a grade of A or B.

Plan III. The major in English (with speech) for the student taking the general secondary credential.

- (a) The completion of the following: (1) English 1A-1B, 46A-46B; (2) Speech 1A-1B, or 3A-3B; (3) English 31 or 106L; 115 or 153; 117J; 190A-190B or 3 units from 131, 132, 133; (4) 6 units from English 114A-114B, 122A-122B, 125C-125D, 125G-125H; (5) 6 units from English 152, 156, 158, 167, 177, 187; (6) 3 units from Speech 106, 107, 110A, 111A, 111B, 122, 140; (7) Theater Arts 103.
- (b) The passing of the Senior Comprehensive Final Examination with a grade of C or better. (The bachelor's degree may still be granted with a grade of less than C).
- (c) The following courses, ordinarily to be taken in the graduate year, complete the English requirements for the general secondary credential: English 370, taken prerequisite to or concurrent with Education 370; 6 units from English 221, 222, 223A, 223B, 224, 225, 226, or their equivalent.

The minor in English (with speech) for the general secondary credential will consist of the following courses: (1) English 1A-1B, 46A-46B; (2) 3 units from Speech 1A, 3A; (3) English 106L or 31; (4) 6 units from English 114A, 114B, 115, 117J, 125C, 125D, 131, 132, 133, 153, 190A, 190B.

Requirements for Admission to Graduate Courses

The requirement is ordinarily the undergraduate major in English or its equivalent. No graduate student may take a graduate course in English who has fewer than 12 units in upper division major courses in English. This requirement is prerequisite to the 24 units demanded for the master's degree. If the candidate is deficient in this prerequisite, he must fulfill it by work undertaken as a graduate student.

Requirements for the Master's Degree

1. For the general requirements, see page 64. The department follows, for the Terminal M.A., Plan II, as described on page 65. The Comprehensive Examination is given toward the end of each semester and during summer sessions.

2. Departmental requirements: (a) Students are required to take the reading test in French or German at the beginning of the first semester of residence. (b) They must complete at least 24 units in English, including the following courses in English: course 200; one course chosen from 110, 111, 211, 212, 213; two courses chosen from 221, 222, 223A, 223B, 224, 225, 226.

To meet the general university requirements, at least 12 units must be in strictly graduate courses.

Requirements for the Doctor's Degree

1. For the general requirements, see page 66.
2. Departmental requirements: (a) On entering the department the candidate will present to the chairman a written statement of his preparation in French, German, and Latin. He must take the reading test in one of the two required modern foreign languages (French and German) at the beginning of the first semester of residence, the test in the other not later than the beginning of the third semester of residence. For work in some fields a reading knowledge of Latin is necessary. (b) In the first year (normally two semesters) of graduate study, the candidate will take courses in preparation for Part I of the Qualifying Examinations for the doctor's degree (200, 211; four courses chosen from 221, 222, 223A, 223B, 224, 225, 226; one graduate seminar and three units of elective). Passing this examination will entitle him to the master's degree. Part I of the Qualifying Examinations will consist of four written examinations, each one and one-half hours long, and a two-hour oral examination. If the candidate does well in these examinations, he will be encouraged to proceed further with graduate study. (c) Normally the candidate will devote a second year to the completion of the language requirement (211, 212, 213) and the taking of graduate seminars in English or suitable courses in other departments, after which he will take Part II of the Qualifying Examinations and be advanced to candidacy. Of course this period may be curtailed or extended according to circumstances. Part II of the Qualifying Examinations will consist of three three-hour written examinations and a two-hour oral examination in the candidate's special field and in two other fields to be chosen in consultation with his adviser. No special examination in linguistics is required, but questions on the language will appear at appropriate points in the examinations on literature. (d) A final year (which under the University rules may not be curtailed) will normally be devoted by the candidate chiefly to the preparation of his dissertation, after which he will take his final oral examination. During this year the candidate may satisfy the residence requirement either by taking additional seminars or by registering in English 290.

If a student has allowed seven years or more to elapse since taking a course or examination to meet the requirements for a graduate degree, it will be necessary to have such a course or examination validated by the department before he can proceed toward completion of the requirements.

LOWER DIVISION COURSES

Freshman Courses

- 1A. **First-Year Reading and Composition.** (3) I, II. Mr. Dent in charge
Open to all students who have received a passing grade in Subject A.
Principles and methods of expository writing.
- 1B. **First-Year Reading and Composition.** (3) I, II. The Staff
Prerequisite: English 1A.
Introduction to the types of modern literature: the novel, the short story, drama, and poetry.
- 4A. **Great Books: Dramatic Comedy.** (1) I. Mr. Raymo in charge
- 4B. **Great Books: Dramatic Tragedy.** (1) II. Mr. Raymo in charge

- *4C. Great Books: the English Novel. (1) I. _____
- *4D. Great Books: the Continental Novel. (1) II. _____
- *4E. Great Books: Lyric Poetry. (1) I. _____
- *4F. Great Books: Narrative Poetry. (1) II. _____
- *4G. Great Books: Famous Utopias. (1) I. _____
- *4H. Great Books: Great Satirists. (1) II. _____

33A. English for Foreign Students. (4) I, II. Miss Ramras
For foreign students only. Speaking, reading, and writing of English; intensified work in grammar; composition, conversation, vocabulary building, speech laboratory. Required for those who fail to pass the examination in English and who are not qualified to take course 33B. Not open to students who received a satisfactory grade in English 1A.

33B. English for Foreign Students. (4) I, II. Mr. Prator
Continuation of course 33A. Required of those who complete course 33A. Not open to students who received a satisfactory grade in English 1A at the University of California.

Sophomore Courses

30A. American Literature of the Pre-Civil War Period. (2) I, II. The Staff
Prerequisite: course 1A. Not open for credit to students who have taken upper division courses in the same period.

30B. American Literature of the Post-Civil War Period. (2) I, II. The Staff
Prerequisite: course 1A. Not open for credit to students who have taken upper division courses in the same period.

31. Intermediate Composition. (2) I, II. Mr. Ewing in charge
Prerequisite: course 1A-1B.

46A-46B. Survey of English Literature. (3-3) Yr. Beginning each semester. Mr. Swedenberg in charge
Prerequisite: course 1A-1B.

UPPER DIVISION COURSES

Courses 1A-1B and 46A-46B are prerequisite to all upper division courses in English, except 106S, 110, 111, 115, 116, 117J, 118, 125C-125D, 130, 133, 135, 136, 151M, 153, 190A, 190B, for which only 1A is prerequisite, and 150, 195, for which 1A and 1B are prerequisite. Theater Arts students may substitute Humanities 1A-1B for course 46A-46B as a prerequisite for 113, 114C, 114D, 114E. Students who have not passed English 31 will be admitted to 106C and 106F only upon a test given by the instructor, Upper division standing is required for all upper division courses in English.

A. *The Junior Course*: Course 117J. Required of juniors whose major is English.

B. *The Type Courses*: Courses 114A-114B, 122A-122B, 125C-125D, and 125G-125H. It is understood that major students in English will take one of these year courses.

C. *The Age Courses*: Courses 152, 156, 158, 167, 177, and 187. It is understood that major students in English under Plans I and II will take three of these courses, and majors under Plan III will take two.

* Not to be given, 1956-1957

D. *Courses in American Literature*: Courses 130, 131, 132, 133, 135, and 136. It is understood that major students in English under Plans I and II will take at least 3 units of these courses.

E. *The Senior Course*: Course 151L. Required of seniors whose major subject is English under Plan II.

- 106A. *The Short Story*. (2) I, II. Mr. Espey
Prerequisite: consent of the instructor.
- *106B. *Verse Writing*. (3) I. Mr. Jones
Prerequisite: course 153 or consent of the instructor.
- 106C. *Critical Writing*. (2) I, II. Mr. Jorgensen
- 106D-106E. *Fundamentals of Dramatic Writing*. (3-3) Yr. Mr. Savage
For admission to this course, candidates should submit to the instructor an original one-act play or one act of a full-length play by September 15, 1956.
- 106F. *Exposition*. (2) I, II. Mr. Espey, Mr. Hooker
- 106L. *Advanced Composition for Teachers*. (2) I, II.
Mr. Hartung, Mr. Jorgensen
Designed primarily for candidates for the general secondary teaching credential.
- 106S. *Advanced Composition for Majors in the Physical and Life Sciences*. (3) I, II. Mr. Durham, Mr. Espey
110. *Introduction to the English Language*. (3) I.
Mr. Matthews, Mr. Stockwell
111. *The English Language in America*. (3) II.
Mr. Matthews, Mr. Stockwell
- *113. *Chief European Dramatists before 1850*. (2) II. Mr. Smith
- 114A-114B. *English Drama from the Beginning to 1900*. (3-3) Yr.
Mr. Dick, Mr. Smith
- 114C. *Contemporary Drama*. (2) II. Mr. Smith
- 114D-114E. *English Plays and Playwrights*. (3-3) Yr.
Mr. Smith, Mr. Wadsworth
Prerequisite: English 46A-46B or Humanities 1A-1B.
Designed primarily for students in the Theater Arts. The course will not satisfy the Type requirements for the English major. Students will not receive credit for both 114A-114B and 114D-114E.
115. *Primitive Literature*. (3) II. Mr. Jones
The study of primitive types, such as the fable, folk tale, myth, legend, ballad, and hero tales, as to characteristics and theories of origin and diffusion. The comparative study of typical stories, and the work of collectors and adapters.
116. *The English Bible as Literature*. (2) II. Mr. Dearing
- 117J. *Shakespeare*. (3) I, II. The Staff
A survey of from twelve to fifteen plays, with special emphasis on one chronicle, one comedy, and one tragedy.

* Not to be given, 1956-1957.

- 117L. **Advanced Shakespeare.** (3) II.
Prerequisite: course 117J. Mr. Dick, Mr. Jorgensen, Mr. Phillips
Intensive study of three to five plays, with consideration of sources, textual problems, and various critical approaches.
118. **Children's Literature.** (3) I, II. Mrs. Sayers
- 122A-122B. **English Poetry from the Beginning to the Present.** (3-3) Yr.
Mr. Longueil
- 125C-125D. **The English Novel from the Beginning to the Present.** (3-3) Yr.
Mr. Booth, Mr. Jones
- 125G-125H. **English Prose from the Beginning to the Present.** (3-3) Yr.
Mr. Ewing
130. **American Literature of the Colonial and Early National Periods.**
(2) II. Mr. Falk, Mr. Howard
131. **American Literature of the Nineteenth Century.** (3) I.
Mr. Falk, Mr. Nevius
Not open to students who have not had 46A-46B.
132. **American Literature in the Twentieth Century.** (3) I, II.
Mr. Falk, Mr. Nevius
Not open to students who have not had 46A-46B.
133. **American Life in American Letters.** (3) I. Mr. Durham, Mr. Falk
The main currents of thought in American life as reflected in literature.
135. **American Fiction.** (3) II. Mr. Booth, Mr. Howard
The history of the American novel and short story from the beginning to the present day.
136. **American Humor and Satire.** (3) I. Mr. Ross
From the colonial period to the twentieth century.
150. **Medieval Great Books.** (3) I. Mr. Matthews, Mr. Raymo
The study of some fifteen representative books of the period in translation, chosen for their historical importance and aesthetic value.
- 151L. **Chaucer.** (3) I, II. Mr. Longueil, Mr. Matthews, Mr. Raymo
- 151M. **Milton.** (3) II. Mr. Hooker, Mr. Swedenberg
A survey of the major and minor poems of Milton and his more significant prose works.
152. **English Literature of the Later Middle Ages.** (3) II.
Mr. Matthews, Mr. Raymo
153. **Introduction to the Study of Poetry.** (3) I, II.
Mr. Jones, Miss Nisbet
155. **Literary Criticism.** (3) I. Mr. Cohen, Mr. Griggs
156. **The Age of Elizabeth.** (3) I, II. Mr. Kinsman, Mr. Dick, Mr. Phillips
158. **The Age of the Stuarts.** (3) I, II. Mr. Hooker, Mr. Swedenberg
167. **The Age of Pope and Johnson.** (3) I, II.
Mr. Ewing, Mr. Hooker, Mr. Swedenberg

177. **The Romantic Age: 1784-1832.** (3) I, II. Mr. Longueil, Mr. Griggs
187. **The Victorian Age: 1832-1892.** (3) I, II.
Mr. Booth, Mr. Rolfe, Miss Nisbet
- 190A. **Literature in English from 1900.** (2) I. Mr. Ewing, Mr. Nevius
Criticism; the novel.
- 190B. **Literature in English from 1900.** (2) II. Mr. Ewing, Mr. Espey
Poetry.
195. **Libraries and Learning.** (2) II. _____
A survey of printing, publishing, bookselling, book collecting, and reading from the viewpoint of their relationship to the development and use of libraries.
- *197. **Senior Survey.** (3) II. Mr. Phillips, Mr. Ewing
An integrated survey of English literature designed for the general student who is majoring in English but who has no professional interest in the subject and is not therefore required to take the comprehensive examination.
199. **Special Studies in English.** (1-3) I, II. _____
Limited to seniors; may be taken only once for credit.

COMPREHENSIVE FINAL EXAMINATION

The Comprehensive Final Examination is taken at the end of the senior year by majors working under Plans II and III. It will consist of one two-hour paper and one three-hour paper. The examination will cover English literature from the beginning to the present. The papers will be set by the examining committee of the department. The student's preparation for this examination will presumably extend throughout the entire college course. A portion of the examination will be based on the required section of the departmental reading list. Upon his passing the examination the grade assigned by the department will be recorded. The examination is given each semester—first semester, December 4, 5; second semester, May 7, 8. Mr. Longueil in charge

GRADUATE COURSES

200. **Bibliography.** (3) I, II. Mr. Dearing, Mr. Dick
211. **Old English.** (3) I. Mr. Matthews, Mr. Stockwell
212. **Middle English.** (3) II. Mr. Matthews, Mr. Stockwell
Prerequisite: course 211.
213. **The Development of Modern English.** (3) I. Mr. Matthews, Mr. Stockwell
Prerequisite: course 212.
221. **Medievalism.** (3) II. Mr. Matthews
222. **The Renaissance.** (3) I. Mr. Dick
- 223A. **Jacobean and Caroline Literature.** (3) II. Mr. Hooker
- 223B. **Neo-Classicism.** (3) I. Mr. Swedenberg
224. **Romanticism.** (3) I. Mr. Griggs
225. **Victorianism.** (3) II. Mr. Griggs, Mr. Rolfe

* Not to be given, 1956-1957.

226. American Literature. (3) I, II. Mr. Falk, Mr. Howard, Mr. Nevius
- *252A-252B. History of Literary Criticism. Seminar. (3-3) Yr.
Mr. Griggs
- 260A, B, C. Studies in Old and Middle English. Seminar.
260A. Old English Poetry. (3) II. Mr. Matthews
260B. Medieval English Poetry. (3) I. Mr. Matthews
260C. Chaucer and His Contemporaries. (3) II. Mr. Matthews
- *261. Studies in Fifteenth-Century and Early Tudor Literature. Seminar.
(3) II. Mr. Kinsman
- 262A, B, C, D, E, F. Studies in Elizabethan Literature. Seminar.
*262A. Shakespeare. (3) I. Mr. Jorgensen, Mr. Phillips
*262B. Shakespeare. (3) II. Mr. Jorgensen, Mr. Phillips
*262C. Spenser. (3) II. Mr. Phillips, Mr. Dick
*262D. Studies in Elizabethan and Jacobean Drama. (3) I. Mr. Smith
262E. Elizabethan Prose. (3) I. Mr. Dick, Mr. Jorgensen
262F. Elizabethan Poetry. (3) II. Mr. Dick, Mr. Phillips
- 263A, B, C, D, E, F. Studies in Seventeenth-Century Literature. Seminar.
*263A. Trends in Seventeenth-Century Prose. (3) I. Mr. Hooker
*263B. Trends in Seventeenth-Century Poetry. (3) II. Mr. Hooker
*263C. Studies in Drama, 1660-1790. (3) I. Mr. Smith
*263D. The Theory of Fiction, 1600-1700. (3) II. Mr. Rolfe
*263E. Milton. (3) I. Mr. Swedenberg
263F. Dryden and His Contemporaries. (3) I.
Mr. Hooker, Mr. Swedenberg
- 264A, B, C. Studies in Eighteenth-Century Literature. Seminar.
264A. Pope and His Contemporaries. (3) II.
Mr. Hooker, Mr. Swedenberg
*264B. Studies in the English Novel. (3) I. Mr. Jones
*264C. Johnson and His Contemporaries. (3) I.
Mr. Hooker, Mr. Swedenberg
- 265A, B, C, D. Studies in Nineteenth-Century Literature. Seminar.
265A. Coleridge and His Contemporaries. (3) I. Mr. Griggs
*265B. Studies in Victorian Prose. (3) II. Mr. Griggs
265C. Studies in Victorian Poetry. (3) II. Mr. Griggs
265D. Studies in the English Novel. (3) II. Mr. Booth
- 266A, B. Studies in Contemporary Literature. Seminar.
*266A. (3) I. Mr. Espey
266B. (3) II. Mr. Ewing
- 270A, B, C, D, E, F. Studies in American Literature. Seminar.
*270A. American and European Literary Relations. (3) I.
Mr. Howard
*270B. American and European Literary Relations. (3) II.
Mr. Howard
*270C. American Literature and Its Intellectual Background. (3) I.
Mr. Howard
*270D. American Literature and Its Intellectual Background. (3) II.
Mr. Howard
270E. American Literature and History. (3) I. Mr. Falk
270F. American Literature and History. (3) II. Mr. Nevius

290. Special Problems. (1-6) I, II.

The Staff

PROFESSIONAL COURSE IN METHOD

370. The Teaching of English. (3) I, II.

Mr. Hartung

Required of candidates for the general secondary credential with the field major in English and speech.

SPEECH

Students must have passed Subject A (either examination or course) before taking any course in speech. Regulations concerning Subject A will be found on page 22 C of this bulletin.

Preparation for the Major.—Speech 1A, 1B, 3A, 3B, with an average grade of C or higher; English 1A-1B, 46A-46B; Psychology 1A, 1B.

The Major.—Plan I. For the general undergraduate: the program must include (a) Speech 111A (or 111B); 134, or 135, or 137; 6 units from 106, 107, 110A (or 110B); (b) 12 units of electives in upper division courses in speech; (c) 6 units of electives in upper division courses in each of two of the departments of Anthropology and Sociology, Economics, English, Education (106, 110, 111); History, Philosophy, Political Science, Psychology, Theater Arts (108, 109, 112, 116A, 123), the courses to be approved by the departmental adviser.

Plan II—The major in speech (with English) for the student taking the general secondary credential.

- (a) The completion of the following: (1) Speech 1A-1B, 3A-3B; (2) English 1A-1B, 46A-46B, English 31 or 106L, English 117J; (3) 3 units from English 131, 132, 133, or 190A-190B; (4) Speech 140; (5) Theater Arts 103; (6) 12 or 13 units selected, in consultation with the departmental adviser, to complete a 24-unit upper division major: 6 units from 106 (or 107), 110A (or 110B), 111A (or 111B); 6 or 7 additional units of electives in upper division speech courses.
- (b) The attainment of a satisfactory level of skill in oral reading and public speaking.
- (c) The following courses, ordinarily to be taken in graduate year, complete the Speech requirements for the General Secondary Credential: Speech 370; 6 units from Speech 270 (or 204), 260 (or 207), 211 (or 250).

The minor in speech (with English) for the general secondary credential will consist of the following courses: (1) Speech 1A-1B, 3A, 3B; (2) English 1A-1B; (3) 6 units in speech from one of the following sequences: (a) 106, 107, 110A, (b) 111A, 111B, 122, (c) 103, 140, 141, 142A, 142B.

For the field major and the field minor in English (with speech), see page 178.

*Requirements for the Special Secondary Credential in Speech Correction.**

1. For general requirements see the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

2. Specific course requirements: Speech 103, 140, 142A, 142B; Psychology 161, 162; Education SC 376.

3. Students preparing for the new *Credential to Teach Exceptional Children* with the specialization in speech correction and lip reading must complete the following courses in addition to those listed above: Education 117A; Speech 145, 146, 147.

* All candidates who are currently enrolled in a program leading to the *Special Secondary Credential in Speech Correction* must complete in full the present requirements and obtain their credentials before September 15, 1957, or they must qualify for the new *Credential to Teach Exceptional Children*.

Requirements for Admission to Graduate Courses

A bachelor's degree with a major consisting of at least 24 upper division units in speech or speech and English or speech and drama. (No graduate student may take a graduate course in speech who has to his credit fewer than 12 units in speech. This requirement is prerequisite to the 24 units demanded for the master's degree. If the candidate is deficient in this prerequisite, he must fulfill it by work undertaken as a graduate student.

Requirements for the General Secondary Credential

Consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

Requirements for the Master's Degree

1. For the general requirements, see page 64. The department follows Plans I and II as described on pages 64-66. The Master's Comprehensive Examination consists of four written examinations, each one hour and a half long. These examinations are given toward the end of each semester.

2. Departmental requirements. (a) Students are required to take the reading test in one foreign language in the first semester of residence and a speech proficiency examination. Graduates of this university will be allowed to meet the second requirement by showing a B grade in both Speech 110A (or 110B) and Speech 111A (or 111B). (b) They must complete the requirements under either Plan I or Plan II as outlined below. *Plan I*: 9 units of graduate speech courses selected from two fields; 5 units of speech courses, either graduate or upper division; 6 units in related courses, other than speech, either graduate or upper division, chosen in consultation with graduate adviser; thesis. *Plan II*: 9 units of graduate speech courses selected from two speech fields; 3 units of Speech 290; 6 units of speech courses, either graduate or upper division; 6 units in related courses, other than speech, either graduate or upper division, chosen in consultation with the graduate adviser; comprehensive examination.

If a student has allowed seven years or more to elapse since taking a course or examination to meet the requirements for a graduate degree, it will be necessary to have such a course or examination validated by the department before he can proceed toward completion of the requirements.

LOWER DIVISION COURSES

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| 1A. Elements of Public Speaking. (3) I, II. | The Staff |
| The principles and practice of effective speech composition and delivery. | |
| 1B. Elements of Public Speaking. (3) I, II. | The Staff |
| Prerequisite: course 1A. | |
| Application of the principles of effective speech composition and delivery to group discussion and public address. | |
| 3A. Basic Voice Training. (3) I, II. | The Staff |
| Voice physiology, phonetics, and voice drills. | |
| 3B. Elementary Interpretation. (3) I, II. | The Staff |
| Prerequisite: course 3A. | |
| Development of the student's ability to communicate prose and poetry orally with understanding and appreciation. | |

UPPER DIVISION COURSES

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| 103. Phonetics. (3) II. | Mr. Hargis |
| Prerequisite: consent of the instructor. | |
| A study of the physical production and acoustic characteristics of the sounds of American English; modifications of the sounds in connected speech; extensive practice in phonetic recording of general American speech and its deviate forms. | |

- 106. Principles and Types of Public Discussion.** (3) I, II. Mr. Andersen
Prerequisite: course 1B or consent of the instructor.
Analysis of the purposes, principles, and types of public discussion. Practice in organizing group discussion.
- 107. Principles of Argumentation.** (3) I, II. Mr. Lewis
Prerequisite: course 1B or consent of the instructor.
Analysis of propositions, tests of evidence, briefing. Study of hindrances to clear thinking, of ambiguity of terms, or prejudice.
- 110A. Problems of Audience Analysis.** (3) I, II. Mr. Lewis, Mr. Lomas
Prerequisite: course 1B or the equivalent.
Theory of audience analysis and adaptation. Preparation and delivery of the occasional speech.
- 110B. Analysis of Style in Speech Composition.** (3) II. Mr. Lewis, Mr. Lomas
Prerequisite: course 1B or the equivalent (course 110A is not prerequisite).
Preparation and delivery of special forms of public address.
- 111A. Theories and Techniques of Interpretation.** (3) I, II. Mr. Hargis, Mr. Vandraegen
Prerequisite: course 3A-3B or the equivalent.
A study of the schools, principles, and techniques of oral interpretation.
- 111B. Oral Interpretation of Literature.** (3) I, II. Mr. Vandraegen
Prerequisite: course 3B or the equivalent, and consent of the instructor.
The understanding and appreciation of literature through training in the oral communication of various literary forms.
- 122. Scientific Bases of Speech** (3) I. Mr. D'Asaro
An introduction to the development of speech, and to its physical, anatomical, and physiological bases.
- *134. Classical Public Address.** (3) I. Mr. Lewis, Mr. Lomas
A critical study of speeches by leading Greek and Roman orators.
- 135. British Public Address.** (3) I. Mr. Lomas
Critical study of speeches by leading British orators from the eighteenth century to the present time. Relationship of speakers to issues and social movements of their day.
- 137. American Public Address.** (3) II. Mr. Lomas, Mr. Richardson
Critical study of speeches by leading American orators from the colonial period to the present time. Relationship of speakers to issues and social movements of their day.
- 140. Principles of Speech Correction.** (2) I, II. Mrs. Hahn
Problems and methods of correcting speech defects; required course for special secondary credential in speech correction.
- 142A. Methods of Speech Correction.** (2) I, II. Mrs. Hahn
Prerequisite: Speech 140, Psychology 162; the latter course may be taken concurrently.
Observation of methods in the Speech Clinic of the Psychological Clinic.
- 142B. Methods of Speech Correction.** (2) I, II. Mrs. Hahn, Mr. Sheehan
Prerequisite: Speech 142A.
Practice in methods in the Speech Clinic of the Psychological Clinic.

* Not to be given, 1956-1957.

145. **Introduction to Audiology.** (2) I. _____
146. **Principles and Methods of Pure Tone and Speech Audiometry.** (2) II. _____
147. **Principles and Techniques of Speech Reading.** (2) II. _____
- 190A-190B. **Forensics.** (1-1) Yr. Mr. Lewis, Mr. Murray
Prerequisite: consent of the instructor. May be repeated once for credit.
199. **Special Studies in Speech.** (1-3) I, II. _____

GRADUATE COURSES

204. **The Development of Speech in the Child.** (3) I. Mrs. Hahn
207. **Forms and Methods of Argumentation.** (3) II. Mr. Lewis
211. **Backgrounds and Theories of Oral Interpretation.** (3) I.
Mr. Hargis, Mr. Vandraegen
Analysis of traditional theories of oral interpretation from Quintilian to the present time; their relation to contemporary theories; special problems in interpretation.
250. **Problems in Analysis of Materials for Oral Interpretation.** (3) II.
Mr. Hargis, Mr. Vandraegen
260. **Problems in Analysis and Criticism of Speeches. Seminar.** (3) I.
Mr. Lomas
270. **Problems in Speech Correction. Seminar.** (3) II. Mrs. Hahn
290. **Individual Directed Research.** (3) I, II. The Staff

PROFESSIONAL COURSE IN METHODS

370. **The Teaching of Speech.** (3) I, II. Mr. Phelps
Required of candidates for the general secondary credential with the field major in speech and English.

ENTOMOLOGY

- Walter Ebeling, Ph.D., *Professor of Entomology (Vice-Chairman of the Department).*
- John N. Belkin, Ph.D., *Associate Professor of Entomology.*
- Roland N. Jefferson, Ph.D., *Associate Professor of Entomology.*
- Leland R. Brown, Ph.D., *Assistant Professor of Entomology.*

The Major.—The major is offered on the Berkeley and Davis campuses. See the PROSPECTUS OF THE COLLEGE OF AGRICULTURE and consult the appropriate adviser for students in agriculture.

UPPER DIVISION COURSES

100. **General Entomology.** (4) II. Mr. Belkin
Lectures, two hours; laboratory, six hours.
The classification, life history, structure, and physiology of insects.

- 112A. **Systematic Entomology.** (3) I. Mr. Belkin
 Lectures, three hours.
 History and principles of classification; taxonomic categories and procedure; nomenclature, bibliographical methods; museum practices. Offered in alternate years.
126. **Medical Entomology.** (4) I. Mr. Belkin
 Lectures, two hours; laboratory, six hours.
 The role of insects and other arthropods in the transmission and causation of diseases of humans and other warm-blooded vertebrates; their structure, classification, and life history. Principles of vector control.
134. **Insects Affecting Subtropical Fruit Plants.** (4) II. Mr. Ebeling
 Lectures, two hours; laboratory, six hours. Several field trips.
 Biology, economic importance, and control of insects affecting citrus and other subtropical fruit plants. Insecticides; spraying, dusting, and fumigating methods and equipment.
- *144. **Insects Affecting Ornamental Plants and Flower Crops.** (4) II.
 Mr. Jefferson, Mr. Brown
 Lectures, three hours; laboratory, three hours. Several field trips.
 Biology, economic importance, and control of insects affecting field flower crops, greenhouse and nursery plants, and ornamental trees and shrubs. Insecticides; spraying, dusting, and fumigating methods and equipment. Offered in alternate years.
- 199A-199B. **Special Study for Advanced Undergraduates.** (2-4; 2-4) Yr.
 The Staff
 Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSE

- 251A-251B. **Seminar in Entomology.** (1-1) Yr. Mr. Belkin
- 283A-283B. **Research in Entomology.** (2-6; 2-6) Yr. The Staff

FLORICULTURE AND ORNAMENTAL HORTICULTURE

- B. Lennart Johnson, Ph.D., *Professor of Ornamental Horticulture.*
 Vernon T. Stoutemyer, Ph.D., *Professor of Ornamental Horticulture and Assistant Director of the Botanical Garden (Chairman of the Department).*
 Anton M. Kofranek, Ph.D., *Assistant Professor of Floriculture.*
 Harry C. Kohl, Jr., Ph.D., *Assistant Professor of Floriculture.*
 Joseph W. Towner, Ph.D., *Assistant Professor of Ornamental Horticulture.*
 Victor B. Youngner, Ph.D., *Assistant Professor of Ornamental Horticulture.*

Preparation for the Major.—Required courses, or the equivalent: Chemistry 1A, 1B, 8; Botany 1, 107; Entomology 144; Irrigation and Soils 126 and 105, 110A or 127.

Recommended courses, or the equivalent: Botany 3 or 151; Plant Pathology 140; Agricultural Economics 130; Subtropical Horticulture 2, 110.

The Major.—Twelve units of upper division courses in the major, including Floriculture and Ornamental Horticulture 131A or 131B, and 136A or 136B.

* Not to be given, 1956-1957.

UPPER DIVISION COURSES

131A-131B. Taxonomic Classification and Ecology of Ornamental Plants. (3-3) Yr. Mr. Stoutemyer, Mr. Towner

Lecture, two hours; laboratory, three hours; several field trips. Prerequisite: Botany 1 or the equivalent.

The botanical classification, relationships, and identification of the more important ornamental plants in southern California, with special emphasis on their environmental requirements and adaptations. 131A is not a prerequisite to 131B.

136A-136B. General Floriculture. (4-4) Yr. Mr. Kofranek, Mr. Kohl

Lecture, three hours; laboratory, three hours; several field trips.

Prerequisite: Botany 107 or the equivalent. 136A is not a prerequisite to 136B.

The basic practices and principles of floricultural crop production from a commercial standpoint, including photoperiod, temperature, nutrition, and water relations, with special reference to the more important crops grown in California.

139. Advanced Floriculture. (2) I. Mr. Kofranek, Mr. Kohl

Lecture, 2 hours. Prerequisite: senior standing in Floriculture.

Interpretation of current floricultural literature and research; future trends in production; scheduling production; diagnosing field problems; control of environmental factors, including photoperiod, temperature, nutrition, water and gas relations.

146. Plant Breeding. (3) II.

Mr. Johnson

Lecture, two hours; laboratory, three hours. Prerequisite: Botany 140 or the equivalent.

Applications of genetics and cytogenetics to the breeding of horticultural plants.

***148. Design and Analysis of Horticultural Experiments.** (3) II.

Lectures, two hours; laboratory, three hours.

Mr. Johnson

Prerequisite: Statistics 1 or the equivalent.

Principles of experimental design, including tests of significance, analysis of variance and covariance; types of designs, including randomized blocks, Latin squares, factorial and other designs.

199A-199B. Special Study for Advanced Undergraduates. (2-4; 2-4) Yr.

Prerequisite: senior standing and consent of the instructor. The Staff

GRADUATE COURSES

260A-260B. Seminar in Floriculture. (2-2) Yr.

The Staff

286A-286B. Research in Ornamental Horticulture. (2-6; 2-6) Yr.

The Staff

FOLKLORE GROUP

Wayland D. Hand, Ph.D., *Professor of German and Folklore.*



Gustave Otto Arlt, Ph.D., *Professor of German.*

John A. Crow, Ph.D., *Professor of Spanish.*

Gibson A. Danes, Ph.D., *Professor of Art.*

Alma Hawkins, Ed.D., *Associate Professor of Physical Education.*

* Not to be given, 1956-1957.

- Mantle Hood, Ph.D., *Assistant Professor of Music.*
 Arden Johnson, M.Ed., *Junior Supervisor of Physical Education.*
 Claude Jones, Ph.D., *Associate Professor of English.*
 Anna Krause, Ph.D., *Professor of Spanish.*
 William A. Lessa, Ph.D., *Associate Professor of Anthropology.*
 William Matthews, Ph.D., *Professor of English.*
 Laurence A. Petran, Ph.D., *Professor of Music.*
 William F. Pillich, M.S., *Assistant Supervisor of Physical Education.*
 John Frederic Ross, Ph.D., *Associate Professor of English.*
 Frances Clark Sayers, *Lecturer in English.*
 Carol J. Scothorn, M.A., *Assistant Supervisor of Physical Education.*
 Charles Speroni, Ph.D., *Professor of Italian.*
 Council Taylor, Ph.D., *Instructor in Anthropology.*
 Erik Wahlgren, Ph.D., *Professor of Scandinavian and German.*
 Harry F. Williams, Ph.D., *Associate Professor of French.*
 Marion Albert Zeitlin, Ph.D., *Professor of Spanish.*

Letters and Science List.—All undergraduate courses in folklore and all related courses in anthropology, art, English, German, Italian, music, and Spanish.

Although no major in folklore is offered, a wide variety of course work is available in the three following general areas: (1) Languages and Literatures (English and foreign languages); (2) Social Sciences (anthropology, history, sociology); (3) Folk Arts (art, music, physical education, theater arts). Students with undergraduate preparation in folklore may continue their work on the graduate level. For the planning of course work, students should consult departmental advisers and Mr. Hand.

UPPER DIVISION COURSES

101. **Introduction to Folklore.** (3) I. Mr. Hand
 Prerequisite: junior standing. A reading knowledge of a foreign language is desirable, but not prerequisite to the course.
 The various fields of folklore, their literature, and problems.
105. **American Folklore.** (3) II. Mr. Hand
 Prerequisite: junior standing.
 A survey of American folklore with illustrative materials from all genres (folk songs, folk tales, legends, superstitions, proverbs, folk speech).
106. **American Folk Song.** (3) I. Mr. Hand
 Prerequisite: junior standing.
 A survey of American balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values.
190. **Research Methods and Field Collecting.** (2) II. The Staff
 Lecture, one hour; laboratory, two hours.
 Prerequisite: Folklore 101 and any one of the following courses: Folklore 105, Anthropology 102, 124, English 115, German 102, Italian 105.
 The bibliography and methods of folkloristic research. Attention will also be given to field collecting, including the use of mechanical apparatus, and to the problem of folklore archiving.
- 199A-199B. **Special Problems in Folklore.** (1-3; 1-3) Yr. The Staff
 Prerequisite: any one of the following courses: Folklore 101, 105, Anthropology 102, 124, English 115, German 102, Italian 105.

GRADUATE COURSES

- *245. *The Folk Tale*. (2) II. Mr. Hand
 Prerequisite: course 101, or any one of the following courses: Folklore 105, Anthropology 102, 124, English 115, German 102, Italian 105.
- 298A-298B. *Special Studies in Folklore*. (1-5; 1-5) Yr. The Staff

RELATED COURSES IN OTHER DEPARTMENTS

UPPER DIVISION COURSES

- Anthropology 102. *Ethnology*. (3) I, II. Mr. Taylor, Mr. Meighan
- Anthropology 124. *Comparative Religion*. (3) I, II. Mr. Lessa
- Anthropology 127. *Primitive Art*. (3) I. ———
- Art 119A-119B. *Art of the Americas*. (2) II. Mr. Danes
- English 115. *Primitive Literature*. (3) II. Mr. Jones
- English 118. *Children's Literature*. (3) I, II. Mrs. Sayers
- English 136. *American Humor and Satire*. (3) I. Mr. Ross
- German 102. *German Folklore*. (3) II. Mr. Hand
- Integrated Arts 1A-1B. *Man's Creative Experience in the Arts*. (3-3) Yr. Mr. With
- Italian 105. *Italian Folklore*. (3) II. Mr. Speroni
- Music 136. *Folk Music*. (3) I. Mr. Hood
- Physical Education 150. *History of Dance and the Related Arts*. (2) I. Mrs. Scothorn
- Physical Education 151. *History of Dance in America*. (2) II. Mr. Pillich
- Physical Education 155. *Folk Festivals*. (2) II. Mr. Johnson
- Spanish 108. *The Folk Song in Spain and Spanish America*. (1) II. Mr. Crow
- Spanish 119. *Readings in Spanish Literature of the Middle Ages*. (2) I. Mr. Zeitlin, Miss Krause

GRADUATE COURSES

- English 221. *Medievalism*. (3) II. Mr. Matthews
- French 206A-206B. *Old French Readings*. (2-2) Yr. Mr. Williams
- German 208. *The Sixteenth and Seventeenth Centuries*. (3) I. Mr. Arlt
- Music 264. *Seminar in Ethno-Musicology*. (3) II. Mr. Hood
- Physical Education 227. *Comparative Study of Materials and Methods in Dance*. (2) II. Miss Hawkins
- Scandinavian 244. *Old Norse-Icelandic Prose and Poetry*. (2) I. Mr. Wahlgren

* Not to be given, 1956-1957

FOREIGN LITERATURE IN TRANSLATION

The following courses offered in the departments of language and literature do not require a reading knowledge of any foreign language:

Classics Classics 113. Ancient Drama. (3) I.

*Greek 180A-180B. A Survey of Greek Literature in English. (2-2)

*Hebrew 182A-182B. A Survey of Early Hebrew Literature in English. (2-2)

Hebrew 183A-183B. A Survey of Later Hebrew Literature in English. (2-2)

Latin 180A-180B. A Survey of Latin Literature in English. (2-2)

English *4A. Great Books: Dramatic Comedy. (1)

4B. Great Books: Dramatic Tragedy. (1)

*4C. Great Books: The English Novel. (1)

*4D. Great Books: The Continental Novel. (1)

*4E. Great Books: Lyric Poetry. (1)

*4F. Great Books: Narrative Poetry. (1)

*4G. Great Books: Famous Utopias. (1)

*4H. Great Books: Great Satirists. (1)

*113. Chief European Dramatists before 1850. (2)

150. Medieval Great Books. (3)

French 109M-109N. A Survey of French Literature and Culture. (3-3)

110A. Nineteenth-Century French Novel in English Translation. (3)

110B. Twentieth-Century French Novel in English Translation. (3)

German 121A-121B. German Literature in Translation. (2-2)

Humanities 1A-1B. World Literature. (3-3)

Italian *152. Italian Literature in English Translation. (3)

Oriental Languages 112. Chinese Literature in Translation. (2)

132. Japanese Literature in Translation. (2)

142A-142B. Arabic Literature (2-2).

Scandinavian 141A-141B. Scandinavian Literature in English Translation. (2-2)

Slavic Languages 130. Survey of Russian Literature to 1917. (3)

132. Russian Literature Since 1917. (3)

*137. The Russian Drama. (3)

143A-143B. Russian Novelists of the Nineteenth Century. (2-2)

*145. Tolstoy. (3)

FRENCH

*Gabriel Bonno, Docteur ès Lettres, *Professor of French.*

Francis J. Crowley, Ph.D., *Professor of French.*

John C. Lapp, Ph.D., *Professor of French (Chairman of the Department).*

William A. Nitze, Ph.D., L.H.D., *Professor of French, Emeritus.*

Myron Irving Barker, Ph.D., *Associate Professor of French.*

Alexander Green Fite, Ph.D., *Associate Professor of French.*

Clinton C. Humiston, Ph.D., *Associate Professor of French.*

L. Gardner Miller, Docteur de l'Université de Strasbourg, *Associate Professor of French.*

Oreste F. Pucciani, Ph.D., *Associate Professor of French.*

* Not to be given, 1956-1957.

† In residence spring semester only, 1956-1957.

¹Leland J. Thielemann, Ph.D., *Associate Professor of French.*

*Harry F. Williams, Ph.D., *Associate Professor of French.*

Marius Ignace Biencourt, Docteur de l'Université de Paris, *Assistant Professor of French.*

Walter Staaks, Ph.D., *Assistant Professor of French.*

²Kernan B. Whitworth, Jr., Ph.D., *Assistant Professor of French.*

James Rush Beeler, M.A., *Associate in French.*

Madeleine Letessier, A.B., *Associate in French.*

Letters and Science List.—All undergraduate courses in French except 370 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—French 1, 2, 3, and 4 or 25A-25B, 42A-42B, or their equivalents. Prospective candidates for the M.A. degree or for a teaching credential must have completed Latin 2 or its equivalent before receiving the A.B. degree. Courses in European history, literature, and philosophy, and in an additional foreign language, are strongly recommended.

The Major.—Required: 24 units of upper division French, including courses 101A-101B, 109A-109B, 112A-112B or 113A-113B, and at least one other year course in literature (except 112A-112B and 113A-113B).

Any of the remaining upper division courses except those so designated may be applied on the major. With the permission of the department, 4 units of the 24 may be satisfied by appropriate upper division courses in English, German, Greek, Latin, Spanish, Italian.

Students intending majors in French must consult a departmental counselor before registering for French courses in the upper division.

LOWER DIVISION COURSES

The ordinary prerequisites for each of the lower division courses are listed under the description of these courses. Students who have had special advantages in preparation may, upon examination, be permitted a more advanced program; or such students may be transferred to a more advanced course by recommendation of the instructor.

1. **Elementary French.** (4) I, II. Mr. Miller in charge
Sections meet five hours weekly.

1G. **Reading Course for Graduate Students.** (No credit) I, II.
Mr. Williams in charge

2. **Elementary French.** (4) I, II. Mr. Whitworth in charge
Sections meet five hours weekly.
Prerequisite: course 1 or two years of high school French.

3. **Intermediate French.** (4) I, II. Mr. Staaks in charge
Sections meet five hours weekly.
Prerequisite: course 2 or three years of high school French.

4. **Intermediate French.** (4) I, II. Miss Letessier in charge
Sections meet four hours weekly.
Prerequisite: course 3 or four years of high school French.

8A-8B-8C-8D. **French Conversation.** (1-1) Beginning each semester.

Miss Letessier in charge
The class meets two hours weekly. Open to students who have completed course 2 or its equivalent with Grade A or B.

* Absent on leave, 1956-1957.

¹ In residence fall semester only, 1956-1957.

² In residence spring semester only, 1956-1957.

- 25A-25B. Advanced French. (3-3) Yr.** Miss Letessier
Prerequisite: course 3 or 4.
An intermediate course in French composition and selected readings, in further preparation for upper division French. Lectures in French.
- 42A-42B. French Civilization. (2-2) Yr.** Mr. Whitworth
Historical, economic, geographic, cultural, and other elements of civilization as developed in France from the beginnings to the present time. Lectures and readings in English. No prerequisite.

UPPER DIVISION COURSES

The prerequisite to all upper division courses except 109M, 109N, and 110A-110B is 16 units in the lower division, including course 4, or 25A-25B. Courses 42A-42B, 101A-101B, 109A and 109B are ordinarily prerequisite to other upper division courses; but a student whose major is not French may be admitted to any upper division course by permission of the instructor. All upper division courses, except where so designated, are conducted mainly in French.

- 101A-101B. Composition, Oral and Written. (3-3) Yr.** Beginning either semester. Mr. Biencourt in charge

Introduction to stylistic elements of French, further training in pronunciation and practice in oral and written French.

- 107A-107B. French Phonetics. (2-2) Yr.** Mr. Pucciani
Prerequisite: consent of the instructor.

French pronunciation, diction, intonation in theory and practice; phonetic transcription, phonetic evolution of the modern language; remedial exercises; recordings.

- 109A. Survey of French Literature and Culture. (3) I.** Mr. Biencourt
Open to majors in Romance languages, and others sufficiently prepared, with the consent of the instructor. Not open to students who have taken or are taking courses 109M, 109N.

The Middle Ages, the Renaissance, and the seventeenth century.

- 109B. Survey of French Literature and Culture. (3) II.** Mr. Biencourt
Prerequisite: course 109A.

The eighteenth, nineteenth, and twentieth centuries.

- 109M. A Survey of French Literature and Culture. (3) I.** Mr. Humiston
Given in English; does not count on the major in French. Not open to French majors or to students who have taken or are taking course 109A-109B.

The Middle Ages, the Renaissance, and the seventeenth century.

- 109N. A Survey of French Literature and Culture. (3) II.** Mr. Humiston
Prerequisite: course 109M.

The eighteenth, nineteenth, and twentieth centuries.

- 110A. Nineteenth-Century French Novel in English Translation. (2) I.**

Mr. Barker

Readings in Stendhal, Balzac, Flaubert, Maupassant, Zola, etc. Knowledge of French not required. Not open to French majors.

- 110B. Twentieth-Century French Novel in English Translation. (2) II.**

Mr. Pucciani

Main currents of French literature from Symbolism to the present. Philosophy in its relation to literature from Bergson to Sartre. Readings in

Barrès, France, Gide, Colette, Proust, Malraux, Romain, Montherlant, Cocteau, Mauriac, Saint-Exupéry, Giraudoux, Sartre, Camus, etc. Not open to French majors.

*112A-112B. *The Nineteenth Century.* (2-2) Yr. Mr. Miller
Lyric poetry, the short story, literary criticism, social movements, and philosophy in the nineteenth century.

113A. *The Nineteenth-Century French Theater.* (2) I. Mr. Staaks
Lectures and readings in the romantic and realist drama and the comedy.

113B. *The Nineteenth-Century French Novel.* (2) II. Mr. Barker
Lectures and readings in the romantic, realist and naturalist novel.

114A-114B. *Contemporary French Literature.* (2-2) Yr. Mr. Pucciani
The French novel, poetry, and essay since 1885. Symbolism, surrealism, existentialism. Bourget, Barrès, Rimbaud, Mallarmé, Gide, Proust, Apollinaire, Valéry, Cocteau, Romain, Giraudoux, Mauriac, Malraux, Sartre, and others.

115A-115B. *Modern French Drama.* (2-2) Yr. Mr. Fite
Outstanding plays of the last half-century. *Le Théâtre d'idées en France*, Porto-Riche, Maeterlinck, Claudel, Romain, Lenormand, Raynal, Sarment, Sartre, and others.

118A-118B. *The Renaissance.* (2-2) Yr. Mr. Humiston
Evolution of thought in the sixteenth century as represented by Rabelais, Marot, Calvin, Marguerite de Navarre, the *Pléiade*, Montaigne, and others.

120A-120B. *The Seventeenth Century.* (2-2) Yr. _____
The classical ideal. The study of human nature, reason, will, passions in the literature of the seventeenth century.

121A-121B. *The Eighteenth Century.* (2-2) Yr. Mr. Crowley
121A. Readings and discussions of the outstanding works of the literature and thought of the period (1680-1789), omitting Voltaire and Rousseau.
121B. Limited to study of Voltaire and Rousseau.

124. *Readings in the Works of Rousseau.* (2) I. Mr. Thielemann
Study of the principal literary and philosophical writings, with special emphasis on the background of Rousseau's thought.

125. *Gustave Flaubert, the Romantic and the Realist.* (2) II. Mr. Miller
Readings and discussions of the author's early writings and of *Madame Bovary*, *Salammô*, *L'Éducation Sentimentale*, *La Tentation de St. Antoine*, and *Bouvard et Pérouchet*.

130A-130B. *Grammar, Composition, and Style.* (3-3) Yr. Mr. Fite
Prerequisite: an average grade of C or better in French courses. This course is required of all candidates for the certificate of completion of the teacher-training curriculum, or for the degree of Master of Arts.

Cours de Style. Study of phonetics, morphology, and syntax of the modern French language. Historical development of certain elements of modern grammar. Original composition and oral practice.

199A-199B. *Special Studies in French.* (2-2) Yr. The Staff
Prerequisite: consent of the instructor.
Guided readings and reports.

* Not to be given, 1956-1957.

GRADUATE COURSES

Prerequisite for candidates for the M.A. degree or a teaching credential: the bachelor's degree in French, including a year of college Latin, or its equivalent.

- 204A-204B. Studies in Voltaire. (2-2) Yr. Mr. Crowley
A study of various phases of Voltaire—the dramatist, the poet, the social reformer, the thinker, the historian, the iconoclast, etc. Investigation of related problems.
- *206A-206B. Old French Readings. (2-2) Yr. Mr. Williams
Roland, Marie de France, Chrétien de Troyes, *Lucassin et Nicolette*.
- 218A-218B. French Classicism. (2-2) Yr. Mr. Bonno
- 219A. Studies in Romanticism. (2) II. Mr. Barker
Studies in the origins and development of the various facets of Romanticism.
- *219B. Studies in Romanticism and Realism. (2) II. Mr. Barker
Studies in the decline of the romantic ideal and the rise of realism, with particular reference to the works of Balzac and Stendhal.
- 219C. Studies in Realism. (2) I. Mr. Barker
Studies in the evolution of realism as represented in the works of Monnier, Duranty, Champfleury, et al., but with particular reference to the works of Flaubert.
220. Explication de Textes. (2) I. Mr. Bonno
- 228A-228B. French Poetry from Baudelaire to the Present. (2-2) Yr. Mr. Pucciani
235. Methods of Literary Research with Special Reference to Bibliography. (2) II. Mr. Bonno
- *256A-256B. Sixteenth-Century French Poetry. (2-2) Yr. Mr. Humiston
- 257A-257B. The Sources of French Tragedy. (2-2) Yr. Mr. Humiston
Greek, Latin, and Italian theoreticians of tragedy and their influence on the writers of tragedy in the sixteenth century.
- 258A-258B. Rabelais and Montaigne. (3-3) Yr. Mr. Lapp
A study of the two masters of Renaissance prose with emphasis on the narrative art of Rabelais and Montaigne.
290. Research in French. (1-6) I, II. The Staff
Prerequisite: consent of the instructor.
- 298A-298B. Problems of Literary Criticism. (2-2) Yr. Mr. Fite
Intensive study and analysis of a single author in the modern field of French literature. Examination of sources and influences.

PROFESSIONAL COURSE IN METHOD

370. The Teaching of French. (3) I. Mr. Miller
Prerequisite: courses 101A-101B and 109A-109B, the latter being permitted concurrently. Required of all candidates for the certificate of completion in French; should be completed before practice teaching.

RELATED COURSES IN ANOTHER DEPARTMENT (See page 335)

- *Romance Languages and Literature 201A-201B. French Historical Grammar and Methodology of Romance Linguistics. (2-2) Yr. Mr. Williams
 *Romance Languages and Literature 203A-203B. Old Provençal: Reading of Texts. (2-2) Yr. Mr. Williams

GEOGRAPHY

- Ruth Emily Baugh, Ph.D., *Professor of Geography, Emeritus.*
 Henry J. Bruman, Ph.D., *Professor of Geography.*
 Robert M. Glendinning, Ph.D., *Professor of Geography.*
 Joseph E. Spencer, Ph.D., *Professor of Geography (Chairman of the Department).*
 †Clifford M. Zierer, Ph.D., *Professor of Geography.*
 George McCutchen McBride, Ph.D., *Professor of Geography, Emeritus.*
 H. Louis Kostanick, Ph.D., *Associate Professor of Geography.*
 †Richard F. Logan, Ph.D., *Associate Professor of Geography.*
 Clifford H. MacFadden, Ph.D., *Associate Professor of Geography.*
 Benjamin E. Thomas, Ph.D., *Associate Professor of Geography.*
 Harry P. Bailey, Ph.D., *Assistant Professor of Geography.*
 John F. Gaines, Ph.D., *Assistant Professor of Geography.*
 Tom L. McKnight, Ph.D., *Assistant Professor of Geography.*
 Howard J. Nelson, Ph.D., *Assistant Professor of Geography.*
 Richard E. Dahlberg, M.A., *Acting Assistant Professor of Geography.*
 Myrta L. McClellan, M.A., *Assistant Professor of Geography, Emeritus.*

Letters and Science List.—All undergraduate courses in geography are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Two principal objectives may be recognized for those who select geography as a major: (1) *professional* training in the subject and preparation for graduate study, and (2) *semiprofessional* training for the student who wishes to gain a broad understanding of the world and its people. Most courses in the department are designed to meet the needs of both groups of students but some are offered primarily to meet the special requirements of students who plan to make professional use of geography.

Preparation for the Major.—Geography 1A-1B, 3, and 4 are required of all majors. In addition, Geology 2, or 5, or 101 is required of professional majors. Introductory courses in anthropology, botany, economics, geology, history, political science, and the modern foreign languages are recommended for all majors.

The Major.—The minimum requirement for all majors is 30 units of upper division work in geography.

Professional majors are required to take as Group I: Geography 101, 105A, 115, 175; and three courses from Group II: Geography 121, 122A, 122B, 123A, 123B, 124A, 124B, 125, 126, 127, 131; plus three courses from Group III: Geography 105B, 113, 118, 119, 141, 142, 155, 161, 165, 171, 173, 181. Geography 105B, 113, 118, 141, 142, 155, 161, 165, 171, 173, 181.

Semiprofessional majors are required to take as Group I: Geography 115 and 175; and normally four courses from Group II: Geography 121, 122A,

* Not to be given, 1956-1957.

† Absent on leave, 1956-1957.

‡ In residence fall semester only, 1956-1957.

122B, 123A, 123B, 124A, 124B, 125, 126, 127, 131; plus four courses from Group III: Geography 101, 105A, 105B, 113, 118, 141, 142, 155, 161, 165, 171, 173, 181.

A list of upper division courses in other departments recommended for geography majors may be secured from the departmental advisers. The development of some competence in an allied subject is recommended for professional majors.

LOWER DIVISION COURSES

1A. Introduction to Geography: Physical Elements. (3) I, II.

Mr. Glendinning, Mr. Gaines, Mr. Thomas

Students who have had course 5A or 100 will receive only half credit for course 1A.

A study of the basic physical elements of geography (especially climate, land forms, soils, and natural vegetation), and their integrated patterns of world distribution.

1B. Introduction to Geography: Cultural Elements. (3) I, II.

Mr. Bailey, Mr. Kostanick, Mr. Nelson

Prerequisite: course 1A or 5A. Students who have had course 5B or 100 will receive only half credit for course 1B.

A study of the basic cultural elements of geography (population distribution, general land-use patterns, and trade) and their correlation with the physical elements. Delimitation of the major geographic regions of the world.

3. Introduction to Climate and Weather. (3) I, II.

Mr. Bailey

A survey of the earth's atmospheric phenomena, with special reference to the causes and regional distribution of climate and weather.

4. Map Reading and Interpretation. (2) I, II.

Lecture, one hour; laboratory, two hours.

A study of maps in the light of present-day needs, with special emphasis on the geographic interpretation of relationships between the natural and cultural phenomena in representative areas. Includes history of maps, map projections, aerial photographs, and practice in the reading of selected domestic and foreign maps.

5A. Economic Geography. (3) I, II.

Not open to students who have credit for course 1A-1B. Students who have credit for course 1A or 100 will receive only 1½ units of credit for course 5A.

A study of those physical and cultural elements of the environment essential to the geographic interpretation of economic activities.

5B. Economic Geography. (3) I, II.

Prerequisite: course 1A, or 5A, or 100. Students who have credit for course 1B will receive only half credit for course 5B.

The principles of economic geography as developed through studies of representative occupations, commodities, and trade.

UPPER DIVISION COURSES

100. Principles of Geography. (3) I, II.

Mr. Bailey

Prerequisite: senior standing, or candidacy for a teaching credential. Not open to those who have credit for course 1A-1B or 5A-5B; may not be counted on the major in geography.

A brief survey of the fundamental physical and cultural elements of geography and their integration on a world-wide regional basis.

Technique Courses

101. Fundamentals of Geographic Field Work. (3) II. Mr. MacFadden
Saturdays in the spring semester. Prerequisite: course 1A-1B or 5A-5B, and consent of the instructor. To be taken by major students normally in the junior year.

Selected field studies in the Los Angeles area. The course affords training in field mapping of rural and urban types and in techniques of area analysis.

105A-105B. Cartography. (3-3) Yr.

Prerequisite: course 4 and one of the following: 1A-1B, or 5A-5B, or 100, or consent of the instructor. Course 105A is prerequisite to 105B.

Theory and construction of map projections, content and construction of cartograms, diagrams, and maps, graphic presentation of geographic data, and the systems of making and reproducing maps.

Physical Geography

113. General Climatology. (3) I. Mr. Bailey

Prerequisite: course 3 and one of the following: 1A-1B or 5A-5B, or 100, or consent of the instructor. To be taken by major students normally in the junior year.

A study of the causes of climatic phenomena and of the larger features which characterize the climates of the earth.

115. Physical Bases of Geography. (3) I, II. Mr. Glendinning

Prerequisite: course 1A-1B or 5A-5B. One or two field trips may be required. To be taken by major students in the junior year; by others in either the junior or senior year.

A study of the basic physical factors existing in each of the major geographic realms, with special emphasis on the interrelationships of climates, land forms, soils, drainage, and natural vegetation.

118. Plant Geography. (3) II. Mr. Gaines

Prerequisite: course 1A-1B, or 5A-5B, or 100

Character, distribution, and environmental relationships of the principal vegetation regions of the world.

119. Geography of the Arid Lands. (3) I. Mr. Glendinning in charge

Prerequisite: course 1A-1B, 101, 115, 118, 175 and/or consent of instructor.

An investigation of the physical and cultural complexes of the world's arid regions. Salient factors emphasized include climate, landforms, water, soils, natural vegetation and the various aspects of human occupation, including future possibilities for human utilization.

Regional Courses

121. The Geography of Anglo-America. (3) I. Mr. Zierer

Prerequisite: course 1A-1B, or 5A-5B, or 100.

Delimitation and analysis of the principal economic geographic divisions of the United States, Canada, and Alaska.

122A. The Geography of Middle America. (3) I. Mr. Bruman

Prerequisite: course 1A-1B, or 5A-5B, or 100.

A study of the geographic factors, physical and cultural, that are basic to an understanding of the historical development of Middle America and of the contemporary economic and social geography of Mexico and the countries of Central America and the West Indies.

- 122B. The Geography of South America. (3) II.** Mr. Bruman
 Prerequisite: course 1A-1B, or 5A-5B, or 100.
 A study of the geographic factors, physical and cultural, that are basic to an understanding of the historical development of South America and of the contemporary economic and social geography of the individual South American countries.
- 123A. The Geography of Western Europe. (3) I.** Mr. Kostanick
 Prerequisite: course 1A-1B, or 5A-5B, or 100.
 A study of geographic conditions and their relation to economic, social, and political problems in the Atlantic states of Europe. Emphasis on France, Germany, the British Isles, Scandinavia, and the Benelux Countries.
- 123B. The Geography of Eastern Europe and the Soviet Lands. (3) II.**
 Prerequisite: course 1A-1B, or 5A-5B, or 100. Mr. Kostanick
 A study of geographic conditions and their relation to economic, social, and political problems in eastern and southern Europe, including Soviet Asia.
- 124A. The Geography of Southern Asia. (3) I.** Mr. MacFadden
 Prerequisite: course 1A-1B, or 5A-5B, or 100.
 A regional survey of the physical and cultural features which characterize the economic, social, and political geography of southern Asia (India through the East Indies) during historic and modern times.
- 124B. The Geography of Eastern Asia. (3) II.** Mr. Spencer
 Prerequisite: course 1A-1B, or 5A-5B, or 100.
 A regional survey of the physical and cultural features which characterize the economic, social, and political geography of eastern Asia (China, Korea, and Japan).
- *125. The Geography of Australia and Oceania. (3) II.** Mr. Zierer
 Prerequisite: course 1A-1B, or 5A-5B, or 100.
 A regional synthesis of the physical and human features which characterize Australia and New Zealand, Hawaii, and the islands of the South Pacific.
- 126. The Geography of Africa. (3) II.** Mr. Thomas
 Prerequisite: course 1A-1B, or 5A-5B, or 100.
 The regions of Africa in terms of physical features, human settlement, economic production, and political patterns.
- 127. The Geography of the Middle East. (3) I.** Mr. Thomas
 Prerequisite: course 1A-1B, or 5A-5B, or 100.
 A regional survey of the physical and cultural features which characterize the economic, social, and political geography of Asia Minor, the Near East, and the Middle East during historic and modern times.
- *131. The Geography of California. (3) I, II.** Mr. Logan
 Prerequisite: course 1A-1B, or 5A-5B, or 100.
 An analysis of geographic conditions in the seven major provinces of California. Utilization of resources, routes of communication, location of settlements, and distribution of population in their geographical and historical aspects.
- Cultural Geography*
- 141. Commercial Geography. (3) I.** Mr. MacFadden
 Prerequisite: course 1A-1B, or 5A-5B, or 100, or consent of the instructor.
 Analysis of the geographic distribution of basic raw materials in relation to world trade centers and trade routes.

142. **Industrial Geography.** (3) II. Mr. Nelson
Prerequisite: course 1A-1B, or 5A-5B, or 100, or consent of the instructor.
Analysis of the distribution of the manufacturing industries.
155. **Urban Geography.** (3) II. Mr. Nelson
Prerequisite: course 1A-1B, or 5A-5B, or 100, or consent of the instructor.
A study of the origin, development, distribution, and regional variation of the world's cities, with emphasis on an analysis of the functions and patterns of American cities.
161. **The Conservation of Natural Resources.** (3) I. Mr. Zierer
Prerequisite: course 1A-1B, or 5A-5B, or 100, or consent of the instructor.
The general principles of conservation and their application, especially in the United States.
- *165. **Geographical Aspects of Land Planning.** (3) I. Mr. Glendinning
Prerequisite: course 1A-1B, or 5A-5B, and consent of the instructor.
Normally limited to ten students.
A study of the role of geographic discipline in land-planning activities.
- *171. **Historical Geography of Anglo-America.** (3) II. Mr. Zierer
Prerequisite: course 1A-1B, or 5A-5B, or 100.
The geography of the major divisions of the United States and Canada at selected times in the past.
- *173. **The Historical Geography of the Mediterranean Region.** (3) II. _____
Prerequisite: course 1A-1B, or 5A-5B, or 100.
A study of the geographic factors operative in the Mediterranean lands from ancient to modern times.
175. **The Cultural Bases of Geography.** (3) I, II. Mr. Spencer, Mr. Bruman
Prerequisite: course 1A-1B, or 5A-5B, or 100.
The geographic factor in the evolution of primitive cultures and of advanced civilizations.
181. **Political Geography.** (3) I, II. Mr. Kostanick
Prerequisite: course 1A-1B, or 5A-5B, or 100, or the consent of the instructor.
The principles of political geography as developed through regional studies of political phenomena throughout the world. Current problems in domestic and international affairs will be considered.

Research

199. **Problems in Geography.** (3) I, II. The Staff
Open to seniors and graduate students who have the necessary preparation for undertaking semi-independent study of a problem. Registration only after conference with the instructor in whose field the problem lies.

GRADUATE COURSES†

205. **Advanced Cartography.** (3) II. _____
Prerequisite: course 105 or the equivalent, and consent of the instructor.

* Not to be given, 1956-1957.

† Requirements for the master's degree in geography may be met by either Plan I or Plan II.

Plan I, required of those preparing for advanced professional positions, must include

250. **The Growth of Geographic Thought. Seminar. (3) I.** Mr. Spencer
Prerequisite: consent of the instructor.
Normally the first semester to be taken by graduate students in geography.
255. **Seminar in the Geography of Asia. (3) II.** Mr. Spencer
Prerequisite: course 124A, or 124B, or the equivalent, and consent of the instructor.
256. **Seminar in the Geography of Anglo-America. (3) I.** Mr. Zierer
Prerequisite: course 121 or the equivalent, and consent of the instructor.
257. **Seminar in the Geography of Latin America. (3) I.** Mr. Bruman
Prerequisite: course 122A, or 122B, or the equivalent, and consent of the instructor.
- *258. **Seminar in California Geography. (3) II.** Mr. Logan
Prerequisite: consent of the instructor.
- *259. **Seminar in the Geography of Australia and Oceania. (3) II.** Mr. Zierer
Prerequisite: course 125 or the equivalent, and consent of the instructor.
261. **Seminar in Climatology. (3) II.** Mr. Bailey
Prerequisite: course 113 or the equivalent, and consent of the instructor.
262. **Land Forms and Their Geographic Significance. Seminar. (3) II.** Mr. Glendinning
Prerequisite: course 115 or the equivalent, and consent of the instructor.
270. **Seminar in Economic Geography. (3) I.** Mr. MacFadden
Prerequisite: course 141 or 142, or the equivalent, and consent of the instructor.
271. **Seminar in Political Geography. (3) II.** Mr. Kostanick
Prerequisite: course 181 or the equivalent, and consent of the instructor.
272. **Seminar in Cultural Geography. (3) II.** Mr. MacFadden
Prerequisite: consent of the instructor.
The topic for 1956 will be concerned with some aspect of colonial economic development.
273. **Seminar in Selected Regions. (3) I.** Mr. Thomas
Prerequisite: course 127, and consent of instructor.
The region to be considered for 1955 will be Africa.
275. **Advanced Field Problems in Local Geography. (6)** Mr. MacFadden
Six weeks, concurrent with the Summer Session.
Prerequisite: course 101 or the equivalent, and consent of the instructor.
Advanced field study in representative areas of southern California; reconnaissance and detailed field-mapping, systematic and regional analysis of significant physical and cultural features, and the preparation of written research and field reports.

at least three courses (one from each of three of the following groups): 250; 255, 256, 257, 258, 259 or 273; 270, 271 or 272; 275 or 280 or 290; and a thesis.

Plan II, required (unless the student elects Plan I) of those preparing for positions below the junior college level, must include at least four courses (normally one from each of the four above groups); and a comprehensive examination.

The general requirements for the Ph.D. degree in geography are described on page 66 of this bulletin.

* Not to be given, 1956-1957.

280. **Geographic Writing—Research Techniques and Reports.** (3) I.
Prerequisite: consent of the instructor. Mr. Gaines
290. **Research in Geography.** (1-6) I, II. The Staff
Prerequisite: consent of the instructor.
Investigation subsequent to, and growing out of, any of the above seminars.

GEOLOGY

- Daniel I. Axelrod, Ph.D., *Professor of Geology.*
Cordell Durrell, Ph.D., *Professor of Geology.*
U. S. Grant, Ph.D., *Professor of Geology.*
_____, *Professor of Geology.*
Joseph Murdoch, Ph.D., *Professor of Geology.*
William C. Putnam, Ph.D., *Professor of Geology (Chairman of the Department).*
George Tunell, Ph.D., *Professor of Geology.*
¹Kenneth D. Watson, Ph.D., *Professor of Geology.*
William John Miller, Ph.D., Sc.D., *Professor of Geology, Emeritus.*
John C. Crowell, Ph.D., *Associate Professor of Geology.*
Willis P. Popenoe, Ph.D., *Associate Professor of Geology.*
¹Donald Carlisle, Ph.D., *Assistant Professor of Geology.*
Clarence A. Hall, Jr., Ph.D., *Assistant Professor of Geology.*
Clemens A. Nelson, Ph.D., *Assistant Professor of Geology.*
Edward L. Winterer, Ph.D., *Assistant Professor of Geology.*
Alexander Stoyanow, Ph.D., *Research Associate in Geology.*



- David T. Griggs, *Professor of Geophysics.*
George C. Kennedy, Ph.D., *Professor of Geochemistry.*
Louis B. Slichter, Ph.D., *Professor of Geophysics and Director of the Institute of Geophysics.*
_____, *Assistant Professor of Geophysics.*

GEOLOGY

Letters and Science List.—All undergraduate courses in geology, mineralogy, and paleontology are included in the Letters and Science List of Courses. For regulations governing this list see page 6.

Preparation for the Major.—Geology 3, 5; Mineralogy 6; Chemistry 1A-1B; Physics 2A-2B; Engineering 1A; Mathematics D or 1, C, and 3A; a reading knowledge of any modern foreign language; English 106S.

The Major.—At least 26 units of upper division courses, including Geology 102A-102B, 103, 107, 116 and 118A-118B or 199 (6 units), and Paleontology 111. Each major program must be approved by the department.

Differential and integral calculus, physical chemistry, and analytic mechanics are recommended for students whose chief interest is physical geology.

Advanced zoology courses are recommended for students concerned chiefly with paleontology and stratigraphy.

¹ In residence fall semester only, 1956-1957.

Students interested in mining geology may take such courses as mineral exploration, mineral economics, mineral exploitation, and mineral dressing at Berkeley.

GEOPHYSICS

For the interdepartmental curriculum in geophysics, see page 12.

GEOLOGY

LOWER DIVISION COURSES

2. **General Geology—Physical.** (3) I, II. Mr. Nelson, Mr. Grant
Not open to students who have taken or are taking Geology 5.
An elementary course in the principles of physical geology.
3. **General Geology—Historical.** (4) II. Mr. Nelson
Lecture, three hours; laboratory, three hours. Prerequisite: course 2 or 5.
The geologic history of the earth and its inhabitants.
5. **Physical Geology.** (4) I. Mr. Axelrod
Lecture, three hours; laboratory, three hours. Field trips are taken during laboratory periods. Prerequisite: elementary chemistry. Not open to students who have taken or are taking Geology 2.
A beginning course in physical geology for science majors and engineers.

UPPER DIVISION COURSES

101. **Principles of Geology.** (3) I. Mr. Carlisle
Prerequisite: junior standing. Not open to students who have taken Geology 2, 3, or 5.
A survey of the principles of physical and historical geology.
- 102A-102B. **Field Geology.** (4-3) Yr. The Staff
Lecture, one hour; laboratory, two hours; field work Tuesdays or Saturdays all day. Prerequisite: course 3; Engineering 11A-11A; 103 (may be taken concurrently with 102A); English 106S (may be taken concurrently); 102A prerequisite to 102B.
Principles and methods of geologic mapping.
103. **Petrology.** (3) I. Mr. Watson
Lecture, two hours; laboratory, four hours. Prerequisite: Mineralogy 6; Chemistry 1B (may be taken concurrently).
Origins and characteristics of rocks. Laboratory determination with the hand lens.
107. **Geology of North America.** (2) II. Mr. Nelson
Prerequisite: course 3.
A regional study of North American geology.
110. **Economic Geology.** (3) II. Mr. Tunell
Lecture, two hours; laboratory, three hours. Prerequisite: course 103.
Origin and occurrence of the important metallic and nonmetallic mineral deposits.
111. **Petroleum Geology.** (3) I. Mr. Crowell
Prerequisite: courses 102A, 116.
Geology applied to the exploration and production of petroleum, techniques of surface and subsurface geology; petroleum engineering problems of concern to geologists.

- 116. Structural Geology. (3) II.** Mr. Crowell
Lecture, two hours; laboratory, three hours. Prerequisite: course 102A and 103. A knowledge of descriptive geometry (e.g., Engineering 2) is desirable.
Fracture, folding, and flow of rocks. Graphic solution of structural problems.
- 117. Geomorphology. (3) I.** Mr. Putnam
Prerequisite: course 2, or 5, or 101.
Principles of geomorphology.
- 118A. Advanced Field Geology. (4)** The Staff
Eight weeks, commencing with Summer Session. Prerequisite: Geology 102B or the equivalent; Geology 116. Geology 118B must be taken concurrently.
Preparation of a geologic field map and structure sections of a selected region.
- 118B. Advanced Geologic Report Writing. (2)** The Staff
Eight weeks commencing with Summer Session. Geology 118A must be taken concurrently.
Preparation of a geologic report concerning the geology of the region mapped in course 118A.
- 158. Foundations of Stratigraphy. (2) I.** Mr. Axelrod
Prerequisite: course 102.
A survey of geologic, paleontologic, biologic, and climatic principles applicable to stratigraphy, and their bearing on paleogeography.
- 199. Special Studies in Geology. (1 to 6) I, II.** The Staff (Mr. Putnam in charge)
Open only to seniors. Prerequisite: approval of the department chairman.

GRADUATE COURSES

- *214A-214B. Advanced Petrographic Laboratory. (2-5; 2-5) Yr.** Mr. Watson
Prerequisite: Mineralogy 109. Recommended: course 251. Offered in alternate years.
Igneous rocks.
- 215A-215B. Advanced Petrographic Laboratory. (2-5; 2-5) Yr.** Mr. Durrell
Prerequisite: Mineralogy 109. Offered in alternate years.
Metamorphic rocks.
- 236. Physical Geology of California. (3) II.** Mr. Durrell
- 251. Seminar in Chemical Petrology. (3) I.** Mr. Tunell
Prerequisite: Mineralogy 109.
- 252. Seminar in Geomorphology. (3) II.** Mr. Putnam
Prerequisite: course 117 or the equivalent.
- 255. Seminar in Dynamical Geology. (3) I.** Mr. Grant
Prerequisite: consent of the instructor; calculus required.
- 258. Seminar in Stratigraphy. (3) II.** Mr. Nelson
Prerequisite: course 158.

* Not to be given, 1956-1957.

- 259. Field Investigations in Geology. (2) II.** The Staff
Prerequisite: graduate standing and consent of the instructor.
Preparatory seminars on a selected field problem, followed by a field trip to the region during spring recess, with a report required.
- 260A-260B. Seminar in Structural Geology. (3-3) Yr.** Mr. Crowell
The second semester of this course may be taken without the first.
- 263A-263B. Seminar in Economic Geology. (3-3) Yr.** Mr. Carlisle
Seminar, two hours; laboratory, three hours. Occasional field trips during the course. Prerequisite: course 110. Mineralogy 108 and 181 are recommended. The second semester of this course may be taken without the first.
- 299. Research in Geology. (1 to 6) I, II.**
The Staff (Mr. Putnam in charge)

MINERALOGY**LOWER DIVISION COURSE**

- 6. Introduction to Mineralogy. (4) I, II.** Mr. Murdoch
Lecture, two hours; laboratory, six hours. Two or more one-day field trips required. Prerequisite: elementary chemistry.
Determination of common rock-forming minerals; origin, relationships, and properties; study of simple crystals; use of blowpipe and chemical tests for minerals.

UPPER DIVISION COURSES

- 101. Paragenesis of Minerals. (2) I.** Mr. Murdoch
Prerequisite: course 6 and one year of college chemistry.
- 102. Advanced Mineralogy. (3) II.** Mr. Tunell
Lecture, one hour; laboratory, six hours. Prerequisite: course 6 or the equivalent.
Crystallography with study of models and national crystals; determination with fuller treatment of nonsilicate minerals.
- 108. Optical Mineralogy and Petrography. (4) I.** Mr. Durrell
Lecture, two hours; laboratory, six hours. Prerequisite: course 6; Geology 103 (may be taken concurrently).
Optical properties of minerals; determination of minerals and rocks with the petrographic microscope; immersion methods.
- 109. Petrology and Petrography of Igneous and Metamorphic Rocks. (2) II.** Mr. Durrell
Laboratory, six hours. Prerequisite: course 108 (formerly numbered 109A).
Characteristics and origin of igneous and metamorphic rocks; determination with the petrographic microscope.
- 110. Petrology and Petrography of Sedimentary Rocks. (2) II.** Mr. Winterer
Laboratory, six hours. Prerequisite: course 108 (formerly numbered 109A).
Characteristics and origin of sedimentary rocks; physical and mineralogical analysis of sediments; determination of minerals by immersion methods.

181. **Mineralography. (2) II.** Mr. Murdoch
Laboratory, six hours. Prerequisite: course 108 (formerly numbered 109A).

Determination of opaque minerals in polished sections; recognition of common ore minerals; paragenetic relationships.

GRADUATE COURSES

274. **Seminar in Structural Crystallography. (2-5) I.** Mr. Tunell
Seminar, two hours; laboratory, optional. Prerequisite: consent of the instructor.

Advanced crystallography and the atomic structure of crystals.

282. **Problems in Goniometry. (2 to 4) II.** Mr. Murdoch

299. **Research in Mineralogy. (1 to 6) I, II.** Mr. Murdoch, Mr. Tunell

PALEONTOLOGY

UPPER DIVISION COURSES

101. **Principles of Paleontology. (3) II.** Mr. Hall
Prerequisite: junior standing.

A survey of the principles governing the evolution and distribution of fossil plants and animals.

111. **Systematic Invertebrate Paleontology. (4) II.** Mr. Popenoe
Lecture, two hours; laboratory, six hours. Prerequisite: Geology 3.

The study of invertebrate fossils.

114. **Micropaleontology. (3) I.** Mr. Winterer

Lecture, one hour; laboratory, six hours. Prerequisite: course 111 and Geology 102B.

Study of the microfossils important in stratigraphic work.

- *120. **Paleobotany. (3) II.** Mr. Axelrod

Lecture, two hours; laboratory, three hours. Prerequisite: Geology 3, Botany 2. Offered in alternate years.

Vegetation of the earth during geologic time.

136. **Paleontology and Stratigraphy of the Paleozoic and Mesozoic. (3) I.**

Mr. Popenoe
Lecture, one hour; laboratory, six hours. Prerequisite: course 111.

137. **Paleontology and Stratigraphy of the Cenozoic. (3) II.** Mr. Grant

Lecture, two hours; laboratory, three hours. Prerequisite: course 111.

GRADUATE COURSES

215. **Systematic Conchology and Echinology. (2) I.** Mr. Grant
Prerequisite: course 111.

Classification of west-American Cenozoic Mollusca and Echinoidea.

258. **Seminar in Paleontology. (2) I.** Mr. Popenoe

Prerequisite: course 111.

Review of current and classic paleontologic works, with emphasis on principles of paleontology.

* Not to be given, 1956-1957.

290. **Research in Biogeography.** (1-4) I, II. Mr. Axelrod
Prerequisite: graduate standing in biological science; consent of the instructor.
Application of geological and paleontological data to a solution of present-day biogeographical problems.
299. **Research in Paleontology.** (1 to 6) I, II. Mr. Popenoe, Mr. Grant

GEOPHYSICS

UPPER DIVISION COURSE

122. **Geophysical Prospecting.** (3) II. _____
Prerequisite: consent of the instructor.
The principles of geophysical prospecting for ores, petroleum, and other economic minerals.

GRADUATE COURSES

249. **Experimental Petrology.** (3) I. Mr. Kennedy
250. **Seminar in Geophysics.** (3) I. Mr. Slichter
Fundamental problems in physics of the solid earth.
The content will vary from year to year.
260. **Experimental Geology.** (3 to 6) II. Mr. Griggs
Seminar, two hours; laboratory optional. Prerequisite: consent of the instructor.
The mechanics of rock deformation. Dimensional analysis and model theory applied to geological problems.
290. **Research in Geophysics.** (1-6) I, II. The Staff (Mr. Griggs in charge)

GERMANIC LANGUAGES

- Gustave Otto Arlt, Ph.D., *Professor of German.*
Alfred Karl Dolch, Ph.D., *Professor of German.*
Wayland D. Hand, Ph.D., *Professor of German and Folklore.*
Victor A. Oswald, Jr., Ph.D., *Professor of German (Chairman of the Department).*
Erik Wahlgren, Ph.D., *Professor of Scandinavian and German.*
Frank H. Reinsch, Ph.D., *Professor of German, Emeritus.*
Carl William Hagge, Ph.D., *Associate Professor of German.*
Vern W. Robinson, Ph.D., *Associate Professor of German.*
Eli Sobel, Ph.D., *Associate Professor of German.*
William J. Mulloy, Ph.D., *Associate Professor of German, Emeritus.*
Robert B. Heitner, Ph.D., *Assistant Professor of German.*
William F. Roertgen, Ph.D., *Assistant Professor of German.*
Terence Harrison Wilbur, Ph.D., *Assistant Professor of German.*
Charles W. Hoffman, M.A., *Acting Instructor in German.*
Edith A. Schulz, M.A., *Associate in German.*



William Melnitz, Ph.D., *Associate Professor of Theater Arts.*

Letters and Science List.—All undergraduate courses in German and Scandinavian languages except German 370 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Required: course 1, 2, 3 (3LS, 3PS), 4,

6, and 42A-42B, or their equivalents. Recommended: History 1A-1B; English 1A-1B, 46A-46B; Philosophy 20A-20B.

The Major in German.—At least 24 units in upper division courses, including 106A, 106B, 107A, 107B, 109B, 118A, 118B, and one course from each of the following groups: (1) 105, 108, 109A, 119; (2) 104A, 104B, 110, 111; (3) 114A, 114B. Students looking forward to the secondary credential should take also 106C-106D. Students desiring a purely literary or philological major, not looking toward secondary teaching, should consult the departmental adviser regarding permissible substitutions of courses.

Requirements for Admission to Graduate Courses

A candidate for admission to graduate courses in Germanic languages and literatures must meet, in addition to the general University requirements, the minimum requirements for an undergraduate major in this department. If the candidate is deficient in this prerequisite he must fulfill it by undergraduate courses taken as a graduate student.

Requirements for the Master's Degree

For the general requirements, see page 64. The Department of Germanic Languages favors the Comprehensive Examination Plan. For specific departmental requirements, see the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

Requirements for the Ph.D. Degree.

For the general requirements, see page 66. For specific departmental requirements, see the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

GERMAN

LOWER DIVISION COURSES

The ordinary prerequisites for each of the lower division courses are listed under the description of these courses. Students who have had special advantages in preparation may be permitted a more advanced program; or such students may be transferred to a more advanced course on recommendation of the instructor.

1. **Elementary German.** (4) I, II. Miss Schulz and Mr. Roertgen in charge
This course corresponds to the first two years of high school German.
- *1-2. **Elementary German. Intensive Course.** (8) I, II.
Two hours daily, four times a week. Mr. Oswald in charge
This course stresses the oral-aural approach, and is equivalent to German 1 and German 2.
- 1G. **Elementary German for Graduate Students.** (No credit) I, II.
Four hours a week. Miss Schulz in charge
2. **Elementary German.** (4) I, II. Miss Schulz and Mr. Roertgen in charge
Prerequisite: course 1 or two years of high school German.
- ‡3. **Intermediate German.** (4) I, II. Mr. Wilbur in charge
Prerequisite: course 2 or three years of high school German.
Readings in literary German.
- ‡3LS. **Intermediate German.** (4) I, II. Mr. Roertgen in charge
Prerequisite: course 2 or three years of high school German.
Readings in the life sciences.

* Not to be given, 1956-1957.

‡ Any two of the courses numbered 3, 3LS, 3PS, may be taken for credit. It is recommended that German 3 be taken before the specialized courses.

- 3PS. Intermediate German.** (4) I, II. Mr. Roertgen in charge
Prerequisite: course 2 or three years of high school German.
Readings in the physical sciences.
- 4. Intermediate German.** (4) I, II. Mr. Wilbur in charge
Prerequisite: any one of courses 3, 3LS, 3PS, or four years of high school German.
Advanced readings in literary German.
- 6. Review of Grammar, Composition, and Conversation.** (2) I, II. Mr. Roertgen in charge
Prerequisite: course 2 or three years of high school German.
Required for the major in German.
- 8A-8B. German Conversation.** (1-1) Beginning each semester. Mr. Roertgen in charge
The class meets two hours weekly. Open to students who have completed course 2 or its equivalent. Course 8A is normally prerequisite to 8B.
- 42A-42B. German Civilization.** (2-2) Yr. Mr. Sobel
Lectures and reports. Conducted in English. No knowledge of German required.
A general survey of the development of German civilization in its more important cultural manifestations. Required for the major in German.

UPPER DIVISION COURSES

The prerequisite for all upper division courses except 121A and 121B is course 4 or the equivalent.

- 102. German Folklore.** (3) II. Mr. Hand
A survey of the various genres of German folklore. Lectures and reading of selected texts.
Offered only in alternate years.
- 104A-104B. Readings in the Drama of the Nineteenth Century.** (3-3) Yr. Mr. Robinson
Selected readings from nineteenth-century authors.
- 105. Lessing's Life and Works.** (3) I. Mr. Heitner
Lectures and reading of selected texts.
- 106A-106B. Grammar, Composition, and Conversation.** (2-2) Yr. Mr. Roertgen
106A. Emphasis on composition.
106B. Emphasis on conversation.
- 106C-106D. Grammar, Composition, and Conversation.** (2-2) Yr. Mr. Roertgen
Prerequisite: course 106A-106B.
- 107A-107B. Phonetics of the German Language.** (1-1) Yr. Mr. Wilbur
Lecture, one hour; laboratory, two hours.
107A. Articulatory and acoustic basis of German phonetics; training in transcription and reading of transcriptions.
107B. Applied phonetics; relation of *Bühnenaussprache* to general problems of orthoëpy.
- 108. Schiller's Life and Works.** (3) II. Mr. Heitner
Lectures and reading of selected texts.

‡ Any two of the courses numbered 3, 3LS, 3PS, may be taken for credit. It is recommended that German 8 be taken before the specialized courses.

- 109A. Introduction to Goethe. (3) I. Mr. Hagge
Goethe's lyrics and prose.
- 109B. Goethe's Dramas. (3) II. Mr. Hagge
110. The German Lyric. (3) II. Mr. Oswald
Prerequisite: 6 units of upper division German or consent of the instructor.
A survey from 1750 to 1880.
111. German Narrative Prose. (3) I. Mr. Sobel
Prerequisite: 6 units of upper division German or consent of the instructor.
A survey from 1750 to 1880, with special reference to the *Novelle*.
- 114A. German Literature from 1875 to the Present. (3) I. Mr. Oswald
Prerequisite: 6 units of upper division German or consent of the instructor.
Dramatic literature.
- 114B. German Literature from 1875 to the Present. (3) II. Mr. Oswald
Prerequisite: 6 units of upper division German or consent of the instructor.
Prose and poetry.
117. History of the German Language. (3) II. Mr. Wilbur
Prerequisite: course 106A-106B, 107A-107B, or consent of the instructor.
- 118A. History of German Literature. (3) I. Mr. Sobel
Prerequisite: 6 units of upper division German or consent of the instructor.
The Middle Ages to 1624.
- 118B. History of German Literature. (3) II. Mr. Arlt
Prerequisite: 6 units of upper division German or consent of the instructor. Lectures in German.
From 1624 to 1850.
119. Middle High German. (3) I. Mr. Dolch
Outline of grammar; selections from Middle High German poetry.
- 121A. German Literature in Translation. (2) I. Mr. Heitner
Prerequisite: junior standing. Not accepted as part of the major in German.
Readings and lectures on Lessing, Schiller, and Goethe.
- 121B. German Literature in Translation. (2) II. Mr. Sobel
Prerequisite: junior standing. Not accepted as part of the major in German.
Readings and lectures on selected modern authors.
132. Goethe's *Faust*. (3) II. Mr. Hagge
Prerequisite: course 109A and 6 additional units of upper division German, or consent of the instructor.
Intensive study of the text of Goethe's *Faust*, Parts I and II, together with more general consideration of other treatments of the Faust theme in European literature.
- 199A-199B. Special Study for Advanced Undergraduates. (1 to 3) I, II. The Staff
Topic selected with the approval of the department and studied under the direction of a member of the staff.

GRADUATE COURSES

201. Bibliography and Methods of Literary History. (2) I. Required for the M.A. and Ph.D. degrees.	Mr. Arlt
*208. The Sixteenth and Seventeenth Centuries. (3) I.	Mr. Arlt
210. The Age of Goethe. (3) I.	Mr. Hagge
*212. German Romanticism. (3) I.	_____
*213. The Enlightenment and Pre-Romanticism. (3) II.	Mr. Hagge
225. The Nineteenth-Century Drama. (3) I.	Mr. Robinson
*226. Naturalism. (3) I.	Mr. Hand
228. German Literature after 1890. (3) I.	Mr. Oswald
*229. Expressionism. (2) II.	Mr. Melnitz
230. Survey of Germanic Philology. (3) I.	Mr. Dolch
*231. Gothic. (3) I.	Mr. Dolch
*232. Old High German. (3) II.	Mr. Dolch
233. Old Saxon. (3) I.	Mr. Dolch
239. Readings in Middle High German Literature. (3) II. Prerequisite: course 119 or the equivalent. Required for the M.A. degree.	Mr. Dolch
251. Seminar on the Age of Goethe. (3) II.	Mr. Hagge
*253. Seminar in Nineteenth-Century Literature. (3) II.	_____
256. Seminar in Literature after 1875. (3) II.	Mr. Oswald
*257. Seminar in Sixteenth- and Seventeenth-Century Literature. (3) II. Prerequisite: course 208.	Mr. Arlt
*259. Seminar in Germanic Linguistics. (1 to 3) II. Prerequisite: course 230 and one dialect or the equivalent.	Mr. Dolch
298A-298B. Special Studies. (1-6; 1-6) Yr.	The Staff

PROFESSIONAL COURSE IN METHOD

*370. The Teaching of German. (3) I. Prerequisite: graduate standing in the Department of Germanic Languages. Required of all candidates for the general secondary credential in German. To be taken concurrently with Education 370.	_____
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SCANDINAVIAN LANGUAGES

LOWER DIVISION COURSES

1. Elementary Swedish. (4) I.	Mr. Wahlgren
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* Not to be given, 1956-1957.

2. **Intermediate Swedish. (4) II.** Mr. Wahlgren
Prerequisite: course 1 or the equivalent.
- *11. **Elementary Danish and Norwegian. (4) I.** Mr. Wahlgren
- *12. **Intermediate Danish and Norwegian. (4) II.** Mr. Wahlgren
Prerequisite: course 11 or the equivalent.

UPPER DIVISION COURSES

- 141A. **Scandinavian Literature in English Translation. (2) I.**
No prerequisite; open to all upper division students. Mr. Wahlgren
From earliest times to 1750.
- 141B. **Scandinavian Literature in English Translation. (2) II.**
No prerequisite; open to all upper division students. Mr. Wahlgren
From 1750 to the present.

GRADUATE COURSES

243. **Old Icelandic. (3) II.** Mr. Wahlgren
244. **Old Norse-Icelandic Prose and Poetry. (2) I.** Mr. Wahlgren

GREEK

For courses in Greek, see under Department of Classics.

HEBREW

For courses in Hebrew, see under Department of Classics.

HISTORY

- Eugene N. Anderson, Ph.D., *Professor of History.*
 †David K. Bjork, Ph.D., *Professor of History.*
 §Truesdell S. Brown, Ph.D., *Professor of History.*
 John W. Caughey, Ph.D., *Professor of History.*
 Brainerd Dyer, Ph.D., *Professor of History.*
 Clinton N. Howard, Ph.D., *Professor of History.*
 Roland D. Hussey, Ph.D., *Professor of History.*
 **Bernard Lewis, Ph.D., *Professor of History.*
 George E. Mowry, Ph.D., *Professor of History.*
 Theodore A. Saloutos, Ph.D., *Professor of History.*
 Frank J. Klingberg, Ph.D., *Professor of History, Emeritus.*
 Waldemar Westergaard, Ph.D., *Professor of History, Emeritus.*
 †Robert N. Burr, Ph.D., *Associate Professor of History.*
 Raymond H. Fisher, Ph.D., *Associate Professor of History.*
 John S. Galbraith, Ph.D., *Associate Professor of History (Chairman of the Department).*

* Not to be given, 1956-1957.

** Absent on leave, 1956-1957.

† Sabbatical leave in residence, fall semester, 1956-1957.

‡ Sabbatical leave in residence, 1956-1957.

§ Sabbatical leave in residence, spring semester, 1956-1957.

Yu-Shan Han, Ph.D., *Associate Professor of History.*
 *Jere C. King, Ph.D., *Associate Professor of History.*
 Andrew Lossky, Ph.D., *Associate Professor of History.*
 †Charles Page Smith, Ph.D., *Associate Professor of History.*
 †Mark H. Curtis, Ph.D., *Assistant Professor of History.*
 William R. Hitchcock, Ph.D., *Assistant Professor of History.*
 Donald B. Meyer, Ph.D., *Assistant Professor of History.*
 Bradford Perkins, Ph.D., *Assistant Professor of History.*
 Kenneth J. Pratt, Ph.D., *Visiting Assistant Professor of History.*
 Trygve R. Tholfsen, Ph.D., *Assistant Professor of History.*
 Eugen J. Weber, M.A., *Assistant Professor of History.*
 Robert Wilson, Ph.D., *Assistant Professor of History.*
 Lucy M. Gaines, M.A., *Assistant Professor of History, Emeritus.*
 Robert W. Winter, B.A., *Acting Instructor in History.*
 Viola L. Warren, A.B., *Lecturer in Medical History.*

Letters and Science List.—All undergraduate courses in history are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Required: (1) course 1A-1B, to be taken in the freshman year, and (2) course 5A-5B or 6A-6B or 7A-7B or 8A-8B, to be taken in the sophomore year, or equivalent preparation for students transferring from other departments or other institutions. History majors whose lower division program does not include course 6A-6B or 7A-7B must take 6 units of United States history in upper division. Recommended: Political Science 1, 2, Economics 1A-1B, Geography 1A-1B, and Philosophy 20A-20B. One of these recommended courses may be substituted for one of the required history courses, with approval of the department.

Recommended: French, German, Latin, Spanish, Italian, or a Scandinavian language. For upper division work in history, a reading knowledge of one of these is usually essential. For language requirements for graduate work, see ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

The Major

- (1) A minimum of 24 units of upper division work in history, including
 - a. History 111A-111B or History 121A-121B or 6 units chosen from courses numbered 141 to 149 or 6 units chosen from courses numbered 151 to 159.
 - b. History 162A-162B or 6 units chosen from courses numbered 171 to 188 or History 191A-191B.
 - c. Course 197 or 198.
 - d. Course 199 in a field for which preparation has been made. Course 199 may be taken before or after 197 or 198.

(2) Six units of approved upper division courses in an allied field. Allied fields include anthropology, art history, economics, geography, philosophy, political science, sociology, and a national literature of the field of the student's emphasis, e.g., English literature in combination with an English history emphasis. Approval of the courses selected must be obtained from a Department of History adviser.

Honors in History.—Inquiries regarding honors may be directed to the chairman of the department.

* Absent on leave, 1956-1957.

† Sabbatical leave in residence, fall semester, 1956-1957.

Graduate Work in History.—See the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION, and the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

LOWER DIVISION COURSES

1A-1B. Introduction to Western Civilization. (3-3) Yr.

Mr. Hitchcock, Mr. Weber

Lecture, two hours; discussion section, two hours.

A broad, historical study of major elements in the Western heritage from the world of the Greeks to that of the twentieth century, designed to further the beginning student's general education, introduce him to the ideas, attitudes, and institutions basic to Western civilization, and to acquaint him, through reading and critical discussion, with representative contemporary documents and writings of enduring interest.

History 1B is not open to students who have credit for History 140A-140B.

5A-5B. History of England and Greater Britain. (3-3) Yr.

Mr. Howard, Mr. Tholfsen, Mr. Curtis

Lecture, two hours; quiz section, one hour.

The political, economic, and cultural development of the British Isles and the Empire from the earliest times to the present.

6A-6B. History of American Civilization. (4-4) Yr.

Mr. Meyer

Lecture, two hours; quiz, two hours. Prerequisite: consent of the instructor. Enrollment will be limited.

An experimental survey of American civilization and culture with emphasis upon the central ideas found embedded in the fine arts, science, philosophy, religion, and law. Guest lectures from outside the department will be scheduled.

7A-7B. Political and Social History of the United States. (3-3) Yr.

Beginning either semester.

Mr. Dyer, Mr. Mowry, Mr. Salontes

Lecture, two hours; quiz section, one hour.

This course is designed for students in the social sciences who want a thorough survey of the political and social development of the United States as a background for their major work and for students in other departments who desire to increase their understanding of the rise of American civilization.

8A-8B. History of the Americas. (3-3) Yr.

Mr. Hussey, Mr. Burr

Lecture, two hours; quiz section, one hour.

A study of the development of the Western Hemisphere from the discovery to the present. Attention in the first semester to exploration and settlement, colonial growth, imperial rivalries, and the achievement of independence. In the second semester, emphasis upon the evolution of the American nations and people in the nineteenth and twentieth centuries.

*39. Pacific Coast History. (2) I, II.

Mr. Caughey

UPPER DIVISION COURSES

The prerequisite for course 101 is upper division standing. The prerequisite for all other upper division courses is upper division standing and course 1A-1B, or 5A-5B, or 6A-6B, or 7A-7B, or 8A-8B, or other preparation satisfactory to the instructor.

* Not to be given, 1956-1957.

101. Main Currents in American History. (2) I, II.

Mr. Meyer, Mr. Perkins, Mr. Winter

A one-semester survey of United States history, with emphasis upon the growth and development of American principles and ideals. Not open to students who have credit for course 7A, 7B, or 8B. Not to be counted toward the major.

111A-111B. History of the Ancient Mediterranean World. (3-3) Yr.

Mr. Brown

A survey of the history of the ancient Mediterranean world from earliest times to the reign of Constantine. The work of the first semester ends with the death of Alexander.

***112A-112B. History of Ancient Greece. (3-3) Yr.**

Mr. Brown

112A. The Greek city-state. The emphasis will be on the period between the Persian Wars and the rise of Macedon.

112B. The Hellenistic Period. A consideration of the new patterns in government, social life, science, and the arts that appeared between the Macedonian conquest and the decisive intervention of Rome.

113A-113B. History of Rome. (3-3) Yr.

Mr. Brown

113A. To the death of Caesar. Emphasis will be placed on the development of imperialism and on the constitutional and social struggles of the late Republic.

113B. From the death of Caesar to the time of Constantine. The early empire will be treated in more detail supplemented by a survey of the social and economic changes in the third century.

114. History of the Founding of Christianity. (2)*121A. The Early Middle Ages. (3) I.**

Mr. Bjork, Mr. Pratt

Prerequisite: course 1A-1B or 5A-5B, or consent of the instructor.

A survey of the main events of European history from the fall of the Roman Empire to about 1150 A.D.

121B. The Civilization of the Later Middle Ages. (3) II.

Mr. Bjork, Mr. Pratt

Prerequisite: course 1A-1B or 5A-5B, or consent of the instructor.

A survey of European history, 1150-1450, with emphasis upon social, cultural, religious, and economic foundations of Western Europe.

130. History of South Africa. (3) I.

Mr. Galbraith

Changing patterns of South African society from the arrival of the Dutch to the present.

134A-134B. Near and Middle East from 600 A.D. (3-3) Yr.

134A. The rise of Islam, the Caliphate, the Crusades, the Turkish and Mongol invasions, the rise of the Ottoman Turks.

134B. The Ottoman and Persian empires, decay and westernization, internal change and reform.

135. Introduction to Islamic Culture. (2) I.

Origins of the Islamic way of life and thought, survey of Islamic history, Islamic literature in English translation, interaction of the Islamic world and Europe in medieval and modern times.

136. Islamic Institutions and Political Ideas. (2) II.

Institutions and ideas of government, administration, justice, education, economic and social life in the Islamic Near East as they were before the impact of the West, and as they were affected by that impact.

* Not to be given, 1956-1957.

137. The Near East in the Nineteenth and Twentieth Centuries. (3) I.

The decay of the Islamic empires and the expansion of Europe, the Eastern Question, westernization and the rise of national states in the Near East.

139. Development of Modern Turkey. (3) I.

A survey of modern Turkish society and government from the eighteenth century to the present. The decay of Ottoman society and government in the eighteenth century, first attempts at civilization, the Turkish reformers, successes and failures of the reforms, ideological trends, the young Ottomans, the age of despotism, the young Turks, the Kemalist republic, the republic since Kemal.

140A-140B. History of Modern Europe, 1500-1914. (3-3) Yr.

Mr. Fisher, Mr. Lossky

Not open to students who have credit for History 1B or 4B. Students who have credit for History 142 will not receive credit for 140A; those who have credit for History 143 or 144 or 145 will not receive credit for 140B.

A general survey of European history, 1500-1914.

141A-141B. Europe in Transition, 1450-1610. (2-2) Yr. Mr. Hitchcock

141A. The Renaissance.

141B. The Reformation.

142. Europe in the Seventeenth Century, 1610-1715. (3) I. Mr. Lossky
European culture, institutions, and politics in the seventeenth century. Students who have credit for History 140A may not take this course for credit.

143. Europe in the Eighteenth Century, 1715-1815. (3) II. Mr. Lossky
European culture, institutions, and politics from the death of Louis XIV to the collapse of the Napoleonic Empire. Students who have credit for History 140B may not take this course for credit.

144. Europe, 1815-1870. (3) I. Mr. King, Mr. Hitchcock
The history of Europe from the decline of Napoleon to the end of the Franco-Prussian War; a survey covering international relations and internal conditions of the major European countries, with special stress on the rise of nationalism and liberalism. Students who have credit for History 140B may not take this course for credit.

145. Europe, 1870-1914. (3) I, II. Mr. Fisher, Mr. King, Mr. Hitchcock
The history of Europe from the end of the Franco-Prussian War to the eve of the First World War. A survey covering internal conditions of the major European countries, nationalism, neo-imperialism, the rise of socialism, the spread of the industrial revolution, and the diplomatic background of the First World War.

Students who have credit for History 140B may not take this course for credit.

147. Europe Since 1914. (3) II. Mr. King
Political, economic, and cultural developments since the outbreak of the First World War.

148A-148B. European Diplomacy and Imperialism. (3-3) Yr. Mr. Hitchcock
A study of European international rivalries primarily in the nineteenth and twentieth centuries.

148C-148D. Social and Intellectual History of Europe in the Nineteenth and Twentieth Centuries. (3-3) Yr. Mr. Anderson

An assessment of such movements as liberalism, conservatism, nationalism, socialism, and developments in scientific thought, and their impact on European society. 148C will deal with the nineteenth century; 148D with the twentieth century.

149A-149B. History of Russia. (3-3) Yr. Mr. Fisher, Mr. Lossky

149A. History of Russia to 1801.

Political, economic, and social developments and the foreign relations of Russia in the Kievan, Muscovite, and imperial periods.

149B. History of Russia since 1801.

The agrarian problem, the great reforms, the radical movement, the revolutions of 1905 and 1917, and the Soviet state; Russia in international politics, especially the Near Eastern question.

149C. France Since the Founding of the Third Republic. (3) I.

Recommended preparation: course 1A-1B. Mr. King, Mr. Weber

An intensive study of modern France, emphasizing the nation's search for political and economic stability and for military security in the twentieth century.

150. Modern British Biography. (3) I. Mr. Howard

A study of the lives of leaders of Britain, the development of biographical technique and the place of biography in the writing of history.

151A-151B. History of the British People in Modern Times. (3-3) Yr.

Mr. Howard, Mr. Tholfsen, Mr. Curtis

A study of the main currents in the thought, culture, and social progress of the British people from Henry VIII to the death of Victoria.

This course was previously numbered 153A-153B and may not be taken for credit by students who have credit for it under that number.

***152A-152B. Constitutional History of England. (3-3) Yr.**

Mr. Howard, Mr. Curtis

Prerequisite: course 5A-5B or consent of the instructor.

A study of the growth of the institutions of British government.

***153. Renaissance England. (3) I.** Mr. Curtis

A study of the intellectual forces and the social, economic, and political conditions in England in the age of the Renaissance. The Reformation, the Elizabethan era, and the Puritan revolution will receive attention.

154. Great Britain in the Seventeenth Century. (3) II.

Mr. Howard, Mr. Curtis

A study of the intellectual forces and the social, economic, and political conditions in England during the seventeenth century.

155. Great Britain in the Eighteenth Century (1688-1783). (3) II.

Mr. Howard

The structure of the British government, society, and economic life under the Hanoverians.

156. Great Britain in the Nineteenth Century. (3) I. Mr. Tholfsen

British culture, institutions, and politics in the Great Century from the French Revolution to the death of Victoria.

* Not to be given, 1956-1957.

157. **Great Britain in the Twentieth Century.** (3) II. Mr. Tholfsen
The changing British scene in war and peace from the accession of Edward VII to the present.
- 158A-158B. **The British Empire Since 1783.** (3-3) Yr. Mr. Galbraith
The political and economic development of the British Empire, including the evolution of colonial nationalism, the development of the commonwealth idea, and changes in British colonial policy. The work of the first semester covers to 1900.
159. **History of Canada.** (3) II. Mr. Galbraith
A survey of the growth of Canada into a modern state from its beginnings under the French and British colonial empires.
160. **History of the Caribbean.** (3) I. Mr. Hussey
- *161. **History of Spain and Portugal.** (3) I. Mr. Hussey
Emphasizes the history of Spain since Ferdinand and Isabel; discusses ancient and medieval days, and Portugal, to the degree necessary for comprehension of the history of the Peninsula since the fifteenth century.
- 162A-162B. **Hispanic America from the Discovery to the Present.** (3-3) Yr.
Mr. Hussey, Mr. Burr
- *163. **Argentina, Brazil, and Chile in the Twentieth Century.** (3) II. Mr. Burr
History of the major South American nations since the late nineteenth century. Emphasis upon the political effects of new social conditions, and changing conditions in the outside world.
- 166A-166B. **History of Mexico.** (2-2) Yr. Mr. Burr
The development of the viceroyalty of New Spain and the Mexican nation, with emphasis upon the problems of the period since Diaz.
169. **History of Inter-American Relations.** (3) I. Mr. Burr
Emphasizes the historical development of a distinctive system of international relations among the nations of the Western Hemisphere, from 1808 to the present.
- 171A. **The United States: Colonial Period.** (3) I. Mr. Smith
Political and social history of the Thirteen Colonies and their neighbors; European background, settlement and westward expansion, intercolonial conflicts, beginnings of culture, colonial opposition to imperial authority.
- 171B. **The United States: The New Nation.** (3) II. Mr. Smith
Political and social history of the American nation from 1750 to 1801, with emphasis upon the rise of the New West; revolution, confederation, and union; the fathers of the Constitution.
172. **The United States: Jeffersonianism and Jacksonianism.** (3) II. Mr. Perkins
Political and social history of the United States from 1801 to 1850, with emphasis on the Jeffersonian and Jacksonian movements, western settlement and territorial expansion, economic developments, and the roots of inter-sectional conflict.
173. **The United States: Civil War and Reconstruction.** (3) I. Mr. Dyer
The topics studied will include: the rise of sectionalism, the anti-slavery crusade; the formation of the Confederate States; the war years; political and social reconstruction.

* Not to be given, 1956-1957.

174A-174B. The United States: The Twentieth Century. (3-3) Yr.

Mr. Mowry

The political, economic, intellectual, and cultural aspects of American democracy in the twentieth century.

175. History of American Capitalism Since the Civil War. (3) I.

Mr. Saloutos

Recommended preparation: courses 7A-7B and Economics 11.

A study of the rise of capitalism and industrialism and of the resultant problems in agriculture, labor, business, and government.

176. American Reform Movements and Reformers. (3) II. Mr. Saloutos

A study of educational, monetary, labor, and agrarian reforms advocated in the nineteenth and twentieth centuries.

177. Intellectual History of the United States. (3) I.

Mr. Meyer

The principal systems of ideas about man and God, nature and society, which have been at work in American history. Emphasis on the sources of these ideas, their connections with one another, and their expression in great documents of American thought.

178A-178B. American Diplomatic History. (2-2) Yr.

Mr. Perkins

178A. To 1898. The establishment of an independent foreign policy, the territorial expansion of the United States, and the emergence of a world power.

178B. Since 1898. The role of the United States in the twentieth-century world. Recommended preparation: 178A.

179. Constitutional History of the United States. (3) II.

Mr. Dyer

Prerequisite: 6 units of United States history or government, or consent of the instructor.

A study of the Federal Constitution from the historical point of view, with emphasis upon the constitutional convention and the constitutional controversies of the nineteenth century.

180. Social History of the United States Since 1800. (3) II. Mr. Meyer

An historical study of the character and values of the American people as affected by regions, classes, and economic change; with particular attention to the cultural roles of women, businessmen, Negroes, and ethnic groups.

181. The American West. (3) I.

Mr. Caughey

Recommended preparation: course 8A-8B.

A study of the West as frontier and as region, in transit from the Atlantic seaboard to the Pacific, and from the seventeenth century to the present.

188. History of California. (3) II.

Mr. Caughey

Recommended preparation: course 8A-8B or 39.

The economic, social, intellectual, and political development of California from the earliest times to the present.

***190. History of the Pacific Area. (3) I.**

Mr. Wilson

Exploration, trade, international rivalries, and social evolution in the Pacific Ocean and in the lands immediately tributary thereto, from the first European contacts to the present. Emphasis on the role of the United States.

191A. History of the Far East. (3) I.

Mr. Han, Mr. Wilson

China and Japan from the earliest times to the beginning of Westernization.

* Not to be given, 1956-1957.

- 191B. History of the Far East. (3) II.** Mr. Han, Mr. Wilson
Transformation of the Far East in modern times under the impact of Western civilization.
- 192A-192B. The Twentieth-Century Far East. (2-2) Yr.** Mr. Han
A study of the social, economic, and political development of the Far Eastern countries since 1898, with special attention to the changes in ideas and institutions after a century of Western impact.
- 193. Diplomatic History of the Far East. (3) II.** Mr. Wilson
The role of Far Eastern states in the international community beginning with the establishment of the Treaty System in China and the opening of Japan to intercourse with the rest of the world in 1854.
- 194A-194B. History of Modern China. (3-3) Yr.** Mr. Han
Final consolidation of the Tungus peoples in Manchuria and their rule over China; social, economic, political, and literary achievements; movements for modernization toward the end of the nineteenth century; the founding of the Republic.
- 195A-195B. History of Modern Japan. (2-2) Yr.** Mr. Wilson
The political, economic, and cultural development of Japan since the establishment of the Tokugawa Shogunate in 1603.
- *196A. History of India Prior to 1526. (3) I.** Mr. Han
A survey of the literature and civilization of the Vedic and the Brahmanic periods; the rise of Jainism and Buddhism; the Magadha and the Kushan Empires; the Gupta period; Mohammedan invasions and conquest to the establishment of the Mogul Empire.
- *196B. India and the Indies Since 1505. (3) II.** Mr. Han
A survey of European expansion into India and the Indies, the decline of the Mogul Empire, and the rise of native leadership. Special attention will be given to India under British administration, including the rise of nationalism and the establishment of the dominions of Pakistan and Hindustan.
- 197. Aids to Historical Research. (3) I.** Mr. Bjork
Study of the auxiliary sciences. A senior course.
- 198. History and Historians. (3) I, II.** The Staff
A study of historiography, including the intellectual processes by which history is written, the results of these processes, and the sources and development of history. Attention also to representative historians. A senior course.
- 199. Special Studies in History. (3) I, II.** The Staff
An introduction to historical method, followed by individual investigation of selected topics.
Required of all history majors. To be taken in the senior year in a field for which specific preparation has been made in the junior year. Assignment to sections is made only by the departmental coördinator for registration in this course. Sections 1, 2, 9, 10, and 12 are rarely given more than once each year.
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|---------------------------------------|--------------------------|
| Section 1. Ancient History. | Mr. Brown |
| Section 2. Medieval History. | Mr. Bjork |
| Section 3. European History. | Mr. Hitchcock |
| Section 4. European History. | Mr. King |
| Section 5. English History. | Mr. Howard, Mr. Tholfsen |
| Section 6. American Colonial History. | Mr. Smith |
| Section 7. United States History. | Mr. Perkins |

* Not to be given, 1956-1957.

Section 8. Recent United States History.

Section 9. Hispanic-American History.

Section 10. Pacific Coast History.

Section 11. The British Empire.

Section 12. The Far East.

Mr. Burr
Mr. Caughey
Mr. Galbraith
Mr. Han, Mr. Wilson

GRADUATE COURSES

- *201. Bibliography for Historians. (3) I. Mr. Hussey
Not normally open to first-year graduate students.
202. Advanced Historiography. (3) I, II. The Staff
A. Ancient and Medieval.
B. Modern European.
C. British.
D. American.
- 251A-251B. Seminar in Ancient History. (3-3) Yr. Mr. Brown
- 254A-254B. Seminar in Medieval History. (3-3) Yr. Mr. Bjork
- 256A-256B. Seminar in Early Modern European History. (3-3) Yr.
Mr. Lossky
Studies in European political and cultural history of the seventeenth and eighteenth centuries.
- *256C-256D. Seminar: Age of the French Revolution. (3-3) Yr. ———
- 257A-257B. Seminar in Late Modern European History. (3-3) Yr.
Mr. King
Studies in continental European history since the earlier nineteenth century.
- 258A-258B. Seminar in European Intellectual History. (3-3) Yr.
Mr. Anderson
Readings in the intellectual history of the seventeenth and eighteenth centuries.
- 259A-259B. Seminar in Slavic History. (3-3) Yr. Mr. Fisher
Prerequisite: the student should have a reading knowledge of at least one European language.
Studies in the history of Russia and other Slavic countries.
- 260A-260B. Seminar in English History. (3-3) Yr. Mr. Howard
Studies in the Stuart period.
- 261A-261B. Seminar in British Empire History. (3-3) Yr. Mr. Galbraith
Studies in nineteenth- and twentieth-century imperial history.
- *262A-262B. Seminar in English History. (3-3) Yr. ———
Studies in the late nineteenth century and the twentieth century.
- 265A-265B. Seminar in Hispanic-American History. (3-3) Yr.
Studies in the colonial and early national periods. Mr. Hussey
- 268A-268B. Seminar in Near Eastern History. (3-3) Yr. ———
Studies in the history of the Near East.
- 269A-269B. Seminar in United States History. (3-3) Yr. Mr. Smith
Studies in the colonial period.

* Not to be given, 1956-1957.

- 270A-270B. Seminar in United States History. (3-3) Yr. Mr. Mowry
Studies in the recent United States and the recent American West.
- 271A-271B. Seminar in United States History. (3-3) Yr. Mr. Saloutos
Studies in recent United States history.
- 272A-272B. Seminar in United States History. (3-3) Yr. Mr. Dyer
Studies in political and social problems of the middle nineteenth century.
- 274A-274B. Seminar in American History. (3-3) Yr. Mr. Caughey
Studies of the American West.
- 279A-279B. Seminar in Far Eastern History. (3-3) Yr. Mr. Han
290. Research in History. (1 to 6) I, II. The Staff
Open only to students who have passed the qualifying examinations for
the doctor's degree.
298. Directed Study and Readings for Master's Degree Candidates. (1-3)
I, II. The Staff

HOME ECONOMICS

Dorothy Leahy, Ed.D., *Professor of Home Economics.*

Helen B. Thompson, Ph.D., *Professor of Home Economics, Emeritus.*

—————, *Associate Professor of Textile Chemistry.*

Marian Swendseid, Ph.D., *Associate Professor of Nutrition and Physiological
Chemistry.*

Greta Gray, Ph.D., *Associate Professor of Home Economics, Emeritus.*

Frances Obst, Ph.D., *Associate Professor of Home Economics.*

Marguerite G. Mallon, Ph.D., *Associate Professor of Home Economics,
Emeritus.*

George Fitzelle, Ph.D., *Assistant Professor of Home Economics.*

Olive Hall, Ph.D., *Assistant Professor of Home Economics.*

Clarice H. Lindsey, M.S., *Assistant Professor of Home Economics.*

Cora Miller, Ph.D., *Assistant Professor of Foods.*

—————, *Assistant Professor of Home Economics.*

Edward L. Rada, Ph.D., *Assistant Professor of Family and Consumer Eco-
nomics.*

Rita Landry, M.S., *Instructor in Textiles.*

Lavina Franck, M.S., *Instructor in Home Economics.*

—————, *Instructor in Home Economics.*

Florence C. McGucken, M.S., *Lecturer in Home Economics.*

Theodora Corey, M.A., *Associate in Home Economics.*

Donovan Hester, M.S., *Associate in Home Economics.*

Eleanora Petersen, M.S., *Associate in Home Economics.*

Mary Rogers, M.S., *Associate in Home Economics.*

Frances M. Morsillo, M.S., *Associate in Home Economics.*



Stefania Przeworska Holt, *Lecturer in Home Economics.*

College of Applied Arts

All students intending to major in home economics must submit the results of
diagnostic tests given by the University. Students may contact the office of

the Dean of Students or Department of Home Economics for schedule as to when the tests will be given.

The Department of Home Economics offers the following specializations:

1. **General Home Economics.** This major is for students who wish home economics as a background for everyday living and homemaking. (Students desiring to work toward the general elementary teaching credential may select this major.)

Preparation for the Major.—Courses 9, 11, 12, 14, 15, 16; Art 6A, 21A; Chemistry 2A; Psychology 1A-1B.

The Major.—Courses 102, 134, 135, 138, 143, 144, 145, 146, 154, 155, 161, 172; Psychology 112; and additional upper division home economics courses to total 36 units.

2. **Home Economics Teacher Education.**

Preparation for the Major.—Courses 9, 11, 12, 14, 15, 16; Art 6A, 21A; either Chemistry 2A and 10 or 1A-1B and 8; English 1A-1B, or Speech 1A-1B, or English 1A and Speech 1A; Physical Education 5; Psychology 1A-1B; Zoölogy 15.

The Major.—Courses 102, 113 (4 units), 134, 135, 138, 144, 145, 146, 155, 172, 181, 370; Psychology 112; and additional upper division home economics courses to total 36 units.

3. **Foods and Nutrition.** This major is for students preparing for dietetic internships, institutional management, and promotional work in foods.

Preparation for the Major.—Courses 9, 11, 12, 14, 15, 16; Bacteriology 1; Business Administration 1A; either Chemistry 2A and 10 or 1A-1B and 8; Economics 1A-1B; English 1A-1B or Speech 1A-1B; Psychology 1A-1B; Zoölogy 15.

The Major.—Courses 100, 101, 102, 105, 113 (4 units), 114, 116, 121, 122, and electives selected from 145, 146, 370, Business Administration 150, 160 or Agricultural Economics 130 to total 36 units.

4. **Food Technology.** This major is for students preparing to be food technicians in food industries and for graduate work or research positions in foods.

Preparation for the Major.—Courses 9, 11, 12, 14, 15, 16; Bacteriology 1; either Chemistry 2A and 10, or 1A-1B and 8; Economics 1A-1B; Physics 2A, or 10 and 21; Psychology 1A-1B; Zoölogy 15. Recommended: Mathematics D or E.

The Major.—Courses 100, 101, 102, 105, 113 (4 units), 114, 116, 145, 146; Bacteriology 106; Education 147; at least 2 units selected from other upper division home economics courses, and electives selected from Botany 103, Chemistry 5A*, 107, 108A-B-C-D, Education 114, Public Health 162, Statistics 131A to total 36 units.

5. **Clothing and Textiles.**

Preparation for the Major.—Courses 9, 11, 12, 14, 15, 16; Art 6A-6B, 7A-7B, 21A; either Chemistry 2A and 10 or 1A-1B and 8; Economics 1A-1B.

The Major.—Courses 144, 155, 161, 162, 163, 170, 172, 175, 176A, 177A; Art 160, 163A; and additional courses chosen from Home Economics 134, 135, 138, 143, 145, 146, 171A, 181, 199 to total 36 units.

For courses required in the curriculum in apparel merchandising and in the curriculum in apparel design, see page 42.

College of Letters and Science

Letters and Science List.—Courses 113, 114, 134, 138, 143, 144, 154, and 170 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

* Upper division major credit for Chemistry 5A allowed only if course is taken in upper division.

LOWER DIVISION COURSES

9. **Introduction to Home Economics.** (2) I, II. Miss Hall
Lecture, two hours; field trips, two hours.
A study of the history and scope of home economics and the professional opportunities in this field.
11. **Introduction to Nutrition and Foods.** (3) I, II. Miss Miller
Lecture, one hour; laboratory, six hours.
A study of the basic principles of nutrition and their relationship to the selection, preparation, and service of meals.
12. **Introduction to Family Living.** (2) I, II. Mr. Fetzelle
A study of the activities of the family and the functions of the homemaker in modern society. Emphasis on understanding the contribution of family members to successful family living.
14. **Management in Daily Living.** (2) I, II. Miss Hester
A study of the management of time, energy, and material resources and their contribution to personal and family living.
15. **Selection of House Furnishings.** (3) I, II. Miss Obst
Lecture, two hours; laboratory, four hours. Prerequisite: Art 6A recommended.
A study of floor plans, furniture selection and arrangement, suitable materials for floor coverings, wall decorations, curtains, draperies, and upholstery, table linens, china, glass, and silver.
16. **Introduction to Clothing and Textiles.** (3) I, II.
Lecture, one hour; laboratory, six hours. Miss Corey, Miss Franck
A study of the fundamental principles of clothing construction including a study of textiles in relation to their selection and use.

UPPER DIVISION COURSES

Food and Nutrition

100. **Food Economics.** (2) I. Mrs. McGucken
Lecture, one hour; laboratory, three hours. Prerequisite: course 11. Recommended: Economics 1A, 1B.
The production and distribution of food; grades and standards; legal controls; the cost to consumers and the relations to nutritive values.
101. **Food Analysis.** (3) I. Miss Swendseid
Lecture, one hour; laboratory, six hours. Prerequisite or concurrent: course 113.
The application of quantitative methods to the study of foods.
102. **Advanced Foods.** (3) I, II. Miss Miller
Lecture, one hour; laboratory, six hours. Prerequisite: course 11, Chemistry 2A.
The application of science in the study of fundamental principles and practices of food preparation.
105. **Experimental Cookery.** (3) II. Miss Miller
Prerequisite: course 102, Chemistry 8 or 10.
Qualitative and quantitative methods in food preparation under controlled conditions.

111. Principles of Nutrition. (2) I, II.

A survey of the principles of nutrition and their application in normal conditions of growth and development. Food habits in relation to nutritive requirements and health. (Not open to majors who have had Home Economics 11.)

112. Nutrition in Family Health Service. (2) I, II. Mrs. McGucken

Lecture, one hour; laboratory, two hours; additional field work. Prerequisite: 111 or equivalent and consent of the instructor.

A study of food service for family groups at moderate and low income levels, considering persons of various ages within the family group. Also special consideration to be given to special dietary problems, food purchasing, protective food legislation, and the adaptation of foreign food habits to good nutrition. (This course is designed particularly for public health nurses and nutritionists in social agencies.)

113. Advanced Nutrition. (3 or 4) I, II. Miss Swendseid

Lecture, three hours; laboratory, three hours. Prerequisite: Chemistry 8 or 10, Zoology 15. (The lectures may be taken separately with credit value of 3 units.)

A chemical study of carbohydrates, fats, proteins, minerals, and vitamins in relation to human nutrition. Qualitative laboratory studies upon the components of food. Computation of normal diets for infants, children, and adults.

114. Metabolism Methods. (4) II. Miss Swendseid

Lecture, two hours; laboratory, six hours. Prerequisite: course 101 or the equivalent.

Observations of the influence of special diets upon various phases of metabolism; practice in the methods of determining blood constituents, basal metabolic rate, and nitrogen and mineral excretions.

116. Diet in Disease. (2) I, II.

Lecture, one hour; laboratory, three hours. Prerequisite: courses 102, 113 (4 units).

Modification of the normal diet for specific diseases; dietary calculations.

Institutional Management**121. Quantity Food Study. (4) I. Mrs. McGucken, Mrs. Morsillo**

Lecture, two hours; laboratory, six hours. Prerequisite: course 102. Recommended: Economics 1A-1B.

A study of economic principles and problems involved in the purchase and preparation of foods in quantity.

122. Institutional Organization and Management. (4) II.

Mrs. McGucken, Mrs. Morsillo
Lecture, three hours; laboratory, four hours. Prerequisite: course 102. Recommended: Economics 1A-1B.

A study of organization and administration as applied to institutional households such as residence halls, hotels, hospitals, school cafeterias, etc.

Family Relations**134. Child Care and Guidance. (3) II.**

Mr. Fetzelle
Prerequisite: Psychology 112.
Application of the principles of growth and development to the care and guidance of young children in the home.

135. Laboratory in Child Study. (2) I, II.

Mrs. Rogers

Prerequisite: course 134 and Psychology 112, or consent of the instructor.

Further study of the growth and development of children, with emphasis on the preschool period. Observation and participation in the nursery school with discussion on nursery school theory and practice.

138. Family Relationships. (3) I, II.

Mr. Fitzelle

Recommended: course 12.

A study of the modern family and its relationships. Emphasis on personal adjustment of the individual, problems concerning marriage relations, parenthood, and family administration.

Family Economics and Home Management***140. Family Meal Service. (2) II.**

Lecture, one hour; laboratory, six hours. Prerequisite: courses 102, 111 or 113; Chemistry 2A.

Organization and management of family food service at different economic levels. Emphasis is placed on standard products, meal service, efficient kitchen planning, use and care of kitchen and dining equipment.

143. The Economic Problems of Families. (2) I, II.

Mr. Rada

Prerequisite: course 14 or consent of the instructor. Recommended: Economics 1A-1B.

Distribution of families as to size, composition, domicile, income, and expenditures. Economic and social developments which have influenced the activities of the members of the household and brought about changes in the family's economic problems and standards of living.

144. Management of Individual and Family Finances. (3) I, II.

Mr. Rada

Prerequisite: course 14 or consent of the instructor. Recommended: Economics 1A-1B.

Management of family income in relation to family expenditures, savings, consumer credit, personal investment, home ownership, insurance, social security and annuities, and income and estate taxes.

145. Home Management Problems. (3) I, II.

Miss Hester

Lecture, two hours; laboratory and demonstration, two hours. Prerequisite: course 14 or consent of the instructor.

A study of the management of the various resources available to the family with a view to promoting family well-being and satisfaction.

146. Home Management Laboratory. (2) I, II.

Miss Hester

Laboratory: six hours. Prerequisite: courses 11, 145 (may be taken concurrently).

Experience in group living for five weeks in the home management house with the guidance of an instructor.

154. Housing. (3) I.

Mr. Rada

Recommended: Economics 1A-1B.

The contemporary housing situation, essentials of healthful housing, improvement in housing, components of a family's housing costs, and municipal, state, and federal activities. Three field trips to be arranged.

* Not to be given, 1956-1957.

Clothing, Textiles, and Related Arts

- 155. House Planning and Furnishings. (2) II.** Miss Obst
Lecture, one hour; laboratory, three hours. Prerequisite: course 15, Art 6A.
Planning the home with reference to livability, selection of furnishings and equipment, arrangements for minimizing work, and adaptation to the needs of families of varying interests and incomes.
- 157. Home Furnishings Workshop. (2) I.** Miss Obst
Laboratory: six hours. Prerequisite: course 15.
Experiences in adapting furnishings budget to homes at different income levels. Application of principles of design through individual projects in refinishing, remodeling, and the making of simple furnishings, e.g., draperies, curtains, slip covers, and lampshades.
- 160. Fundamentals of Textiles. (2) I, II.** Miss Franck
Lecture, two hours.
The study of textile fabrics, fibers, and the processes used in their manufacture as a basis for selection and use. Not open to those who have taken course 16.
- 161. Decorative Textiles. (2) I, II.** Miss Obst
Prerequisite: course 16 or 160.
Studies in the appreciation of the construction and historical background of woven, printed, and embroidered textiles; handmade laces; the damasks, brocades, and prints of China, Persia, and India; French tapestries; oriental rugs; French and English prints, and early American textiles.
- 162. Textiles. (2) I.** Miss Landry
Laboratory: six hours. Prerequisite: course 16 or 160.
A study of the sources and properties of textile fibers, and fabric characteristics as related to selection, use, care.
- 163. Advanced Textiles. (3) II.** Miss Landry
Lecture, two hours; laboratory, three hours. Prerequisite: courses 16, 162; Chemistry 2A and 10, or 1A-1B and 8.
An intensive study of textile materials with special emphasis on the nature of the raw material and quantitative methods in textile analysis.
- 170. History and Development of the Clothing Industry. (3) I, II.** Mrs. Petersen
A study of the growth, location, influences of technological advances, designers, legislation, organizations, publications, fashions, and problems of production, promotion, and distribution of ready-to-wear upon the clothing and textile industry.
- 171A. Millinery. (2) I.** Mrs. Holt
Lecture, one hour; laboratory, three hours. Prerequisite: course 16.
The development of head covering as a part of apparel design. Study of design and construction of the modern hat and its relation to various types of individuals and styles of clothing. Experience in construction of hats.
- 171B. Millinery. (2) II.** Mrs. Holt
Lecture, one hour; laboratory, three hours. Prerequisite: course 16. Continuation and extension of 171A.

172. Advanced Clothing. (3) I, II

Miss Corey, Mrs. Petersen, Mrs. Lindsey

Lecture, one hour; laboratory, six hours. Prerequisite: course 16.

Problems of clothing construction, including the adaptation of commercial patterns and the selection, care, and use of equipment.

175. Tailoring Problems. (3) I, II

Mrs. Lindsey

Lecture, two hours; laboratory, four hours. Prerequisite: course 172, Art 21A.

The design, fashion, construction, and economic factors involved in selecting and in making tailored garments.

176A-176B. Advanced Dress Design. (3-3) Yr.

Mrs. Petersen

Lecture, two hours; laboratory, four hours. Prerequisite: course 172, Art 21A.

Creation of original designs through French draping and flat pattern. Selection and manipulation of fabrics.

177A-177B. Pattern Analysis. (3-3) Yr.

Miss Corey

Lecture, two hours; laboratory, four hours. Prerequisite: course 176A. Prerequisite: course 176A.

A study of pattern drafting and grading in relation to the problem of design, with consideration of personal and industrial needs. Standardization of size and relationship to problems of production and consumption.

Home Economics Teacher Education**181. Problems in Home Economics. (2) II**

Miss Leahy

Prerequisite: course 370.

A study of special problems in the teaching of homemaking selected in accordance with the needs of the student. Emphasis is placed on the contribution of homemaking to school and community life.

Special Study Course for All Majors**199A-199B. Special Studies in Home Economics. (1-3; 1-3) Yr. The Staff**

Prerequisite: 6 units in upper division home economics courses and permission of the instructor.

Section 1. Child Study.

Section 2. Clothing.

Section 3. Family Economics.

Section 4. Family Relations.

Section 5. Foods.

Section 6. Home Equipment.

Section 7. Home Furnishings.

Section 8. Home Management.

Section 9. Institution Management.

Section 10. Nutrition.

Section 11. Teacher Education.

Section 12. Textiles.

Mr. Fizzle, Mrs. Rogers

The Staff

Mr. Rada

Mr. Fizzle

Miss Miller

The Staff

Miss Obst

Miss Hester

Mrs. McGucken

Miss Swendseid

Miss Hall, Miss Leahy

Miss Landry

GRADUATE COURSES**227. Physical Analysis of Textiles. (3) I.**

Miss Landry

Lecture, one hour; laboratory, six hours. Prerequisite: courses 16, 162, 163, or the equivalent.

Investigations into the physical and microscopic characteristics of fibers, yarns, and fabric structure in relation to fabric performance.

* Not to be given, 1956-1957.

- 228. Chemical Analysis of Textiles.** (3) II. Miss Landry
Lecture, one hour; laboratory, six hours. Prerequisite: courses 16, 162, 163, or the equivalent.
Chemical analysis and research related to the natural and synthetic textile fibers and finishes used for clothing and furnishings. Investigations made of the chemical changes occurring during the use, maintenance, and storage of fabrics.
- 229. Methods of Research in Home Economics.** (2) I, II. Miss Hall
A study of the methods of research applicable to the various areas of home economics. Individual guidance in research in a selected problem. Assistance in the statistical treatment of data.
- 250. Seminar in Family Life.** (2) I. Mr. Fizzle
A critical discussion of research literature concerning the problems of modern family living.
- 251. Seminar in Nutrition.** (2) I. Miss Swendseid
Recent advances in the science of nutrition and in the dietetic treatment of disease.
- 255. Food Technology Seminar.** (2) II. Miss Miller
Review of recent and current developments in food study and cookery.
- 262. Personal and Family Economics Seminar.** (2) I, II. Mr. Rada
Standard of living: what it is; how measured; comparisons by income and social groups, regions, and countries; relation to personal and family economic decisions.
- 263. Seminar in Textiles and Clothing.** (1) II. Miss Landry
Readings and discussion of recent developments in textiles and clothing.
- 271. Seminar in Home Economics Education.** (2) I, II. Miss Hall
Review of recent and current developments in the teaching of home economics.
- 272. Seminar in the Supervision of Home Economics.** (2) II. Miss Leahy
Prerequisite: teaching experience.
Individual investigation of the nature and function of supervision of home economics at all school levels.
- 273. Seminar in the Organization and Administration of Home Economics.** (2) I. Miss Leahy
A review of the literature, and intensive individual study of problems concerned with the organization and administration of home economics at all school levels.
- 282A-282B. Selected Problems.** (2-4; 2-4) Yr. The Staff
Laboratory or field investigation in a specialized area of home economics.

PROFESSIONAL COURSE IN METHOD

- 370. Principles of Home Economics Teaching.** (3) I, II. Miss Leahy
Prerequisite: 12 units of upper division course work in home economics.
A survey and evaluation of methods and materials used in teaching home-making in the secondary school.

HORTICULTURE

For courses in horticulture, see under Floriculture and Ornamental Horticulture, page 189, and Subtropical Horticulture, page 344.

HUMANITIES

Pier-Maria Pasinetti, Ph.D., *Associate Professor of Italian.*

Letters and Science List.—Course 1A-1B is included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

1A-1B. World Literature. (3-3) Yr.

Mr. Pasinetti

A course in world literature for the general student. Recommended as a course to satisfy requirement (G) (1) in the College of Letters and Science.

RELATED COURSE IN ANOTHER DEPARTMENT

Integrated Arts 1A-1B. Man's Creative Experience in the Arts. (2-2)

INFECTIOUS DISEASES

(A Department of the School of Medicine)

The Department of Infectious Diseases offers certain courses which are open to qualified graduate students who are not pursuing the professional curriculum of the School of Medicine. For information concerning these courses and degrees available, see the ANNOUNCEMENT OF THE SCHOOL OF MEDICINE, LOS ANGELES, and the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

INTEGRATED ARTS

Karl E. With, Ph.D., *Professor of Art.*

Letters and Science List.—Course 1A-1B is included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

1A-1B. Man's Creative Experience in the Arts. (3-3) Yr.

Mr. With

The most significant aspects of the arts through the ages, from primitive art to modern mass communication, literature excluded. A nontechnical presentation for the general student.

IRRIGATION AND SOILS

David Appleman, Ph.D., *Professor of Plant Nutrition.*

Martin R. Huberty, Engr., *Professor of Irrigation (Chairman of the Department).*

Arthur F. Pillsbury, Engr., *Professor of Irrigation.*

Owen R. Lunt, Ph.D., *Assistant Professor of Soil Science.*

The Major.—The curriculum in irrigation science is offered only on the Davis campus and the soil science curriculum only on the Berkeley and Davis campuses. See the PROSPECTUS OF THE COLLEGE OF AGRICULTURE and consult the appropriate advisers.

UPPER DIVISION COURSES

- 105. Principles of Irrigation. (4) II.** Mr. Pillsbury
Lecture, three hours; laboratory, three hours. Prerequisite: Physics 2A-2B or the equivalent
Irrigation as a factor in agriculture; soil-plant water relations; hydraulics of farm irrigation systems.
- 108. The Soil as a Natural Resource. (3) I.** Mr. Huberty
Lecture, three hours. Prerequisite: Chemistry 1A, or Chemistry 2A, or high school chemistry and consent of the instructor.
Designed for students who desire a general knowledge of soils, soil resources and soil conservation. Cannot be used for credit in the soil science major.
- 110A. The Soil as a Medium for Plant Growth. (3) II.** Mr. Appleman
Lecture, three hours. Prerequisite: Chemistry 1A-1B and 8, or the equivalent
Nutritional requirements of plants; studies of the absorption of mineral elements by plants, and related processes; chemical composition of soils; current views of the soil solution and of base exchange; factors determining productivity of soils; soil and plant interrelations.
- 126. Development and Characteristics of Soils. (3) I.** Mr. Lunt
Lecture, three hours. Prerequisite: introductory college chemistry and physics; geology recommended.
An introduction to the origin, classification, and utilization of soils, and to their physical and chemical properties.
- 127. Soil Chemistry and Physics Laboratory. (2) I.**
Laboratory, six hours. Mr. Appleman, Mr. Lunt
Prerequisite: course 110A or 126 (may be taken concurrently).
Laboratory exercises designed to teach students the principles and techniques used in experimental work dealing with soils, plants, and their relationships.
- 199A-199B. Special Study for Advanced Undergraduates. (2-4; 2-4) Yr.**
Prerequisite: senior standing and consent of the instructor. The Staff

GRADUATE COURSE

- 280A-280B. Research in Irrigation and Soils. (2-6; 2-6) Yr.**
The Staff (Mr. Huberty in charge)

ITALIAN

- Charles Speroni, Ph.D., *Professor of Italian.*
Carlo L. Golino, Ph.D., *Associate Professor of Italian (Chairman of the Department).*
Pier-Maria Pasinetti, Ph.D., *Associate Professor of Italian.*
Domenico Ortisi, Dottore in Giurisprudenza, *Instructor in Italian.*
Althea Soli, M.A., *Associate in Italian.*

Letters and Science List.—All undergraduate courses in Italian are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Italian 1, 2, 3, 4, 42A-42B, or the equivalent

to be tested by examination; Latin I or two years of high school Latin. Recommended: History 1A-1B; Philosophy 6A-6B, and an additional foreign language.

The Major.—Twenty-four units of upper division courses, of which at least 20 must be in Italian. Four units may be taken in French, German, Greek, Latin, Portuguese, or Spanish literature.

As electives the department recommends courses in (1) European history, anthropology, geography, political institutions, and international relations, particularly as they relate to Italy; (2) English literature; (3) French, German, Greek, Latin, Portuguese, and Spanish language and literature.

Requirements for Admission to Graduate Courses.—Students who have completed the undergraduate major in Italian, or the equivalent, will be recommended for graduate work in Italian provided they meet the general requirements for admission to regular graduate status.

Requirements for the Master's Degree.—For the general requirements see page 64. Two years of high school Latin, or the equivalent, are a departmental prerequisite for the master's degree in Italian. The department follows both plans I and II. For specific departmental requirements, see the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

LOWER DIVISION COURSES

1. **Elementary Italian—Beginning.** (4) I, II. Mrs. Soli in charge
This course corresponds to the first two years of high school Italian.
2. **Elementary Italian—Continued.** (4) I, II. Mr. Ortisi in charge
Prerequisite: course 1 or two years of high school Italian.
3. **Intermediate Italian.** (4) I, II. Mrs. Soli, Mr. Ortisi
Prerequisite: course 2 or three years of high school Italian.
4. **Intermediate Italian—Continued.** (4) I, II. Mrs. Soli, Mr. Ortisi
Prerequisite: course 3 or four years of high school Italian.
- 8A-8B. **Italian Conversation.** (1-1) Yr. Mrs. Soli
The class meets two hours weekly. Open to students who have completed course 3. Those with grade A or B in course 2 may be admitted.
30. **Readings in the Italian Recitative.** (2) II. Mr. Golino
Prerequisite: course 3 or the equivalent. Designed primarily for music and voice students. Elements of grammar, reading, extensive drill in correct diction. Readings and translations from Italian libretti.
- 42A-42B. **Italian Civilization.** (2-2) Yr. Mr. Golino
A study in the growth and development of Italian culture in the various fields. There are no prerequisites for this course. Lectures in English, reading in Italian or English.

UPPER DIVISION COURSES

Sixteen units of lower division courses in Italian, or the equivalent, are required for admission to any upper division course. All upper division courses, with the exception of 109A-109B and 152, are conducted mainly in Italian.

- *100. **Readings in the Italian Theater.** (3) II. Mr. Golino
The Italian theater from the *Commedia dell'Arte* to the present.
- 101A-101B. **Composition, Oral and Written.** (3-3) Yr. Mr. Golino

* Not to be given, 1956-1957.

- *108A-108B. Survey of Italian Literature. (3-3) Yr. Mr. Speroni
- 104A-104B. Italian Literature of the Nineteenth and Twentieth Centuries. (2-2) Yr. Mr. Golino
- *105. Italian Folklore. (3) I. Mr. Speroni
A survey of Italian folklore, with emphasis on its cultural background and literary connections.
- 109A-109B. Dante's *Divina Commedia*. (3-3) Yr. Mr. Speroni
With the consent of the instructor this course may also be taken by students who have a thorough preparation in French, Spanish, or Portuguese.
- 130A-130B. Advanced Grammar and Composition. (2-2) Yr. Mr. Pasinetti
Prerequisite: course 101A-101B.
- *152. Italian Literature in English Translation. (3) I. Mr. Pasinetti
Master works of Italian literature from Dante to the present.
- 199A-199B. Special Studies in Italian. (1-3; 1-3) Yr. The Staff
Prerequisite: senior standing and at least 9 units of upper division Italian.

GRADUATE COURSES

- *222A-222B. The Renaissance. (3-3) Yr. Mr. Speroni
225. The Italian Epic: Ariosto and Tasso. (3) I. Mr. Speroni
228. Studies in Eighteenth-Century Italian Literature. (3) I. Mr. Pasinetti
- *230A-230B. Modern Italian Literature. (2-2) Yr. Mr. Pasinetti
290. Research in Italian. (1-6) I, II. The Staff
Prerequisite: consent of the department.

JAPANESE

For courses in Japanese see under Department of Oriental Languages.

JOURNALISM

- Joseph A. Brandt, B.Litt. (Oxon.), M.A. (Oxon.), LL.D., *Professor of Journalism*.
- Robert E. G. Harris, M.A., *Professor of Journalism (Chairman of the Department)*.
- Ivan Innerst, M.S., *Assistant Professor of Journalism*.
- Robert A. Rutland, Ph.D., *Assistant Professor of Journalism*.
- Charles Katzman, M.S., *Associate in Journalism (Head, News Communication Division)*.



Darsie L. Darsie, *Lecturer in Journalism*.

* Not to be given, 1956-1957.

Irving Ramsdell, *Lecturer in Journalism.*

George F. Wasson, Jr., J.D., *Lecturer in Journalism.*



Franklin Fearing, Ph.D., *Professor of Psychology.*

The Department of Journalism offers a program leading to the Master of Arts or Master of Science degree. Applicants for admission must meet all requirements of the Graduate Division of the University as outlined in the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION. In addition, all prospective students must complete a departmental application form which may be obtained by writing to the Chairman, Department of Journalism. Personal interviews will be arranged at the request of the faculty.

The Department of Journalism does not offer an undergraduate major in journalism, but it does include in its undergraduate program certain courses which are designed to give students preparatory training and background in the field of communication.

Letters and Science List.—Courses 2, 101, 102, 111, 190 and 195 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

LOWER DIVISION COURSE

2. Introduction to Journalism. (3) I, II.

Mr. Innerst

Lectures, workshops, and field trips. Introduction to journalism for those interested in learning the skills of newspaper work. History of the newspaper in America and England, the role of the newspaper in contemporary society, libel, typography, and make-up.

UPPER DIVISION COURSES

101. History of American Journalism. (3) I, II.

Mr. Rutland

Study of the main forces in the development of American newspapers, including the concept of a free press and editorial responsibility. The principal forces in American history are incorporated.

102. Law of Libel in Communications. (2) I.

Mr. Wasson

The development of libel law in the United States, its relation to freedom of the press, and its responsibilities. Detailed studies of the right of privacy, copyright, etc.

104. News Writing in Public Affairs. (3) I, II.

Mr. Harris

The principles and practices of gathering news with special attention to the proper methods of interviewing.

106. News Editing. (3) I, II.

Mr. Innerst

The study of problems of editorial content and judgment in the selection and display of materials for newspapers, magazines, house organs, and other media.

111. Sources and Methods in Public Relations. (2) I, II.

Mr. Rutland

A course relating industrial and institutional public relations to the field of mass communications through journalistic techniques and background. Newspaper practices and germane journalistic topics will be integrated into the course.

190. The Press and World Affairs. (3) I, II.

A study of the sources of foreign news, analysis of the foreign press, and the relation of international journalism to the American press.

195. Critical Reviewing for the Press. (3) I, II.

Writing of reviews for the press in the field of art, books, radio-television, theater, dance, and motion pictures, followed by discussion of reviews submitted; special lectures by newspaper and periodical reviewers in the popular arts areas covered.

GRADUATE COURSES**204. Ethics of Communications. (1) I.**

Mr. Brandt

An approach to the problems and responsibilities of a free press, drawing upon both historical and contemporaneous examples.

218. Radio and Television News Communication. (1) II.

A discussion and writing course devoted to the preparation of news for radio and television.

250. News Communication. (3) I. Mr. Katzman, Mr. Ramsdell, Mr. Darsie

The actual gathering of live news (on news beats), the writing and editing of copy, make-up and student participation in the production, in the publishing laboratory, of the departmental publications.

251. News Communication and Production. (4) II.

Mr. Katzman, Mr. Ramsdell, Mr. Darsie

Emphasis is upon the investigative story, specialized features and magazine articles. A period of internship on newspapers concludes the course.

252. Editing the Newspaper. (1) I.

A workshop integrated with News Communication. Copy editing, headline writing and make-up are featured.

260A-260B. Ideas That Changed History. (2-2) Yr.

Mr. Brandt, Mr. Innerst

A two-hour weekly seminar devoted to a discussion of books and documents ranging from *The Analects* of Confucius to the Charter of the United Nations.

262A-262B. Theory and Practice of the Press. (1-1) Yr. Mr. Brandt

A seminar to which working newsmen and representatives from TV and radio are invited to outline the views of professionals in the fields of communication.

268A-268B. The Reporter and Society. (2-2) Yr.

Mr. Harris

A seminar devoted to study and research in typical civic and social problems encountered by the working newspaperman, requiring special investigation, therefore differing from routine news coverage.

299. Special Research Projects and Field Study in Communications.

(1-4) I, II.

Mr. Harris

Supervised research projects in the broad field of mass communications. Open to students not taking news communications.

RELATED COURSE IN ANOTHER DEPARTMENT**Psychology 267. Mass Communications as a Social Force. (2) II.**

Mr. Fearing

LATIN

For courses in Latin, see under Department of Classics.

LATIN-AMERICAN STUDIES

For courses in Latin-American Studies, see under departments of Art, Anthropology and Sociology, Geography, History, Political Science, and Spanish and Portuguese.

LAW

- L. Dale Coffman, A.B., J.D., LL.M., S.J.D., *Dean of the School of Law and Professor of Law.*
- James H. Chadbourn, A.B., J.D., *Connell Professor of Law.*
- Richard C. Maxwell, B.S.L., LL.B., *Professor of Law.*
- Rollin M. Perkins, A.B., J.D., S.J.D., *Connell Professor of Law.*
- Ralph S. Rice, B.S., LL.B., LL.M., *Professor of Law.*
- James D. Sumner, Jr., A.B., LL.B., LL.M., J.S.D., *Professor of Law.*
- Arvo Van Alstyne, A.B., LL.B., *Professor of Law.*
- Harold E. Verrall, A.B., M.A., LL.B., J.S.D., *Assistant Dean of the School of Law and Professor of Law.*
- Kenneth H. York, A.B., LL.B., *Professor of Law.*
- Edgar A. Jones, Jr., A.B., LL.B., *Assistant Professor of Law.*
- William C. Mathes, A.B., LL.B., *Lecturer on Trial Practice and Judge of the Practice Court.*
- Louis Piacenza, *Law Librarian.*

For information concerning courses and degrees offered, see the ANNOUNCEMENT OF THE SCHOOL OF LAW, which may be obtained from the School of Law, University of California, Los Angeles 24.

LIFE SCIENCES

For courses in Life Sciences, see under Department of Zoology.

LINGUISTICS AND PHILOLOGY

Harry Hoijer, Ph.D., *Professor of Anthropology.*

UPPER DIVISION COURSES

170. **Introduction to Linguistics.** (3) II. Mr. Hoijer
 An introduction to the fundamentals of structural and historical linguistics: phonetics and phonemics; linguistic structure; linguistic change; the relation of language to culture.
- *171. **Introduction to Phonetics.** (3) II. Mr. Hoijer
 Description and classification of speech sounds; methods in phonetic analysis and transcription; the theory of the phoneme.

RELATED COURSES IN OTHER DEPARTMENTS

LOWER DIVISION COURSES

- Greek 40. **The Greek Element in English.** (2) II. Miss Caldwell
- Latin 40. **The Latin Element in English.** (2) I. Miss Caldwell

UPPER DIVISION COURSES

- Anthropology 110. **Language and Culture.** (3) I. Mr. Hoijer

* Not to be given, 1956-1957.

- English 110. Introduction to English Language. (3) I.
Mr. Matthews, Mr. Bird
- English 111. The English Language in America. (3) II.
Mr. Matthews, Mr. Bird
- German 107A-107B. Phonetics of the German Language. (1-1) Yr.
Mr. Oswald
- German 117. History of the German Language. (3) II. Mr. Wilbur
- German 119. Middle High German. (3) I. Mr. Dolch
- Spanish 119. Readings in Spanish Literature of the Middle Ages. (2) I.
Miss Krause
- Spanish 148. Phonetics. (1) I. ———
- Spanish 149. Introduction to the History of the Spanish Language. (1) II.
Mr. Corbató

GRADUATE COURSES

- Anthropology 271A-271B. Structural and Historical Linguistics. (2-2) Yr.
Mr. Hoijer
- Anthropology 292A-292B. Research in American Indian Languages.
(1-6; 1-6) Yr. Mr. Hoijer
- English 211. Old English. (3) I. Mr. Matthews, Mr. Bird
- English 212. Middle English. (3) II. Mr. Matthews
- English 213. The Development of Modern English. (3) I. Mr. Matthews
- English 260A-260B-260C. Studies in Old and Middle English. Seminar.
Mr. Matthews
- German 230. Survey of Germanic Philology. (3) I. Mr. Dolch
- German 231. Gothic. (3) I. Mr. Dolch
- German 232. Old High German. (3) II. Mr. Dolch
- German 233. Old Saxon. (3) II. Mr. Dolch
- German 259. Seminar in Germanic Linguistics. (1 to 3) II. Mr. Dolch
- Romance Languages 201A-201B. French Historical Grammar and Method-
ology of Romance Linguistics. (2-2) Yr. Mr. Williams
- Romance Languages 203A-203B. Old Provençal: Reading Texts. (2-2) Yr.
Mr. Williams
- Scandinavian 243. Old Icelandic. (3) I. Mr. Wahlgren
- Scandinavian 244. Old Norse-Icelandic Prose and Poetry. (2) II.
Mr. Wahlgren
- Spanish 255. Contemporary Spanish Linguistics. (3) II. Mr. Bull
- Spanish 256. Spanish Historical Grammar. (3) II. Mr. Zeitlin

MATHEMATICS

- Edwin F. Beckenbach, Ph.D., *Professor of Mathematics.*
 Clifford Bell, Ph.D., *Professor of Mathematics.*
 Paul H. Daus, Ph.D., *Professor of Mathematics.*
 John W. Green, Ph.D., *Professor of Mathematics.*
 Magnus R. Hestenes, Ph.D., *Professor of Mathematics (Chairman of the Department).*
 Paul G. Hoel, Ph.D., *Professor of Mathematics.*
 Pentti Laasonen, Ph.D., *Visiting Professor of Mathematics.*
 I. S. Sokolnikoff, Ph.D., *Professor of Mathematics.*
 Angus E. Taylor, Ph.D., *Professor of Mathematics.*
 Charles B. Tompkins, Ph.D., *Professor of Mathematics.*
 *Frederick A. Valentine, Ph.D., *Professor of Mathematics.*
 George E. F. Sherwood, Ph.D., *Professor of Mathematics, Emeritus.*
 Richard Arens, Ph.D., *Associate Professor of Mathematics.*
 Peter Henrici, Ph.D., *Visiting Associate Professor of Mathematics.*
 Alfred Horn, Ph.D., *Associate Professor of Mathematics.*
 *Lowell J. Paige, Ph.D., *Associate Professor of Mathematics.*
 William T. Puckett, Jr., Ph.D., *Associate Professor of Mathematics.*
 *Raymond M. Redheffer, Ph.D., *Associate Professor of Mathematics.*
 Leo B. Sario, Ph.D., *Associate Professor of Mathematics.*
 Robert H. Sorgenfrey, Ph.D., *Associate Professor of Mathematics.*
 Ernst G. Straus, Ph.D., *Associate Professor of Mathematics.*
 J. Dean Swift, Ph.D., *Associate Professor of Mathematics.*
 Glenn James, Ph.D., *Associate Professor of Mathematics, Emeritus.*
 Earl A. Coddington, Ph.D., *Assistant Professor of Mathematics.*
 Barrett O'Neill, Ph.D., *Assistant Professor of Mathematics.*
 Robert Steinberg, Ph.D., *Assistant Professor of Mathematics.*
 Bodo W. Volkman, Ph.D., *Visiting Assistant Professor of Mathematics.*
 Guy H. Hunt, C.E., *Assistant Professor of Applied Mathematics, Emeritus.*
 Euphemia R. Worthington, Ph.D., *Assistant Professor of Mathematics, Emeritus.*
 Philip C. Curtis, Ph.D., *Instructor in Mathematics.*
 Thomas S. Ferguson, Ph.D., *Instructor in Mathematics.*
 Olavi B. Hellman, Ph.D., *Instructor in Mathematics.*
 L. J. Adams, M.A., *Lecturer in Mathematics.*
 Gerald Brown, Ph.D., *Lecturer in Mathematics.*
 *Clela Hammond, M.A., *Lecturer in Mathematics.*
 Robert Herrera, M.A., *Lecturer in Mathematics.*

Letters and Science List.—All undergraduate courses in mathematics and statistics except Mathematics 370 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Required: courses C (or the equivalent), 1-3A, 3B, 4A, 4B (no additional credit will be allowed for courses in the 5A, 5B, 6A, 6B sequence), with an average grade of C or higher, except that students who have completed two years of high school algebra and also trigonometry may be excused, upon examination, from course 1. Recommended: physics, astronomy, and a reading knowledge of French and German.

* Absent on leave, 1956-1957.

The Major.—Courses 108, 112A, and 119A, together with enough additional upper division units, approved by the upper division adviser, to total 24 units taken while in the upper division; not all three of 101A, 101B, 114 may be taken for credit; prospective candidates for a teaching credential may substitute 100 for 112A. At most, 3 of the 24 units required for graduation may be taken in related courses in other departments, provided approval has been obtained in advance from a departmental adviser. Candidates for a teaching credential must include Mathematics 370 in the required 24 units. The student must maintain an average grade of at least C in upper division courses in mathematics.

Students who are preparing to teach mathematics in high school are advised to elect course 100.

Students who expect to continue with graduate study are advised to elect courses 111A and 122A-122B.

Teaching Minor.—Mathematics 370 and not less than 20 units in the Department of Mathematics, including Mathematics 370 and two 3-unit courses in the 100 sequence.* The recommended minor for non-science majors working for the general secondary credential is Statistics 1, Mathematics C, 32A, 37, 38, 101A, 101B, and the required Mathematics 370.

Business Administration.—Students preparing for this School ordinarily are required to take Mathematics 32A-32B during their sophomore year. This requirement may be satisfied by the Mathematics 1, 3A, 3B sequence (or its equivalent), which should be begun during the freshman year.

Engineering.—Lower division students in this College are required to take courses 5A, 5B, 6A, 6B. No additional credit will be allowed for courses in the 3A, 3B, 4A, 4B sequence.

LOWER DIVISION COURSES†

C. Trigonometry. (3) I, II.

Mr. Bell in charge

Prerequisite: plane geometry and one and one-half years of high school algebra or course D. Students with one and one-half years of high school algebra may enroll in course C concurrently with course D.

Plane trigonometry and spherical right triangles, with special emphasis on trigonometric analysis.

Students taking course C who have had trigonometry in high school will be limited to 2 units of credit.

D. Intermediate Algebra. (3) I, II.

Mr. Swift in charge

Prerequisite: at least one year of high school algebra. Not open for credit to students who have received credit for two years of high school algebra, or trigonometry and one and one-half years of high school algebra, or any one of the following: courses E, 1, 3A, 32A, or 32B. Students who need extra review and drill will be required to attend the class four times a week.

Simultaneous linear and quadratic equations, binomial theorem, progressions and logarithms.

1. College Algebra. (3) I, II.

Mr. Sorgenfrey in charge

Prerequisite: at least one and one-half years of high school algebra and trigonometry, or two years of high school algebra and course C concurrently. Not open for credit to students who have received credit for course D, E, 3A, 32A, or 32B.

The topics in course D and determinants, inequalities, complex numbers, theory of equations, permutations, combinations and probability.

* Mathematics 4B may apply toward the teaching minor in lieu of an upper division course in the 100 series.

† Students who have credit for courses in the 3A, 3B, 4A, 4B sequence will not be allowed additional credit for courses in the 5A, 5B, 6A, 6B sequence; and vice versa.

1-3A. College Algebra and Plane Analytic Geometry. (5) I, II.

Mr. Daus in charge

Prerequisite: two years of high school algebra and also trigonometry.

A combination of courses 1 and 3A. Students who have received credit in course D, E, 1, or 32A will receive only 3 units of credit for this course.

3A. Plane Analytic Geometry. (3) I, II.

Mr. O'Neill in charge

Prerequisite: course C or high school trigonometry, and course D or 1.

Students who have had two years of high school algebra and trigonometry may be excused from course 1 by examination. This examination will be given the Tuesday afternoon before the start of classes. Applicants for this examination must make previous arrangements with the secretary of the department.

A study of the straight line, the conics and higher plane curves, by means of rectangular and polar coordinates and parametric representation.

3B. First Course in Calculus. (3) I, II.

Mr. Arens in charge

Prerequisite: course 3A.

Differentiation of algebraic and transcendental functions with applications.

4A. Second Course in Calculus. (3) I, II.

Mr. Beckenbach in charge

Prerequisite: course 3B.

Integration with applications; infinite series.

4B. Third Course in Calculus. (3) I, II.

Mr. O'Neill in charge

Prerequisite: course 4A.

Infinite series, continued; solid analytic geometry, partial differentiation, multiple integration with applications.

Upper division credit will be allowed to students who are not majors in mathematics, engineering, or meteorology, who take the course while in the upper division.

5A. Analytic Geometry and Calculus. (5) I, II.

Mr. Taylor in charge

Prerequisite: admission to the College of Engineering. Prescribed in the College of Engineering. Nonengineering students having two years of high school algebra and trigonometry will be admitted by special examination as described under course 3A.

A unified course in analytic geometry and differential calculus, and an introduction to integration of algebraic functions.

5B. Analytic Geometry and Calculus. (3) I, II.

Mr. Puckett in charge

Prerequisite: course 5A.

A unified course in analytic geometry and differential calculus, and an introduction to integration of transcendental functions.

6A. Differential and Integral Calculus. (3) I, II.

Mr. Hoel in charge

Prerequisite: course 5B.

Techniques and applications of integration; infinite series and expansion of functions.

6B. Differential and Integral Calculus. (3) I, II.

Mr. Green in charge

Prerequisite: course 6A.

Solid analytic geometry, partial differentiation and multiple integration, with applications; ordinary differential equations through simple applications involving damped oscillations. Upper division credit will be allowed to students who are not majors in mathematics, engineering, or meteorology, who take the course while in upper division.

32A. Introductory Mathematical Analysis for Business. (3) I, II. Beginning either semester. Mr. Daus

Prerequisite: sophomore standing.

Algebra, including quadratics, logarithms, progressions, and the binomial theorem; graphical representation; simple and compound interest; ordinary annuities. Students who need extra review and drill will be required to attend the class four times a week. Not open for credit to students who have received credit for course D, or 1.

Elementary differential and integral calculus and curve fitting, with applications to business and economics.

32B. Introductory Mathematical Analysis for Business. (3) I, II.

Prerequisite: course 32A or the equivalent.

37. Mathematics for Social and Life Sciences. (3) II. Mr. Bell

Prerequisite: course C, and one of D, 32A, 1, or the equivalent.

This course gives in brief form an introduction to analytic geometry and calculus, and other mathematical material particularly designed for students of the social and life sciences.

38. Fundamentals of Arithmetic. (3) I, II. Mr. Bell

Prerequisite: sophomore standing.

Designed primarily for prospective teachers of arithmetic. The study of the fundamental operations on integers and fractions is stressed, together with suitable visual aids. Although efficiency in arithmetical skills is required, the emphasis is on the understanding of arithmetical procedures.

UPPER DIVISION COURSES

100. College Geometry. (3) I. Mr. Steinberg

Prerequisite: course 4A.

Selected topics in geometry, with particular emphasis on recent developments.

101A. Fundamental Concepts of Mathematics. Algebra. (3) I. Mr. Bell

Prerequisite: course 37 or the equivalent.

A course designed especially for teachers and prospective teachers of secondary mathematics. Selected topics in algebra; number system; logical concepts; elementary functions; determinants and matrices.

101B. Fundamental Concepts of Mathematics. Geometry. (3) II.

Mr. Daus

Prerequisite: course 37 or the equivalent (course 101A not a prerequisite).

A course designed especially for teachers and prospective teachers of secondary mathematics. Selected topics in elementary geometry; deductive geometry; axiomatic approach; various axiomatic systems for Euclidean geometry; non-Euclidian geometry; projective, metric, and affine geometry.

108. Theory of Algebraic Equations. (3) I, II.

Mr. Straus

Prerequisite: course 4A.

110AB. Advanced Engineering Mathematics. (4) I, II.

Mr. Coddington in charge

Prerequisite: course 4B. Not open to students who have taken course 6B or any course containing 1 unit of work in differential equations. Students in the engineering curriculum are required to take course 110AB or 110C, depending upon the prerequisite.

Ordinary differential equations and orthogonal functions, partial differential equations, line integrals, Green's theorems, vector analysis, solution of equations.

110C. Advanced Engineering Mathematics. (3) I, II.

Mr. Sokolnikoff in charge

Prerequisite: course 6B, or an equivalent course containing at least 1 unit of differential equations. Students who have credit for course 119A will be limited to 2 units of credit.

This course covers all the material in Mathematics 110AB with the exception of one unit of differential equations.

110D. Advanced Engineering Mathematics. (3) II.

Mr. Sokolnikoff

Prerequisite: course 110AB or 110C.

Complex variable, probability, curve fitting.

111A. Introduction to Higher Algebra. (3) II.

Mr. Curtis

Prerequisite: course 108.

Selected topics in algebra, with particular reference to modern points of view.

112A. Introduction to Higher Geometry. (3) I, II.

Mr. O'Neill

Prerequisite: course 108.

Homogenous point and line coördinate, cross ratio, one- and two-dimensional projective geometry, point and line conics.

112B. Introduction to Metric Differential Geometry. (3) II.

Mr. Tompkins

Prerequisite: course 119A or consent of the instructor.

113. Synthetic Projective Geometry. (3) II.

Mr. Daus

Prerequisite: course 112A or consent of the instructor.

114. Mathematical Ideas. (3) II.

Mr. Straus

Prerequisite: course 4B or its equivalent.

The mathematical method; sets, equivalence, cardinals; numbers, integers, rationals, complex numbers; geometry, Euclid's axioms, axiomatic method; analytic geometry, dimension, functions, curves; idea of a limit; topology, convex sets, convex functions.

115A. Theory of Numbers. (3) II.

Mr. Straus

Prerequisite: course 108 or consent of the instructor.

Divisibility, congruences, diophantine analysis.

*115B. Theory of Numbers. (3) II.

Mr. Swift

Prerequisite: course 115A.

Selected topics in the theory of primes, algebraic number theory, and diophantine equations.

119A. Differential Equations. (3) I, II.

Mr. Horn

Prerequisite: course 4B. Not open to students who have credit for course 110AB or 110C.

119B. Differential Equations. (3) II.

Prerequisite: course 119A.

Numerical methods, special equations and functions, and partial differential equations.

120. Probability. (3) II.

Mr. Hoel

Prerequisite: senior standing in mathematics.

Basic laws of probability, Bayes' formula, discrete and continuous variable problems, mathematical expectations, laws of large numbers.

* Not to be given, 1956-1957.

- 122A-122B. Advanced Calculus.** (3-3) Yr. Beginning either semester.
Prerequisite: course 110C or 119A. Mr. Puckett, Mr. Daus
- 124. Vector Analysis.** (3) I. Mr. Green
Prerequisite: course 4B.
Vector algebra, vector functions and vector calculus, linear vector functions, field theory, transformations of integrals.
- 125. Analytic Mechanics.** (3) I. Mr. Straus
Prerequisite: course 119A or 110C, and Physics 105.
- 126. Potential Theory.** (3) II. Mr. Green
Prerequisite: course 4B and one year of college physics. Recommended: course 110A or 110C.
- *127A-127B. Foundations of Mathematics.** (3-3) Yr. Mr. Horn
Prerequisite: senior standing in mathematics. Juniors with exceptional ability may be admitted with special consent of the instructor.
Course 127A covers the basic logical ideas by means of symbolic logic.
Course 127B covers set theory, theory of relations, the logical background of function theory, the number system, and induction.
- 128. Fourier Series and Laplace Transforms.** (3) I. Mr. Curtis
Prerequisite: course 119A or consent of the instructor.
- 135. Numerical Mathematical Analysis.** (3) I, II.
Prerequisite: courses 108 and 119A, or consent of the instructor.
Computation with numbers of fixed precision—accuracy, round off, checking. Choice and use of tables. Applications involving approximations with polynomials—finite differences, interpolation, extrapolation, numerical differentiation and integration. Computation with continued fractions. Numerical approximation to solutions of equations.
- **135B. Numerical Mathematical Analysis.** (3) I. _____
- 136. Matrix Inversion and Decomposition.** (3) I, II. Mr. Hayes in charge
Prerequisite: courses 108 and 119A, or consent of the instructor.
Algebra of finite matrices. Spectral theory of finite matrices. Direct and iterative methods for inverting matrices and solving linear equations. Various methods for obtaining characteristic values and vectors of matrices.
- 137. Numerical Methods in Differential Equations.** (3) II. _____
Prerequisite: course 135 or consent of the instructor.
Forward integration; error analysis; Milne, Runge-Kutta, and difference methods; systems of equations; higher order and non-linear equations; two-point boundary conditions.
- 139. Automatic Digital Calculators.** (3) I, II. Mr. Tompkins
Prerequisite: course 119A or consent of the instructor.
Advent of electronic computing techniques. Electrical and electronic elements and their combination into potential digital computer components. Arithmetic suitable for digital machines. Organization of a digital machine. Coding, with specific examples. Most of the course is devoted to numerical aspects of automatic digital computing, with only idealized description of engineering concepts involved.

* Not to be given, 1956-1957.

** This course is offered for students who completed the first half of the former course 185A-185B, and will not be offered after the fall semester, 1956.

140. Logic of Application of Automatic Digital Calculators. (3) I, II.

Prerequisite: course 139 or consent of the instructor.

Programming and coding problems for automatic digital calculators. Parts of a code. Coding symbolism and logic. Each student will be required to solve several problems on SWAC.

199. Special Problems in Mathematics. (1-3) I, II.

The Staff

Prerequisite: consent of the department.

GRADUATE COURSES

(Open only to students who have regular graduate status.)

205. Analytic Number Theory. (3) I.

Mr. Swift

Prerequisite: courses 111A, 115A, and 122A, completed or taken concurrently.

Domain of real integers, additive and multiplicative theory, integral domains, partitions, special series, prime number theory.

209. Introduction to Advanced Analysis. (3) I.

Mr. Sario

Prerequisite: course 122A-122B or the approximate equivalent.

Point set theory in Euclidean space. The real number system and its relation to the rational field. Convergence and limits. Continuous functions. Infinite convergent processes. Existence theorems. Theories of integration (Riemann, Stieltjes), and a short introduction to measure and the Lebesgue integral.

212. Algebraic Geometry. (3) II.

Mr. Daus

Prerequisite: courses 111A, 113A.

Algebraic preliminaries, projective space, Grassmann coordinates, colineations and correlations.

***215. Non-Euclidean Geometry. (3) II.**

Mr. Daus

Prerequisite: consent of the instructor. Recommended: course 113 or 208.

221A-221B. Higher Algebra. (3-6) Yr.

Mr. Steinberg

Prerequisite: course 111A.

***222. Theory of Groups. (3) I.**

Prerequisite: course 221A-221B or 111A and consent of the instructor.

Classical theorems of general group theory, permutation groups, group representations, basic facts on topological and Lie groups.

224A-224B. Functions of a Complex Variable. (3-3) Yr. Beginning either semester.

Mr. Green, Mr. Beckenbach

Prerequisite: course 122A-122B.

***225A-225B. Theory of Elasticity. (3-3) Yr.**

Mr. Sokolnikoff

Prerequisite: course 122A-122B or consent of the instructor.

Course 225A deals with the theory of mechanics of deformable media, analysis of stress, analysis of strain, stress-strain relations, energy theorems, fundamental boundary value problems of mechanics of continua.

Course 225B deals with the variational methods of solution of problems of elasticity, uses of the analytic function theory in two-dimensional problems, theory of plates and shells.

- 226A-226B. Topology. (3-3) Yr.** Mr. Sorgenfrey
Prerequisite: course 122A-122B, or consent of the instructor.
Properties of topological spaces: separation axioms, compactness, connectedness; metrizable; further topics selected from general and algebraic topology.
- *227. Infinite Series. (3) II.** Mr. Redheffer
Prerequisite: courses 224A, 242A.
- *229. Theory of Plasticity. (3) I.** Mr. Sokolnikoff
Prerequisite: course 225A or consent of the instructor.
Yield conditions and theories of plastic flow; applications of perfect plasticity to torsion and plane strain; variational principles.
- *234A-234B. Riemann Surfaces. (3-3) Yr.** Mr. Sario
Prerequisite: course 224A-224B.
Surface topology: topological spaces, surfaces, covering surfaces, combinatorial approach, triangulations. Riemann surfaces: construction, analysis on Riemann surfaces, Dirichlet problems, harmonic functions, extremum problems, planar surfaces, capacities. Differentials: existence, extremal properties, Abelian integrals. Classification: removability, metric tests, type problems.
- *235. Lie Groups. (3) I.** _____
Prerequisite: consent of the instructor.
The contents of Chevalley's *Theory of Lie Groups*, the classification of semisimple Lie groups, and their finite and infinite dimensional representations; algebraic groups, the topology of Lie groups; applications to differential geometry in the large and quantum mechanics.
- 236. Topological Groups. (3) II.** Mr. Arens
Prerequisite: courses 224A, 226A, or consent of the instructor.
Invariant integration, group algebras, representation of Abelian and compact groups.
- 237A-237B. Calculus of Variations. (3-3) Yr.** Mr. Hestenes
Prerequisite: courses 224A, 242A, or consent of the instructor.
The differential equation of a curve minimizing a definite integral. Other properties of a minimizing curve analogous to those deduced by Legendre, Weierstrass, and Jacobi. Conditions which insure the existence of a minimum, extensions to multiple integrals.
- *239. Boolean Algebras. (3) II.** Mr. Horn
Prerequisite: course 226A or consent of the instructor.
Axioms and elementary properties, completeness properties, distributivity laws, ideal theory, sub-algebras and quotient algebras, representation theory, applications to topology, Boolean algebras with operators, closure algebras.
- 242A-242B. Functions of a Real Variable. (3-3) Yr.** Beginning second semester. Mr. Arens, Mr. Sario
Prerequisite: course 122A-122B.
The real number system, point set theory, Lebesgue measure and Lebesgue integral. Iterated integration, absolute continuity, and fundamental theorem of the calculus.
- 243. Ordinary Differential Equations. (3) I.** Mr. Coddington
Prerequisite: courses 224A, 242A, or consent of instructor.
Existence and uniqueness theorems, linear systems, systems with isolated singularities of the first and second kind, boundary value problems on finite

intervals, singular boundary value problems, perturbation theory, Poincare-Bendixson theory of two-dimensional systems, differential equations on a torus, stability and asymptotic behavior.

***244A-244B. Topics in the Theory of Hilbert Space. (3-3) Yr.**

Prerequisite: course 242A.

Mr. Hestenes

Theory of bounded and unbounded linear operators in Hilbert space, spectral resolution. Orthogonal functions, representation theorems. Linear and quadratic forms. Applications to differential equations, integral equations and calculus of variations.

***245. Integral Equations. (3) II.**

Mr. Horn

246A-246B. Partial Differential Equations of Mathematical Physics.

(3-3) Yr.

Mr. Tompkins

Prerequisite: course 224A or 242A or Engineering 181A.

Boundary value and characteristic value problems. Separation of variables and expansion in series of characteristic functions. Fourier and Laplace transforms. Green's functions. Integral equations. Characteristic approximate solutions.

247A-247B. Tensor Analysis. (3-3) Yr.

Mr. Sokolnikoff

Prerequisite: course 122A-122B or consent of the instructor.

247A. Vectors in n -dimensional and infinitely dimensional manifolds. Linear transformations. Algebra and calculus of tensors. Applications to geometry.

247B. Applications to differential geometry of curves and surfaces. First and second differential forms, geodesics in Riemannian manifolds. Equations of Gauss and Codazzi. Applications to various branches of applied mathematics, including the theory of relativity.

248. Normed Linear Spaces. (3) I.

Mr. Taylor

Prerequisite: course 242A.

Abstract Banach spaces, vector spaces, and spaces of functions.

251. Computational Aspects of Linear Problems. (3) II.

Prerequisite: courses 111A or 136, and 139; or consent of the instructor.

Analysis of numerical methods for inverting matrices, solving systems of linear equations and inequalities, computing eigenvalues and eigenvectors of finite matrices, solving and evaluating linear games. Special attention to suitability of methods for electronic digital computers.

252. Computational Aspects of Partial Differential Equations. (3) I.

Prerequisite: courses 122AB, 139, or consent of the instructor.

Finite difference methods: convergence, stability, error analysis, relaxation techniques. Methods based on minimum principles. Solutions in series form. Numerical solution of integral equations. Role of digital computing machines.

***253. Computational Aspects of Statistical and Discrete Variable Problems. (3) I.**

Mr. Tompkins

Prerequisite: courses 120 or 131AB, and 139; or consent of the instructor.

Computational aspects of sampling and analysis of variance. Computer generation of random variates. Monte Carlo methods. Random walks. Design of experiments and numerical simulation. Exhaustive searches and other attacks on discrete variable problems.

* Not to be given, 1956-1957.

260. **Seminars in Mathematics.** (3) I, II. The Staff
 Topics in analysis, geometry, algebra, and numerical analysis, and in their applications, by means of lectures and informal conferences with members of the staff.

290. **Research in Mathematics.** (1 to 6) I, II. The Staff

PROFESSIONAL COURSE IN METHOD

370. **The Teaching of Mathematics.** (3) II. Mr. Bell

Prerequisite: course 4A or 37 and senior standing.

A critical inquiry into present-day tendencies in the teaching of mathematics.

STATISTICS

LOWER DIVISION COURSE

1. **Elementary Statistics.** (2) I, II. Mr. Hoel in charge

For students without the mathematical background for course 131A. Emphasis is placed on the understanding of statistical methods. Topics covered are frequency distributions, measures of central tendency, measures of variation, moments, theoretical frequency distributions, sampling, standard errors, linear regression and correlation.

UPPER DIVISION COURSE

131A-131B. **Statistics.** (3-3) Yr. Mr. Ferguson

Prerequisite: Mathematics 4A.

A basic introductory course in the theory and applications of statistical methods.

GRADUATE COURSES

*231. **Multivariate Analysis.** (3) I. Mr. Hoel

Prerequisite: Statistics 131A-131B; recommended: Mathematics 122A.

Multivariate normal distribution. Analysis of variance. Distribution of product moments. Normal correlation and regression. Chi-square distribution.

232. **Theory of Estimation and Testing Hypotheses.** (3) I. Mr. Hoel

Prerequisite: Statistics 131A-131B; recommended: Mathematics 122A.

Estimates. Asymptotic efficiency and normality. Neyman-Pearson theory of tests.

*233. **Stochastic Processes.** (3) I. _____

Prerequisite: an upper division course in probability or mathematical statistics, or consent of the instructor.

Elements of Markoff processes, with applications to physics, biology, and engineering. Stationary processes, with applications to electronics and other fields.

260. **Seminars.** Prerequisite: Statistics 231 or 232.

Theoretical Statistics. (3) II. _____

Topics will be selected from distribution theory, advanced probability, theory of inference, theory of experimental design, multivariate analysis, sequential analysis, nonparametric methods.

Applied Statistics. (3) II. Mr. Brown

Topics will be selected from those listed under Theoretical Statistics but the emphasis will be on applications.

* Not to be given, 1956-1957.

NUMERICAL ANALYSIS RESEARCH

- Edwin F. Beckenbach, Ph.D., *Professor of Mathematics.*
 John W. Green, Ph.D., *Professor of Mathematics.*
 Magnus R. Hestenes, Ph.D., *Professor of Mathematics.*
 Pentti Laasonen, Ph.D., *Visiting Professor of Mathematics.*
 William T. Puckett, Jr., Ph.D., *Associate Professor of Mathematics.*
 J. Dean Swift, Ph.D., *Associate Professor of Mathematics.*
 George E. Forsythe, Ph.D., *Research Mathematician.*
 Theodore S. Motzkin, Ph.D., *Research Mathematician.*
 Charles B. Tompkins, Ph.D., *Professor of Mathematics (Director of the Project).*
 Wolfgang R. Wasow, Ph.D., *Research Mathematician.*
 Thomas H. Southard, Ph.D., *Associate Research Mathematician.*
 Peter Henrici, Ph.D., *Visiting Associate Professor of Mathematics.*
 Frederick H. Hollander, M.A., *Associate Research Mathematician.*
 Olavi B. Hellman, Ph.D., *Instructor in Mathematics.*

Numerical Analysis Research is a part of the Department of Mathematics of the University of California, located in Temporary Building 3U on the Los Angeles campus. It continues work formerly carried out on the campus by the Institute for Numerical Analysis of the National Bureau of Standards, which was replaced by this project on June 30, 1954. The group carries on basic research and training in numerical analysis and the efficient use of electronic digital computers for scientific and related purposes. It operates the SWAC, a fast electronic digital computing machine designed and built by the National Bureau of Standards with the financial support of the United States Air Force. The project provides facilities for large computation, which are available to University departments. With the cooperation of Numerical Analysis Research, the Department of Mathematics offers a series of courses and seminars to provide training in modern numerical analysis.

The research program of Numerical Analysis Research has been underwritten by the Office of Naval Research, United States Navy, and the Office of Ordnance Research, United States Army. The SWAC, library, and other equipment of the project are furnished by the United States Navy.

METEOROLOGY

- Jacob Bjerknes, Ph.D., *Professor of Meteorology.*
 Jörgen Holmboe, M.Sc., *Professor of Meteorology.*
 Morris Neiburger, Ph.D., *Professor of Meteorology (Chairman of the Department).*
 Zdenek Sekera, Ph.D., *Professor of Meteorology.*
 *Yale Mintz, Ph.D., *Associate Professor of Meteorology.*
 James G. Edinger, Ph.D., *Assistant Professor of Meteorology.*
 Rolando V. Garcia, Ph.D., *Assistant Professor of Meteorology.*
 Joseph B. Knox, Ph.D., *Instructor in Meteorology.*

- Robert E. Holzer, Ph.D., *Professor of Geophysics.*
 *Clarence E. Palmer, M.Sc., *Professor of Geophysics.*

* Absent on leave, 1956-1957.

* In residence spring semester only, 1956-1957.

Letters and Science List.—All undergraduate courses in this department are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Course 3; Physics 1A, 1B, 2B, or Physics 2A-2B; Mathematics 1-3A, 3B, 4A, 4B, or Mathematics 5A, 5B, 6A, 6B. Chemistry 2A is recommended for students who have not had high school chemistry. Meteorology 5 is required, but may be taken during the junior year.

The Major.—Courses 100A-100B, 100C, 100D, 107, 120; and 9 units to be selected from upper division courses in mathematics or statistics, meteorology, and physics, at least 3 units of which must be in mathematics (other than Mathematics 4B).

LOWER DIVISION COURSES

3. Descriptive Meteorology. (3) I, II. Mr. Garcia
Elementary survey of the causes and regional distribution of weather and climate. Not open for credit to students who have credit for Geography 3.

5. Weather Observations. (3) I. Mr. Edinger
Lecture, two hours; laboratory, three hours. Prerequisite or concurrent: course 3.

Technique of synoptic and airways observations; upper-air wind observations; theory and care of the common meteorological instruments; weather codes.

UPPER DIVISION COURSES

100A-100B. Weather Analysis and Forecasting. (3-3) Yr. Mr. Neiburger and Mr. Edinger

Prerequisite or concurrent: courses 5, 107, 120.

Representation of the three-dimensional fields of the weather; structure of atmospheric pressure and wind systems and the laws of their development and motion; forecasting temperature, clouds, precipitation, fog, icing, turbulence, and severe storms.

100C-100D. Laboratory in Weather Analysis and Forecasting. (3-5) Yr. Mr. Edinger

Prerequisite or concurrent: course 100A-100B.

Practice in three-dimensional weather analysis and forecasting.

***102. Physics of the Higher Atmosphere.** (3) I. Mr. Neiburger

Prerequisite: course 104, or Physics 113, or consent of the instructor.

Constitution of the atmosphere at various levels; the ozone layer; the ionosphere; cosmic rays; optical phenomena.

***103. Oceanography.** (2) II. _____

Prerequisite: courses 107, 120.

Principles and methods of physical oceanography. Energy exchange between ocean and atmosphere. Distribution of temperature. Current systems. Wind waves and swell.

104. Meteorological Physics. (3) II. Mr. Neiburger

Prerequisite: Physics 1A and 1B, or 2A; 1C and 1D, or 2B.

Theory of radiation, with emphasis on its meteorological applications; atmospheric optics; condensation processes in the atmosphere.

107. Meteorological Thermodynamics. (3) I. Mr. Garcia

Prerequisite: Physics 1A and 1B, or 2A; prerequisite or concurrent: Mathematics 4B.

Thermal properties of dry air, water vapor, and moist air. Atmospheric hydrostatics. Evaluation of aerological soundings.

* Not to be given, 1956-1957

108. Physical Climatology. (3) II.

Mr. Knox

Prerequisite: courses 3, 107.

The general circulation of the atmosphere and the normal fields of temperature, cloudiness, and precipitation over the globe. Air masses and weather type zones of the earth.

***111. Modern Meteorological Instruments. (3) II.**

Lecture, two hours; laboratory, three hours. Prerequisite: course 5; prerequisite or concurrent: course 100B.

A survey of modern instruments, their uses and limitations. Meteorological instrumentation, with emphasis on accuracy and applicability of various techniques; measurement of special meteorological elements; upper-air sounding methods; radar storm detection, aeries; rawins.

120. Dynamic Meteorology. (3) II.

Mr. Garcia

Prerequisite: course 107.

Equations of atmospheric motion. Gradient wind. Thermal wind. Fronts. Theory of pressure changes. Circulation and vorticity.

121. Dynamic Meteorology. (3) I.

Mr. Holmboe

Prerequisite: course 120.

Kinematics and dynamics of the field of motion, including the determination of the velocity field from its divergence, vorticity and boundary conditions. Applications to the general circulation.

130. Numerical Methods of Meteorology. (3) I.

Mr. Knox

Prerequisite: courses 107, 120.

Application of numerical mathematics and statistics to selected meteorological problems. Numerical methods of weather forecasting.

199A-199B. Special Problems in Meteorology. (1-3; 1-3) Yr.

Mr. Neiburger in charge

GRADUATE COURSES

Prerequisite to all graduate courses: courses 100A, 100B, 100C, 100D, 107, 120.

201A-201B. Advanced Synoptic Meteorology. (2-2) Yr.

Mr. Bjerknes

202. Tropical Meteorology. (2) II.

Mr. Palmer

210A-210B. Meteorological Laboratory. (4-4) Yr.

Mr. Bjerknes

217. Meteorological Hydrodynamics. (3) II.

Mr. Holmboe

220. Advanced Dynamic Meteorology. (3) I.*280. Seminar in Meteorology. (2) I, II.**

Mr. Holmboe

281. Seminar in Cloud Physics. (2) II.

Mr. Neiburger

282. Seminar in Hydrodynamics. (2) I, II.

Mr. Holmboe

***283. Seminar in Weather Forecasting. (2) I.**

Mr. Mintz

***284. Seminar in Physical Meteorology. (2) I.**

Mr. Sekera

290A-290B. Research in Meteorology. (1-6; 1-6) Yr.

Mr. Bjerknes, Mr. Holmboe in charge

* Not to be given, 1956-1957.

RELATED COURSES IN ANOTHER DEPARTMENT

Geophysics 155. Electrical and Magnetic Phenomena of the Atmosphere.
(3) II. Mr. Holzer

Geophysics 255. Seminar in Atmospheric Physics. (3) I. Mr. Holzer

MILITARY SCIENCE AND TACTICS

Maxwell H. Thompson, B.S., Colonel, Artillery, *Professor of Military Science and Tactics (Chairman of the Department)*.

William K. Konze, B.S., Major, Ordnance Corps, *Associate Professor of Military Science and Tactics*.

John E. MacDonough, M.A., Major, Quartermaster Corps, *Associate Professor of Military Science and Tactics*.

Robert P. Morrow, B.S., Lieut. Colonel, Infantry, *Associate Professor of Military Science and Tactics*.

Jack A. Clegg, B.S., Captain, Military Police Corps, *Assistant Professor of Military Science and Tactics*.

Carl R. Duncan, B.S., Captain, Chemical Corps, *Assistant Professor of Military Science and Tactics*.

David W. McNeely, B.S., Captain, Artillery, *Assistant Professor of Military Science and Tactics*.

Richard E. Tobin, B.S., Captain, Infantry, *Assistant Professor of Military Science and Tactics*.

Edward S. Waddell, B.S., Captain, Corps of Engineers, *Assistant Professor of Military Science and Tactics*.

Frank E. Wilkins, B.S., Captain, Infantry, *Assistant Professor of Military Science and Tactics*.

Letters and Science List.—All undergraduate courses in this department up to a total of 12 units are included in the Letters and Science List of Courses. Note: This in no way prejudices counting additional military science courses up to the 12 units of non-Letters and Science credit accepted toward the degree. For regulations governing this list, see page 6.

College of Engineering.—Six units of lower division credit and 9 units of upper division credit in military science courses are accepted toward the degree in the College of Engineering.

ARMY RESERVE OFFICERS' TRAINING CORPS

The Army R.O.T.C. course provides college-level training in the general military science curriculum leading to a commission in the Army. Students in all academic fields are eligible for admission in the general military science program. The purpose of the course is to provide a general type of training to produce officers who may serve in any arm or service of the Army after further basic training in the appropriate service school. The length of such service is to be a period of six months to two years contingent upon the requirements of the service and/or the desires of the individual, as prescribed by the Armed Forces Reserve Act of 1955. It is the continuing effort of the Department of the Army to assign graduates to the arm or service most closely aligned with the individual's capabilities, professional training, and preference.

The course is divided into two general parts: (1) the two-year Basic Course for all qualified male students who select Army R.O.T.C. for completion of the two-year military training requirements prescribed by the University for graduation and (2) the Advanced Course for selected students who desire to

complete an additional two years of R.O.T.C. training leading to a commission in the Army. Successful completion of the four-year R.O.T.C. branch general curriculum qualifies graduates for a commission in any arm or service of the Army. The interests, aptitudes, and educational accomplishments of the student are given careful consideration in order that he may be recommended for a commission in the arm or service for which he is best qualified.

The Universal Military Training and Service Act of 1951 provides for deferment from the draft of regularly enrolled students currently pursuing a course in military science and tactics who meet the standards for acceptance and who agree to complete the Advanced Course training upon completion of the Basic Course. The purpose of deferring a student's active military service until completion of the R.O.T.C. course of instruction is to permit him to complete the entire four-year R.O.T.C. program prior to undertaking his active military service obligations. Additional information on matters pertaining to draft deferment and the Army R.O.T.C. course may be obtained from the department.

BASIC COURSE (LOWER DIVISION)

The Basic Course is required by University regulations for all qualified lower division male students. Students claiming exemption from all or part of the Basic Course because of non-citizenship, physical disability, age (over twenty-four years of age at time of initial enrollment in the Basic Course), active service in the Armed Forces, or previous R.O.T.C. training may petition the University for exemption. However, a student petitioning for exemption must enroll in the appropriate R.O.T.C. course pending completion of official action on his petition.

The objective of the two-year Basic Course R.O.T.C. curriculum is to acquaint the student with the fundamental principles of national security through the study of the military history of our country, to introduce the weapons and principles of modern warfare, and to develop the traits of character and leadership necessary to prepare him to discharge his citizenship obligations. These courses prepare the student for the Advanced Course. Draft deferments may be granted to qualified Basic Course students who intend to pursue the four-year R.O.T.C. training program.

All necessary equipment, uniforms, and textbooks are provided free of charge to students.

1A-1B. First-Year Basic Military Science. (1½-1½) Yr. The Staff

Two hours of classwork and one hour of leadership, drill, and exercise of command each week.

Organization of the Army and R.O.T.C., American military history, individual weapons and marksmanship, school of the soldier and exercise of command.

20A-20B. Second-Year Basic Military Science, Infantry. (1½-1½) Yr.

Beginning either semester. The Staff

Prerequisite: course 1A-1B. Two hours of classwork and one hour of leadership, drill, and exercise of command each week.

Crew-served weapons and gunnery, map and aerial photograph reading, school of the soldier and exercise of command.

THE ADVANCED COURSE (UPPER DIVISION)

The Advanced Course of instruction is designed to produce junior officers who by their education, training, and inherent qualities are suitable for continued development as officers in any arm or service of the United States Army. Training in military leadership is emphasized. Instruction is given in subjects common to all branches of the Army and qualifies the graduate for the duties of a junior officer. Advanced Course students pursuing courses in

basic science and engineering are fully qualified for commissions in the arms or services related to their academic course to study.

Admission to the Advanced Course is by selection from among qualified regularly enrolled students who meet the academic and physical requirements and who have demonstrated positive interest and leadership potential. Students may apply after successful completion of the Basic Course (or who have the credit for the Basic Course from other institutions authorized to present the equivalent instruction) or evidence of satisfactory service in the Armed Forces, and who can qualify for appointment as a second lieutenant prior to reaching twenty-eight years of age. All students accepted for the Advanced Course must have at least two more academic years remaining before qualifying for their first baccalaureate degree.

Students accepted for admission to the Advanced Course receive approximately \$535 in pay during the two-year period (exclusive of summer camp) in addition to the use of all necessary equipment and textbooks free of charge. The officer-type uniform provided each student becomes his personal property upon successful completion of the Advanced Course.

Advanced Course students are required to attend a six-week course of training at R.O.T.C. Summer Camp during the summer vacation period following the completion of the first year of the Advanced Course; this Summer Camp is attended by Advanced Course R.O.T.C. students from several universities. The training at camp is designed to provide the broad background necessary for a junior officer and stresses practical work in leadership, physical development, and knowledge of the important roles played by all branches of the service in the military team. Supervised social and recreational activities are provided. The student is furnished uniforms, equipment, and receives \$78 per month and travel expenses to and from camp. Academic credit of 3 units for the six weeks of camp is granted by the University.

103A-103B. First-Year Advanced Military Science. (4-4) Yr. The Staff
Prerequisite: Basic Course or the equivalent. Four hours of classwork and one hour of leadership, drill, and exercise of command each week.

Small-unit tactics and communications, organization, function and mission of the arms and services, military teaching methods, leadership, school of the soldier and exercise of command.

104A-104B. Second-Year Advanced Military Science. (4-4) Yr. The Staff
Four hours of classwork and one hour of leadership, drill, and exercise of command each week.

Logistics, operations, military administration and personnel management, service orientation, leadership, school of the soldier and exercise of command.

MUSIC

Robert U. Nelson, Ph.D., *Professor of Music (Chairman of the Department)*.

*Laurence A. Petran, Ph.D., F.A.G.O., *Professor of Music and University Organist*.

*H. Jan Popper, Ph.D., *Professor of Music*.

Walter H. Rubsamen, Ph.D., *Professor of Music*.

John N. Vincent, Jr., Ph.D., *Professor of Music*.

_____, *Professor of Music*.

*Lukas Foss, *Associate Professor of Music*.

Boris A. Kremenlief, Ph.D., *Associate Professor of Music*.

W. Thomas Marrocco, Ph.D., *Associate Professor of Music*.

¹ In residence fall semester only, 1956-1957.

² In residence spring semester only, 1956-1957.

Raymond Moremen, M.S.M., *Associate Professor of Music.*
 Feri Roth, Mus.Doc., *Associate Professor of Music.*
 Clarence Sawhill, M.M., *Associate Professor of Music.*
 Robert M. Stevenson, Ph.D., *Associate Professor of Music.*
 F. Cowles Strickland, M.A., *Visiting Associate Professor of Music.*
 Leroy W. Allen, M.A., *Associate Professor of Music. Emeritus.*
 Frances Wright, *Associate Professor of Music, Emeritus.*
 Henry Leland Clarke, Ph.D., *Assistant Professor of Music.*
 † Maurice Gerow, M.M., *Assistant Professor of Music.*
 † Mantle Hood, Ph.D., *Assistant Professor of Music.*
 Sylvesta Wassum, M.A., *Assistant Professor of Music.*
 Paul E. Des Marais, M.A., *Acting Assistant Professor of Music.*
 Robert M. Trotter, M.A., *Instructor in Music.*



Gerald Caylor, *Lecturer in Music.*
 George Drexler, *Lecturer in Music.*
 Robert L. DiVall, A.B., *Lecturer in Music.*
 Arthur Edwards, Ph.D., *Lecturer in Music.*
 Bert Gassman, *Lecturer in Music.*
 * Albert Goldberg, Mus.M., *Lecturer in Music.*
 Sinclair Lott, *Lecturer in Music.*
 Guy Maier, Mus.Doc., *Lecturer in Music.*
 Harry E. Myhr, *Lecturer in Music.*
 Frederick Moritz, *Lecturer in Music.*
 ———, *Lecturer in Music.*
 Alexander Reisman, M.M., *Lecturer in Music.*
 Magdalena Rivera, *Lecturer in Music.*
 Erwin Windward, *Lecturer in Music.*
 Waldo Winger, *Lecturer in Music.*
 Roger Wagner, Mus.Doc., *Lecturer in Music.*
 Natalie Limonick, A.B., *Assistant in Music.*
 Pauline Turrell, M.A., *Assistant in Music.*



Helen Chute Dill, M.A., *Supervisor of Training, Music.*
 Marjorie F. Kluth, M.A., *Supervisor of Training, Music.*

Requirements for Entering Music Students.—Specialization in music presupposes some knowledge of the fundamentals of music and some ability in sight reading at the piano. Therefore, every entering undergraduate intending to prepare for the major or teaching minor in music must take the Basic Music Test and the Sight Reading Test during the week prior to his first registration in the University. The student with previous preparation may substitute the corresponding Advanced Standing Examination (Musicianship or Piano).

Every student who fails the Basic Music Test or the Sight Reading Test must immediately enroll in course A (Basic Music) or course B (Sight Reading). Any student failing either of these courses will be required to repeat the course in the next semester of his residence in the University.

Advanced Standing Examinations.—Any student wishing to be placed above the beginning level in course 1A-1B-1C (Musicianship), 3A-3B-3C (Harmony), 40 (Voice), or 41 (Piano) must take the Advanced Standing

† Sabbatical leave in residence spring semester, 1956-1957.

‡ In residence fall semester only, 1956-1957.

* In residence spring semester only, 1956-1957.

Examination covering the subject matter of this course during the week prior to his first registration or in the previous spring during the University examination period. Placement depends on the results of these examinations rather than on any unit credit previously received. If he already has unit credit for part or all of these courses, he retains that credit, but receives no further unit credit for any part repeated as a result of the Advanced Standing Examinations.

For details concerning the Basic Music Test, the Sight Reading Test, and the Advanced Standing Examinations, inquire of the Department of Music.

The student may select a major in music in either the College of Letters and Science or in the College of Applied Arts; these majors lead to the degree of Bachelor of Arts in both instances. For information concerning teaching credentials, consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

College of Letters and Science

Letters and Science List.—All courses included in the series 1A to 31, 100A to 115D, 118, 121 to 139, and 170 to 178. For regulations governing this list, see page 6.

Preparation for the Major.—Courses 1A-1B-1C, 3A-3B-3C, 5A-5B, 20A-20B, and a year course from the series 59 to 64. Recommended: a reading knowledge of French, German, or Italian, and Physics 2A-2B or 10.

The Major.—Twenty-four units of upper division courses, distributed as follows: (a) course 100A-100B, (b) at least 4 units chosen from courses 121 to 139, 170 to 178, (c) at least 4 units chosen from courses 101 to 109B, and (d) additional upper division courses in music, including two year courses from the series 159 to 166.

College of Applied Arts

Three specializations are available:

1. FOR THE BACHELOR'S DEGREE ALONE.

Preparation for the Major.—Courses 1A-1B-1C, 3A-3B-3C, 5A-5B, 20A-20B, and a year course from the series 59 to 64. Recommended: a reading knowledge of French, German, or Italian, and Physics 2A-2B or 10.

The Major.—Thirty-six units of upper division courses, distributed as follows: (a) course 100A-100B, (b) at least 4 units chosen from courses 121 to 139, 170 to 178, (c) at least 4 units chosen from courses 101 to 109B, and (d) additional upper division courses in music, including two year courses from the series 159 to 166, but not more than 8 units from courses 140 to 166, 180 to 195.

2. FOR THE BACHELOR'S DEGREE LEADING TO THE SPECIAL SECONDARY TEACHING CREDENTIAL. This major also meets the departmental requirements for admission to the graduate courses leading to the general secondary credential.

Preparation for the Major.—Courses 1A-1B-1C, 3A-3B-3C, 5A-5B, 20A-20B, 40 (4 units), 41 (4 units), and a year course from the series 59 to 64. Recommended: a reading knowledge of French, German, or Italian, and Physics 2A-2B or 10.

The Major.—Thirty-six units of upper division courses, distributed as follows: (a) courses 100A-100B, 107A, 109A, 110, 111, 115A-115B-115C-115D, (b) at least 4 units chosen from courses 121 to 139, 170 to 178, and (c) additional upper division courses in music, including two year courses from the series 159 to 166.

3. FOR THE BACHELOR'S DEGREE WITH CERTIFICATE IN PERFORMANCE. This major normally requires five years for completion. The study list for each semester should not include more than 12 units of courses other than applied music.

Preparation for the Major.—Courses 1A-1B-1C, 3A-3B-3C, 5A-5B, 20A-20B, a two-year course from the lower division applied music classes (40 through 55), four semesters of membership in a performance organization (59 through 64). Recommended: a reading knowledge of French, German, or Italian, and Physics 2A-2B or 10.

The Major.—A two-year course from the upper division applied music classes (140 through 155), a year course from the master classes (180 through 195), six semesters of membership in a performance organization (159 through 166); plus 36 units of upper division courses, including (a) courses 100A-100B, 107A, 109A, 110, 111, (b) at least 4 units chosen from 121 to 139, 170 to 178, (c) at least 4 units chosen from courses 101 to 109B, and (d) additional courses in upper division music.

4. FOR THE BACHELOR'S DEGREE WITH CERTIFICATE IN OPERA.

Prerequisite: consent of the instructor. This specialization normally requires five years for completion.

Preparation for the Major.—Courses 1A-1B-1C, 3A-3B-3C, 5A-5B, 20A-20B, and 59 (8 units); Physical Education 1 (1 unit in Modern Dance, $\frac{1}{2}$ units in Fencing) and 34. Recommended: Italian 1, 2, 3, 8A-8B, and 30; French 1 and 2 or German 1 and 2.

The Major.—At least 36 units of upper division courses, including (a) courses 100A-100B, 159 (8 units), 170, 177; (b) 6 units from the series 132 to 135; (c) 4 units from the series 101 to 109B; and (d) any additional upper division units in music outside the series 140 to 166, 180 to 195.

Required Minor in Theater Arts.—Courses 2A-2B, 28A-28B-28C, 102, 105, 156A, and 163.

Certificate in Opera.—This program, together with approved vocal instruction, satisfies the major requirements for both the degree of Bachelor of Arts in music and the Certificate in Opera.

Graduate Division

Students who are admitted to regular graduate status in music are expected to take the placement examination given in the fall and spring semesters a few days prior to the beginning of classes. This examination is designed to point out to the student possible weaknesses or gaps in his undergraduate work, and thus enable him to remove them early in his graduate program. Subjects tested include sight singing, dictation, harmony, keyboard harmony, counterpoint, analysis, orchestration, score reading, conducting, solo performance, piano playing, history and literature of music, and stylistic analysis of scores. Passing the examination in its entirety is prerequisite to the final examination for the M.A. degree and the qualifying examination for the Ph.D. degree. Candidates for teaching credentials should also undertake to pass the complete examination so that the department will be better able to recommend them for positions.

Every graduate student in the Department of Music, whether regular or unclassified, is expected to contribute to the public performance program of the department, in partial fulfillment of his degree requirements. This contribution will normally consist of participation in the major performances of one of the performing organizations, as decided in consultation between the student and the graduate committee of the department. This participation must extend over two semesters.

A. Requirements for the General Secondary Credential.—Consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

B. Requirements for Admission to Graduate Courses.—

1. *As a candidate for the general secondary credential:* ordinarily the undergraduate major in music, or its equivalent, including courses 40 or 140

(4 units), 41 or 141 (4 units), 100A-100B, 107A, 109A, 110, 111, 115A-115B-115C-115D, 4 units chosen from courses 121-139, 170-178.

2. *As a candidate for the master's degree:* ordinarily the undergraduate major of 24 upper division units of music.

C. Requirements for the Master's Degree.—

For the general requirements, see page 64. In addition, candidates for the Master of Arts degree in music must satisfy the following:

1. *Admission:* the candidate must have the bachelor's degree with a major in music (or equivalent) as stated in this bulletin.

2. *Thesis:* the thesis plan (page 65, Plan I) is favored. A musical composition in large form is acceptable as a thesis.

3. *Course of study:* the planning of the course of study will be done under the guidance of the graduate adviser. The candidates may place emphasis upon music education, composition, theory or musicology.

4. *Foreign language:* a reading knowledge of a foreign language is required for a program of study emphasizing musicology or theory, but is not required for emphasis upon music education and composition.

5. *Examinations:* all candidates must take the *Placement Examination* during the first semester of residence and pass all parts of it before taking the *Final Examinations*. The latter are in two parts, oral and written.

LOWER DIVISION COURSES

Theory and Literature

A. Basic Music. (No credit) I, II.

Two hours weekly. Although this course yields no credit, it displaces 2 units on the student's program. Every student failing the Basic Music Test is required to take course A in the semester immediately following this failure.

Fundamentals of music, including the major and minor scales, keys, the circle of fifths, accidentals, note-values and rest-values, time signatures, treble and bass clefs, and intervals in all forms; common musical terms; beginning ear training, sight singing, and dictation.

B. Sight Reading. (No credit) I, II.

Two hours weekly. Although this course yields no credit, it displaces 2 units on the student's program. Every student failing the Sight Reading Test is required to take course B in the semester immediately following this failure.

Development of facility in sight reading at the piano. Preparatory exercises; accompaniments of the difficulty of Schubert's "Who Is Sylvia?"; simple four-part chorale harmonizations.

1A-1B-1C. Musicianship. (2-2-2) Three semesters. Beginning either semester.

Mr. Clarke, Mr. Des Marais, Mr. Trotter

Three hours weekly, including one laboratory hour. Prerequisite: passing the Basic Music Test and concurrent registration in course 3A-3B-3C except as excused by the Advanced Standing Examination in Harmony.

Ear training, sight singing, dictation, and keyboard harmony correlated with the corresponding semester of course 3A-3B-3C.

3A-3B-3C. Harmony. (2-2-2) Three semesters. Beginning either semester.

Mr. Clarke, Mr. Des Marais, Mr. Trotter

Two hours weekly. Prerequisite: passing the Sight Reading Test and concurrent registration in course 1A-1B-1C except as excused by the Advanced Standing Examination in Musicianship.

The harmonization of figured basses and of given and original melodies; 3A deals with triads and passing and auxiliary tones; 3B continues with the addition of seventh chords, elementary modulation, and the remaining non-chord tones; 3C deals with chromatic harmony.

5A-5B. Counterpoint. (2-2) Yr. Beginning either semester.

Mr. Des Marais, Mr. Nelson, Mr. Clarke, Mr. Trotter

Prerequisite: course 3A-3B or consent of the instructor.

Two-voice writing and analysis of representative contrapuntal works in two and more voices. 5A, modal counterpoint, with emphasis on the motet; 5B, tonal counterpoint, with emphasis on the invention.

20A-20B. Survey of Musical Literature. (2-2) Yr. Beginning either semester.

Mr. Marrocco

Three hours weekly, including one listening hour. Prerequisite: course 3A or concurrent registration in 3B. 20A is prerequisite to 20B.

Designed for the major and teaching minor in music. (Course 30A-30B is for general University students.)

The study of representative musical masterworks and their background.

30A-30B. History and Appreciation of Music. (2-2) Yr. Beginning either semester.

Mr. Roth, Mr. Hood, Mr. Trotter, Mr. Des Marais

Mr. Rubsamen, Mr. Stevenson

No prerequisite. (30A is prerequisite to 30B.)

Designed for the general University student. (Course 20A-20B is for the major and teaching minor in music.)

A general survey of musical history, with emphasis on the chief composers from Bach's time to the present, including an introduction to the technical and formal principles employed in music.

31. Music for Classroom Teachers. (3) I, II. Mr. Gerow, Miss Wassum

Four hours weekly, including one laboratory hour.

No prerequisite.

Required of candidates for the general elementary credential. *Not open to students whose major is music.* Emphasis upon developing the basic music skills essential to effective music teaching in elementary schools.

Group Instruction in Applied Music

Courses in this series may be repeated for credit.

Prerequisite: audition for consent of the instructor.

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|---------------------------|---------------------------------------|
| 40. Voice. (2) I, II. | Mr. Moremen, Mr. Winger, Mr. Windward |
| 41. Piano. (2) I, II. | Mr. Maier |
| 42. Violin. (2) I, II. | Mr. Roth, Mr. Marrocco |
| *43. Viola. (2) I, II. | _____ |
| 44. Cello. (2) I, II. | Mr. Reisman |
| 45. Bass Viol. (2) I, II. | Mr. Rivera |
| 46. Flute. (2) I, II. | Mr. Drexler |
| 47. Oboe. (2) I, II. | Mr. Gassman |
| 48. Clarinet. (2) I, II. | Mr. Caylor |
| 50. Bassoon. (2) I, II. | Mr. Moritz |

* Not to be given, 1956-1957.

51. French Horn. (2) I, II. Mr. Lott
52. Trumpet. (2) I, II. Mr. DiVall
- *53. Trombone. (2) I, II. _____
55. Percussion. (2) I, II. Mr. Myhr
57. Organ. (2) II. Mr. Petran

Performance Organizations

Courses in this series may be repeated for credit.

Prerequisite: audition for consent of the instructor.

59. Opera Workshop. (1-2) I, II. Mr. Popper, Mr. Strickland
The study of the musical, dramatic, and language techniques in opera through the performance of representative scenes and acts.
60. University Symphony Orchestra. (1-2) I, II. Mr. Foss, Mr. Popper
Two two-hour rehearsals each week.
The study and performance of standard symphonic literature.
61. University Band. (1-2) I, II. Mr. Sawhill
Two two-hour rehearsals each week.
62. University Ochorus. (1) I, II. No audition. _____
Two one-hour rehearsals each week.
63. University A Cappella Choir. (2) I, II. Mr. Wagner
Two one-hour rehearsals each week.
The study and performance of standard choral works.
64. University Glee Club. (1) I, II. Mr. Gerow
Two one-hour rehearsals each week.

UPPER DIVISION COURSES

- 100A-100B. History and Analysis of Music. (4-4) Yr. Beginning either semester. Mr. Clarke, Mr. Rubsamen, Mr. Stevenson
Five hours weekly, including one listening hour. Prerequisite: courses 3A-3B-3C, 20A-20B, or their equivalent.
Course 100A (from antiquity to 1750) is not prerequisite to course 100B (from 1750 to the present). A study of the development of music; lectures, listening, technical analysis, and written reports.

Theory

101. Advanced Keyboard Harmony. (2) I. Mr. Trotter
Three hours weekly, including one laboratory hour. Prerequisite: course 3A-3B-3C.
The reading of figured bass; sequences, modulations, etc., in the harmonic vocabulary of the eighteenth and nineteenth centuries.
102. Score Reading. (2) II. Mr. Trotter
Three hours weekly, including one laboratory hour. Prerequisite: course 101 or consent of the instructor.
Reading at the piano of several staves, the various C clefs, and parts for transposing instruments; chamber music and simple orchestral scores.

* Not to be given, 1956-1957.

- 103A-103B. Advanced Harmony. (2-2) Yr.** Mr. Kremenliev
Prerequisite: course 3A-3B-3C.
Modes and new scales. Freer concepts of modulation. Chords built on fourths. Bitonality and polytonality. The Hindemith, the 12-tone, and other systems. Modern uses of rhythm. Analysis of contemporary works.
- 105. Advanced Modal Counterpoint. (3) I.** _____
Prerequisite: course 5A and consent of the instructor.
Writing in three and more voices, with emphasis on the motet.
- 106. Advanced Tonal Counterpoint. (3) II.** _____
Prerequisite: course 5A-5B and consent of the instructor.
Writing in three and more voices, with emphasis on the fugue.
- 107A-107B. Composition. (2-2) Yr.** Mr. Des Marais, Mr. Kremenliev
Prerequisite: courses 3A-3B-3C, 5A-5B, 100A-100B, and consent of the instructor; 100A-100B may be taken concurrently.
Vocal and instrumental composition in the smaller forms.
- 108A-108B. Studies in Musical Analysis. (2-2) Yr.** Mr. Foss
Prerequisite: courses 3A-3B-3C, 20A-20B, 100A-100B, or consent of the instructor.
The application of a broad analytical approach to compositions in widely divergent styles.
- 109A-109B. Orchestration.**
Prerequisite: course 3A-3B-3C.
109A, sec. 1, and 109B. (2-2) Yr. Mr. Kremenliev
For regular music majors.
Ranges and properties of orchestral instruments. Scoring for full orchestra. Problems of balance and sonority. Analysis of orchestral scores.
109A, sec. 2. (2) I, II. Mr. Vincent
For candidates for the special secondary teaching credential.
Theory and practice of writing for instrumental ensembles. The study of orchestral scores and an introduction to symphonic orchestration.
- 110. Choral Conducting. (2) I, II.** Mr. Moremen, _____
Prerequisite: courses 1A-1B, 3A-3B, and 4 units of course 40.
The theory and practice of conducting choral organizations.
- 111. Instrumental Conducting. (2) I, II.** Mr. Sawhill
Prerequisite: courses 1A-1B, 3A-3B.
The theory and practice of conducting instrumental organizations.
- 115A-B-C-D. Instrumental Technique.** Mr. Edwards, Mr. Myhr, Mr. Sawhill
A practical and theoretical study of the technique of orchestra and band instruments, including the principles of arranging music for representative combinations. Appropriate literature for instrumental ensembles.
115A. Strings. (2) I, II.
115B. Woodwind. (2) I, II.
115C. Brass. (2) I, II.
115D. Percussion and Ensemble. (2) I, II.
- *116. Workshop in Radio Music. (2) II.** Mr. Kremenliev
Prerequisite: consent of the instructor.
The function of music in radio. Problems of programming, acoustics, recording, and editing. Microphone technique. The nature of background music. Preparation of radio programs. Composition for radio.

118. **Acoustics in Music.** (2) II. Mr. Petran
Prerequisite: one year of high school physics, Physics 10, or the equivalent.
A course covering the physical basis of musical sounds, including a discussion of the objective cause of consonance and dissonance, together with a treatment of the generation and the analysis of the tones produced by the various musical instruments and the voice. Illustrated lectures and class discussions.

History and Literature

121. **History of Music in America.** (2) I. Mr. Marrocco
A survey of music in the United States from the colonial period to the present day.
- *123. **Music in the Middle Ages, 900-1400.** (3) I. Mr. Marrocco
Prerequisite: courses 3A-3B-3C, 20A-20B
A detailed study of the musical forms and the notation of sacred and secular music from the beginnings of polyphony to the end of the fourteenth century.
- *124. **Music in the Renaissance Period, 1400-1600.** (3) II. Mr. Marrocco
Prerequisite: courses 3A-3B-3C, 20A-20B.
The meaning of the Renaissance as it applies to music. A study of musical forms, techniques, and aesthetic attitudes from the pre-Renaissance to Palestrina.
125. **Music in the Baroque Period, 1600-1750.** (3) I. Mr. Clarke
Prerequisite: courses 3A-3B-3C, 20A-20B.
The music of the baroque period from Monteverdi to Handel and J. S. Bach.
126. **Music in the Classic Period, 1730-1827.** (3) II. _____
Prerequisite: courses 3A-3B-3C, 20A-20B.
The music of the early classic schools and of Haydn, Mozart, and Beethoven.
- *127. **Music in the Romantic Period, 1820-1900.** (3) I. _____
Prerequisite: courses 3A-3B-3C, 20A-20B.
The music of the romantic period from Weber and Schubert to the end of the nineteenth century.
- *128. **Music of the Twentieth Century.** (3) II. Mr. Nelson
Prerequisite: courses 3A-3B-3C, 20A-20B.
A study of form, style, and idiom in music from 1900 to the present.
130. **Bach.** (2) II. Mr. Petran
Prerequisite: courses 3A-3B-3C, 20A-20B.
131. **Beethoven.** (2) I. Mr. Stevenson
Prerequisite: courses 3A-3B-3C, 20A-20B.
- *132. **Opera in the Classic Period.** (2) II. Mr. Popper
Prerequisite: course 170 or its equivalent.
A study of eighteenth-century opera, with special concentration on the dramatic works of Gluck, Haydn, Mozart, and Beethoven.
133. **The Operas of Wagner.** (2) I. _____
Prerequisite: course 170 or its equivalent.

134. **The Operas of Verdi. (2) II.** Mr. Popper
Prerequisite: course 170 or its equivalent.
- *135. **Opera of the Twentieth Century. (2) I.** Mr. Popper
Prerequisite: course 170 or its equivalent.
The history of opera from Debussy and Richard Strauss to the present.
Analysis of representative masterworks.
- 136A-136B. **Musical Cultures of the World. (3-3) Yr.** Mr. Hood, Mr. Petran
Origins, types, and illustrations of the folk music of various countries.
- *137. **Music for the Legitimate Drama, Screen, and Radio. (2) II.** _____
A history and analysis of incidental music for the theater from ancient Greece to the present. The place and function of background or mood music, overtures, entr'actes, and music that serves the action or locale.
- *138. **Political Influences on Music. (2) II.** Mr. Rubsamen
The influence of revolution and dictatorship upon music and its allied arts from antiquity to the present.
- *139. **Aesthetics of Music. (2) II.** Mr. Marrocco
The study of the relationship of music to the human senses and intellect. Readings in the literature of music aesthetics from Plato to the modern aestheticians.
170. **History of the Opera. (3) II.** Mr. Popper
A survey of operatic music from its inception to the present day.
- *171. **History and Literature of Church Music. (2) I.** _____
Prerequisite: courses 3A-3B-3C, 20A-20B.
A study of the history and development of church music, including worship forms and liturgies.
172. **Oratorio Literature. (2) II.** Mr. Petran
Prerequisite: courses 3A-3B-3C, 20A-20B.
A survey of oratorio music from its inception to the present day.
- *173. **The Concerto. (2) I.** _____
Prerequisite: courses 3A-3B-3C, 20A-20B, or consent of the instructor.
Origins and development of the concerto, with emphasis on the classic period.
174. **History of the Sonata. (2) I.** _____
Prerequisite: courses 3A-3B-3C, 20A-20B, or consent of the instructor.
The development of the sonata from its beginnings to the close of the romantic period.
175. **Music Criticism. (2) II.** Mr. Goldberg
A study of factors in critical evaluation of musical works in performance.
- *176. **Symphonies of the Twentieth Century. (2) II.** Mr. Goldberg
Prerequisite: courses 3A-3B-3C, 20A-20B.
A study of the most important symphonic works since Brahms.
177. **The Art Song. (2) II.** _____
Prerequisite: courses 3A-3B-3C, 20A-20B, or consent of the instructor.
The study of the literature of the art song from its origins to the present day.

* Not to be given, 1956-1957.

Group Instruction in Applied Music

Courses in this series may be repeated for credit.

Prerequisite: audition for consent of the instructor.

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| 140. Advanced Voice. (2) I, II.
Prerequisite: 4 units of course 40. | Mr. Winger, Mr. Moremen |
| 141. Advanced Piano. (2) I, II. | Mr. Maier |
| 142. Advanced Violin. (2) I, II. | Mr. Both, Mr. Marrocco |
| *143. Viola. (2) I, II. | _____ |
| 144. Cello. (2) I, II. | Mr. Reisman |
| 145. Bass Viol. (2) I, II. | Mr. Rivera |
| 146. Flute. (2) I, II. | Mr. Drexler |
| 147. Oboe. (2) I, II. | Mr. Gassman |
| 148. Clarinet. (2) I, II. | Mr. Caylor |
| 150. Bassoon. (2) I, II. | Mr. Moritz |
| 151. French Horn. (2) I, II. | Mr. Lott |
| 152. Trumpet. (2) I, II. | Mr. DiVall |
| *153. Trombone. (2) I, II. | _____ |
| 155. Percussion. (2) I, II. | Mr. Myhr |
| 157. Organ. (2) II. | Mr. Petran |
| 158. Studies in Accompanying. (1-2) II.
Pianists enroll for 2 units; other instrumentalists and singers desiring work in repertoire and interpretation may enroll for 1 unit. | Mr. Popper |

Performance Organizations

Courses in this series may be repeated for credit.

Prerequisite: audition for consent of the instructor.

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|--|----------------------------|
| 159. Opera Workshop. (1-2) I, II.
The study of the musical, dramatic, and language techniques in opera through the performance of representative scenes and acts. | Mr. Popper, Mr. Strickland |
| 160. University Symphony Orchestra. (1-2) I, II.
Two two-hour rehearsals each week.
The study and performance of standard symphonic literature. | Mr. Foss |
| 161. University Band. (1-2) I, II.
Two two-hour rehearsals each week. | Mr. Sawhill |
| 162. University Chorus. (1) I, II. No audition.
Two one-hour rehearsals each week. | _____ |
| 163. University A Cappella Choir. (2) I, II.
Three one-hour rehearsals each week.
The study and performance of standard choral works. | Mr. Wagner |
| 164. University Glee Club. (1) I, II.
Two one-hour rehearsals each week. | Mr. Gerow |

* Not to be given, 1956-1957.

165. **Madrigal Singers.** (2) I, II. Mr. Moremen
Three one-hour rehearsals each week.
The study and performance of significant music of the madrigal school.
166. **Chamber Music Ensemble.** (2) I, II. Mr. Roth
The study and interpretation of chamber music literature.

Master Classes

Courses in this series may be repeated for credit.
Prerequisite: audition for consent of the instructor.

- *180. **Voice.** (2) I, II. _____
181. **Piano.** (2) I, II. Mr. Maier
182. **Violin.** (2) I, II. Mr. Roth
- *183. **Viola.** (2) I, II. _____
184. **Cello.** (2) I, II. Mr. Reisman
185. **Bass Viol.** (2) I, II. Mr. Rivera
186. **Flute.** (2) I, II. Mr. Drexler
187. **Oboe.** (2) I, II. Mr. Gassman
188. **Clarinet.** (2) I, II. Mr. Caylor
190. **Bassoon.** (2) I, II. Mr. Moritz
191. **French Horn.** (2) I, II. Mr. Lott
192. **Trumpet.** (2) I, II. Mr. DiVall
- *193. **Trombone.** (2) I, II. _____
195. **Percussion.** (2) I, II. Mr. Myhr
199. **Special Studies in Music.** (1-4) I, II. The Staff
Prerequisite: consent of the instructor.

GRADUATE COURSES

200. **Research Methods and Bibliography.** (3) I. Mr. Nelson
- 201A-201B. **Advanced Composition.** (3-3) Yr. Mr. Vincent, Mr. Foss
This course may be repeated for credit.
- 202A-202B. **Advanced Orchestration.** (2-2) Yr. Mr. Kremenliev
- *205. **History of Pianoforte Style.** (2) II. _____
- *206. **History of Organ Style.** (2) I. Mr. Petran
207. **Variation Form.** (2) II. Mr. Nelson
Prerequisite: courses 100A-100B, 107A-107B, or their equivalents.
- 253A-253B. **Seminar in Historical Musicology.** (3-3) Yr. Mr. Rubsamen
Prerequisite: course 100A-100B or the equivalent.

* Not to be given, 1956-1957.

- *254A-254B. Seminar in Notation. (3-3) Yr. Mr. Popper
Prerequisite: course 100A-100B or the equivalent.
- *255. Seminar in American Music. (2) II. _____
- *261A-261B. Special Studies for Composers. Seminar. (2-2) Yr.
Mr. Vincent
262. Seminar: Special Studies in Contemporary Music. (2) II. Mr. Nelson
263. Seminar in Music Theory. (2) II. Mr. Clarke
264. Seminar in Ethno-Musicology. (3) II. Mr. Hood
Prerequisite: course 136 or the equivalent.
- *265. Analysis of Contemporary Musical Styles. (2) II. Mr. Vincent
- *268. Seminar in Aesthetics. (2) I. Mr. Marrocco
- 270A-270B. Seminar in Music Education. (2-2) Yr. Mr. Vincent
299. Special Problems in Music. (1-4) I, II. The Staff

PROFESSIONAL COURSES IN METHOD

330. Music Education for Classroom Teachers. (3) I, II.

Mrs. Dill, Mrs. Kluth, Mr. Gerow, Miss Wassum

Four hours weekly, including one laboratory hour. Prerequisite: sophomore standing and course 31 or the equivalent. Required of candidates for the general elementary credential whose major is not music. *Not open to students whose major is music.* (See course 369.)

Sections 1A and 1B are for kindergarten-primary majors only. Should be taken concurrently with Education 128B.

A professionalized course to equip the student to teach many phases of music in the modern school. Emphasis is placed upon exploring musical literature and interpretive activities.

369. Music Education in Elementary Schools. (3) I. Miss Wassum

Prerequisite: junior standing.

Required of music majors who are candidates for the general elementary and special secondary credentials.

A study of the place and function of music in elementary schools.

370. Music Education in Secondary Schools. (3) II. Mr. Gerow

Prerequisite: junior standing.

Required of candidates for the special secondary and general secondary credentials.

A study of the place and function of music in junior and senior high schools.

*380. Piano Pedagogy. (2) I. Mr. Maier

Prerequisite: advanced standing in piano or consent of the instructor.

For teachers and prospective teachers of piano. A survey of graded piano literature. The class approach explored and evaluated.

RELATED COURSES IN OTHER DEPARTMENTS

Integrated Arts 1A-1B. Man's Creative Experience in the Arts. (3-3) Yr.

Mr. With

*Psychology 172A-172B. Psychology of Music. (3-3) Yr. Mr. Petran

NAVAL SCIENCE

Robert G. Ballance, B.S., Colonel, U. S. Marine Corps, *Professor of Naval Science (Chairman of the Department)*.

John N. Phelps, B.S., Commander, U. S. Navy, *Associate Professor of Naval Science*.

Donald E. McQuinn, A.B., Captain, U. S. Marine Corps, *Assistant Professor of Naval Science*.

Charles R. Miller, Jr., B.S., Lieutenant, U. S. Navy, *Assistant Professor of Naval Science*.

Gayle M. Plummer, A.B., Lieutenant (j.g.), U. S. Navy Reserve, *Assistant Professor of Naval Science*.

William W. Tucker, B.S., Lieutenant, U. S. Navy, *Assistant Professor of Naval Science*.

Clifford D. Wheeler, B.S., Lieutenant, U. S. Navy, *Assistant Professor of Naval Science*.

Letters and Science List.—All undergraduate courses in this department up to a total of 12 units are included in the Letters and Science List of Courses. Note: This in no way prejudices counting additional Naval Science courses up to the 12 units of non-Letters and Science credit accepted toward the degree. For regulations governing this list, see page 6.

College of Engineering.—Six units of lower division credit and 9 units of upper division credit for Naval Science courses are accepted toward a degree in the College of Engineering.

Naval Reserve Officers' Training Corps

By action of the Secretary of the Navy and of The Regents of the University of California in June, 1938, provision was made for the establishment of a unit of the Naval Reserve Officers' Training Corps on the Los Angeles campus.

The primary object of the Naval Reserve Officers' Training Corps is to provide at civil institutions systematic instruction and training which will qualify selected students of such institutions for appointment as officers in the Regular Navy, Naval Reserve, Marine Corps, and Marine Corps Reserve. The Naval Reserve Officers' Training Corps is expected to train junior officers for the Regular Navy, Naval Reserve, Marine Corps, and Marine Corps Reserve.

Courses in naval science are given for those who intend to complete the four years of training for a commission in the Regular Navy, Naval Reserve, Marine Corps, and Marine Corps Reserve. While only students signifying such a purpose will be admitted, students who for sufficient reasons are forced to discontinue their training before their commission is granted, will be permitted, at the end of two years, to count such training in lieu of the military training prescribed by the University. All courses in naval science described herein include infantry drill or other practical drill for two hours weekly for all Naval R.O.T.C. students.

Initial enrollment is restricted to able-bodied male students who are citizens of the United States, between the ages of seventeen and twenty-one years, never have been married, and agree to remain unmarried until commissioned or disenrolled. Students must pass the same physical examination as is required of all candidates for admission to the Naval Academy.

All courses listed are those prescribed by the Navy Department for the Naval Reserve Officers' Training Corps. The United States furnishes, on loan

to the individual, arms, equipment, uniforms, and naval science textbooks for the use of these students. Upon satisfactory completion of the course, a uniform becomes the property of the student who was enrolled in the Regular or Contract status.

Types of N.R.O.T.C. Students.—Officer candidates in the N.R.O.T.C. will be of three types:

(a) *Regular N.R.O.T.C. students* are appointed Midshipmen, U.S.N.R., and receive retainer pay at a rate of \$600 per year for a maximum period of four years while under instruction at the N.R.O.T.C. institution or during summer training periods. Their tuition, fees, books, and laboratory expenses are paid by the U. S. government during the above period. These students assume an obligation to make all required summer practice cruises (three) and to remain a member of a regular or reserve component of the U. S. Naval Service until the sixth anniversary of receipt of original commission in that service, three years of which will be on active duty after commissioning as Ensigns, U. S. Navy, or Second Lieutenants, U. S. Marine Corps. Students enrolled in this status are selected by nation-wide examination and selection conducted during the spring preceding the student's entrance into the University in the fall.

(b) *Contract N.R.O.T.C. students* have the status of civilians who have entered into a mutual contract with the Navy. For administrative purposes, they are styled Midshipmen. During their junior and senior years they are entitled to commutation of subsistence from the first day during an academic term until they complete the course at the institution or their connection with the Naval Reserve Officers' Training Corps is severed in accordance with the regulations prescribed, except that subsistence in kind will be furnished in lieu of commutation of subsistence for any periods devoted to cruises. The amount allowed for subsistence, which will be fixed from time to time by the Secretary of the Navy, will not exceed the value prescribed by law for a commuted ration in the Navy. Contract N.R.O.T.C. students agree to accept a commission in the Naval Reserve or in the Marine Corps Reserve to remain a member of a reserve component of the U. S. Naval Service until the sixth anniversary of receipt of original commission in that service and to serve not less than two years on active duty if ordered. Contract N.R.O.T.C. students are required to make one summer practice cruise.

Regular and contract students are deferred from induction until after completion or termination of their courses of instruction and so long as they continue in a regular or reserve status upon being commissioned.

(c) *Naval Science Students*

(1) With the approval of the academic authorities, and the Professor of Naval Science, students may be permitted to pursue naval science courses for college credit only. They are not eligible to make N.R.O.T.C. practice cruises nor to be paid any compensation or benefits.

(2) Naval science students may become eligible for enrollment in N.R.O.T.C. as candidates for commissions provided they comply in every respect with the requirements for original enrollment, when vacancies occur in the unit quota.

Credit may be allowed for work completed during practice cruises and summer camps at the rate of $\frac{1}{2}$ unit per each two weeks' duty performed, not to exceed a total of 6 units.

Freshman Year

1A. Evolution of Sea Power. (3) I.
U. S. naval history and sea power.
(BuPers Curriculum NS101.)

Mr. Miller

1B. Naval Orientation. (3) II.
Naval organization and administration, seamanship.
(BuPers Curriculum NS102.)

Mr. Miller

Sophomore Year

- 2A. Naval Weapons. (3) I. Mr. Plummer
Naval ordnance and gunnery, elementary fire-control.
(BuPers Curriculum NS201.)
- 2B. Naval Weapons. (3) II. Mr. Plummer
Advanced fire control, radar, anti-submarine warfare.
(BuPers Curriculum NS202.)

Junior Year

- 101A. Naval Engineering. (3) I. Mr. Wheeler
Naval machinery, steam and Diesel, including auxiliary equipment; ship stability and buoyancy.
(BuPers Curriculum NS301.)
- 101B. Navigation. (3) II. Mr. Wheeler
Nautical astronomy, celestial navigation, navigator's day's work at sea.
(BuPers Curriculum NS302.)
- *103A. Evolution of the Art of War. (3) I. Mr. McQuinn
Survey of the historical development of weapons, tactics, and matériel, to illustrate the classic principles of war.
(BuPers Curriculum NS301M.)
- *103B. Basic Strategy and Tactics. (3) II. Mr. McQuinn
A survey of modern strategical and tactical principles, using contemporary historical events as illustrative material.
(BuPers Curriculum NS302M.)

Senior Year

- 102A. Naval Operations. (3) I. Mr. Tucker
Maneuvering instructions, rules of the road, naval tactics and fleet communications.
(BuPers Curriculum NS401.)
- 102B. Naval Administration. (3) II. Mr. Tucker
Naval administration, naval justice and leadership.
(BuPers Curriculum NS402.)
- *104A. Amphibious Warfare. (3) I. Mr. McQuinn
Principles of amphibious warfare techniques.
(BuPers Curriculum NS401M.)
- *104B. Amphibious Warfare, Leadership, and Military Justice. (3) II. Mr. McQuinn
Application of amphibious warfare techniques in selected battles, leadership, and military justice.
(BuPers Curriculum NS402M.)

NURSING

- Lulu Wolf Hassenplug, R.N., M.P.H., *Professor of Nursing (Chairman of the Department)*.
- Doris S. Bryan, R.N., M.P.H., *Visiting Associate Professor of Public Health Nursing*.
- Dorothy E. Johnson, R.N., M.P.H., *Associate Professor of Pediatric Nursing*.
- † Agnes A. O'Leary, R.N., M.P.H., *Associate Professor of Public Health Nursing and Lecturer in Public Health*.

* These courses to be pursued by candidates for commissions in the Marine Corps or Marine Corps Reserve in lieu of courses 101A, 101B and 102A and 102B.

† Absent on leave, 1956-1957.

- Mary Walker Randolph, R.N., M.A., *Associate Professor of Nursing.*
- Margaret S. Taylor, R.N., M.A., *Associate Professor of Public Health Nursing and Lecturer in Public Health.*
- Clara E. Bartholomew, R.N., M.P.H., *Assistant Professor of Psychiatric Nursing.*
- Nelliana Best, R.N., M.A., *Assistant Professor of Nursing.*
- Juanita A. Booth, R.N., M.A., *Assistant Professor of Medical Nursing.*
- Maura Catherine Carroll, R.N., M.A., *Assistant Professor of Medical Nursing.*
- Harriet M. Coston, R.N., M.A., *Assistant Professor of Medical Nursing.*
- I. Estelle Dunlap, R.N., M.A., *Assistant Professor of Pediatric Nursing.*
- Evelyn Johnson Fisher, R.N., M.S., *Assistant Professor of Public Health Nursing.*
- Anna E. Hjelle, R.N., M.S., *Assistant Professor of Maternity Nursing.*
- Marjorie S. Dunlap, R.N., M.P.S., *Visiting Assistant Professor of Nursing Service Administration.*
- , *Assistant Professor of Psychiatric Nursing.*
- Katherine M. Justus, R.N., M.P.H., *Assistant Professor of Maternal-Child Health Nursing.*
- , *Assistant Professor of Nursing.*
- , *Assistant Professor of Nursing.*
- Virginia Ragland, R.N., M.A., *Assistant Professor of Pediatric Nursing.*
- Jean L. Hopkins, R.N., M.S., *Instructor in Nursing.*
- Florence Pallein, R.N., M.A., *Instructor in Medical-Surgical Nursing.*
- Sheila M. Garrett, R.N., M.A., *Instructor in Maternal-Child Health Nursing.*
- Marjorie B. Rykken, R.N., M.S., *Instructor in Surgical Nursing.*
- Jeanne C. Quint, R.N., M.S., *Instructor in Surgical Nursing.*
- Norberta S. Wilson, R.N., M.S., *Acting Instructor in Psychiatric Nursing.*
- Charles K. Ferguson, Ed.D., *Lecturer in Nursing.*
- Lorraine R. Kaufman, Ph.D., *Professional Research Assistant in Nursing.*
- Eleanor L. Keller, R.N., M.S., *Assistant Research Nurse, Psychiatric Nursing.*
- ◇
- F. Doris Bresnahan, R.N., M.A., *Associate Clinical Professor of Nursing Service Administration.*
- Helen M. Wolfe, R.N., M.P.H., *Associate Clinical Professor of Public Health Nursing.*
- Clara Arndt, R.N., M.S., *Assistant Clinical Professor of Nursing Service Administration.*
- Mary Ann Jeffress, R.N., M.S., *Clinical Assistant Professor of Public Health Nursing.*
- Mary McQuillen, R.N., M.A., *Assistant Clinical Professor of Public Health Nursing.*
- Lucile Perozzi, R.N., M.A., *Assistant Clinical Professor of Child Health Nursing.*
- Geraldine Skinner, R.N., M.S., *Assistant Clinical Professor of Surgical Nursing.*
- Mary E. Ahern, R.N., B.S., *Clinical Instructor in Surgical Nursing.*
- Trudy Cushing, R.N., B.S., *Clinical Instructor in Medical Nursing.*
- Harriet E. Falck, R.N., B.S., *Clinical Instructor in Public Health Nursing.*
- Ferne D. Hood, R.N., M.A., *Clinical Instructor in School Nursing.*
- Helen E. Johnson, R.N., B.S., *Clinical Instructor in Pediatric Nursing.*
- Doris A. Kiger, R.N., B.S., *Clinical Instructor in Surgical Nursing.*

Olive Whitlock Klump, R.N., B.S., *Clinical Instructor in Public Health Nursing.*

Eleanor J. Leckner, R.N., B.S., *Clinical Instructor in Public Health Nursing.*
 ———, *Clinical Instructor in Public Health Nursing.*

Edith V. Martins, R.N., B.S., *Clinical Instructor in Public Health Nursing.*

Helen S. Marvel, R.N., *Clinical Instructor in Maternal-Child Health Nursing.*

Marion S. Mayne, R.N., B.S., *Clinical Instructor in Industrial Nursing.*

Gertrude E. Miller, M.S., *Clinical Instructor in Diet Therapy.*

Jerry G. Peers, R.N., B.S., *Clinical Instructor in Surgical Nursing.*

———, *Clinical Instructor in Public Health Nursing.*

Edith Pross, R.N., B.S., *Clinical Instructor in Public Health Nursing.*

Marion M. Rupp, R.N., B.S., *Clinical Instructor in Medical-Surgical Nursing.*

Theresa C. Ryan, R.N., B.A., *Clinical Instructor in Nursing Service Administration.*

Johanna F. Sutton, R.N., B.S., *Clinical Instructor in Maternity Nursing.*

School of Nursing

The School of Nursing admits students of junior or higher standing and offers curricula leading to the degrees of Bachelor of Science and Master of Science in nursing.

Two curricula are offered for the Bachelor of Science degree:

1. *Basic Program.*

Preparation for the Major.—Completion of the prenursing curriculum.

The Major.—Sixty units of upper division nursing and elective courses designed to prepare university women for professional nursing responsibilities in the care of the patient and his family.

2. *Program for Registered Nurses.*

Preparation for the Major.—Completion of the admission requirements.

The Major.—A minimum of 42 units of coordinated upper division courses planned on the basis of professional need.

LOWER DIVISION COURSES

Prerequisite: sophomore standing. Required of all prenursing students. Not open to registered nurses.

5. *Orientation to Family Nursing Program.* (No credit.) II. Miss Taylor

Prerequisite: concurrent enrollment in courses 20 and 30.

An introductory experience in which the student is assigned a family to be visited, makes initial contact and plans for return visit. Meets once per week for discussion (not every week for all students).

10. *Orientation to Nursing.* (3) I.

Miss Carroll

Survey of the social and economic factors which have influenced the development of nursing; responsibilities of the nursing profession in meeting the health needs of society.

15. *Nursing and Health Promotion.* (3) I.

Miss I. E. Dunlap

Nursing in relation to fundamental factors which influence the health of the individual, the family, and the community.

20. *Fundamentals in Nursing Care.* (4) II.

The Staff

Prerequisite: courses 10 and 15 concurrent with course 30.

A study of the principles and methods of nursing care which meet the interrelated physical, emotional, and social needs of the individual and his family.

30. Introduction to Maternal and Child Health Nursing. (8) II.

Miss I. E. Dunlap, Miss Garrett, Miss Hjelle, Miss Justus,
Miss Johnson, Miss Ragland

Lectures, four hours; laboratory and conferences, sixteen hours.

Prerequisite: courses 10 and 15; Chemistry 2A; Zoology 15, 25; Psychology 1A; Home Economics 11; Sociology 1 or Anthropology 2; Bacteriology 1. Concurrent with course 20.

Study of the developing family unit-emphasizing health needs and the nurse's role in meeting them. Includes patterns of physical, social, and behavioral growth anticipated in mothers, children, and families. Participation in nursing activities in clinics, homes, doctors' offices, nursery schools, and hospitals.

UPPER DIVISION COURSES FOR BASIC PROGRAM**110. Survey of Nursing. (3) I.**

Miss Randolph

Critical analysis of studies in nursing and their relationship to the development of the profession.

115. History of Nursing. (3) II.

Miss Randolph

Prerequisite: senior standing, and consent of the instructor.

A study of the factors that have influenced modern nursing from the earliest times to the present. Emphasis will be placed upon the development of nursing in relation to social, economic, and health conditions.

125A. Medical-Surgical Nursing. (8) II.

Miss Booth, Miss Carroll, Miss Coston,
Miss Pallein, Miss Quint, Miss Rykken

Lecture, four hours; laboratory, sixteen hours. Prerequisite: satisfactory completion of course 130 and consent of the instructor.

Study of the nursing care of adults and the nursing functions essential to meeting the needs of the adult patient in health and disease. Diet and drug therapy are integrated throughout. Guided participation in the care of selected patients in the hospital and community.

125B. Medical-Surgical Nursing. (8) I.

Miss Booth, Miss Carroll, Miss Coston,
Miss Pallein, Miss Quint, Miss Rykken

Lecture, four hours; laboratory, sixteen hours. Prerequisite: satisfactory completion of course 125A and consent of the instructor.

Study of the nursing care of selected patients with medical and surgical conditions. Nursing functions essential to meeting the psychological, social, and physical needs of the patient in the hospital and community.

130. Maternal and Child Health Nursing. (8) I.

Miss I. E. Dunlap, Miss Garrett, Miss Hjelle,
Miss Johnson, Miss Justus, Miss Ragland

Lecture, four hours; laboratory and conference, sixteen hours. Prerequisite: satisfactory completion of courses 20 and 30, and consent of the instructor.

Study and experience in the nursing care of mothers and children with major health problems. Nursing care in homes, clinics, doctors' offices, and hospitals. Includes planning with families and other professional groups and the use of community resources.

144A. Community Health Nursing. (2) II.

Miss Taylor, Mrs. Fisher and the Staff

Lecture, one hour; laboratory, four hours.

A study of public health nursing and the functions and responsibilities

of the nurse in community health programs, together with guided participation in a community health agency offering a family health service through a generalized health program.

144B. Community Health Nursing. (4) II.

Miss Taylor, Mrs. Fisher and the Staff

Lecture, one hour; laboratory, twelve hours.

A study of public health nursing and the functions and responsibilities of the nurse in community health programs, together with guided participation in a community health agency offering a family health service through a generalized health program.

145. Fundamentals of Psychiatric Nursing. (4) II.

Miss Bartholomew and the Staff

Lecture, four hours per week for eight weeks; laboratory, twenty hours per week for eight weeks.

Study of the changing concepts in the care of psychiatric patients, with guided participation in nursing care essential to meet the needs of the mentally ill patient and his family.

***185. The Nurse and the Law. (2) II.** Miss Randolph and the Staff

Prerequisite: senior standing and consent of the instructor.

Analysis and discussion of the legal status, obligations, and liabilities of the nurse. Consideration will be given to the significance of the court's interpretation of the law.

190. The Nurse and Rehabilitation. (3) I.

Miss Taylor

Prerequisite: senior standing and consent of the instructor.

Exploration and critical examination of modern concepts of rehabilitation; responsibilities and functions of the nurse to the individual patient and family, to the health team, and to the program. Study and discussion of knowledges and skills needed and consideration of areas needing special study and review.

198A-B-C-D. Family Nursing Program. (1-1-1-1) Two years.

Miss Taylor

Prerequisite: course 5 and concurrent enrollment in course 130.

A continuing observation of a family, over a two-year period, in order to increase the student's understanding of a pattern of family life, the factors that influence the selection of family health practices, and the relationships of individuals within the family.

199. Special Studies in Nursing. (1-3) II.

The Staff

Prerequisite: senior standing and consent of the instructor.

Individual study of a problem in the field of nursing.

UPPER DIVISION COURSES FOR REGISTERED NURSES

Registered nurses having upper division standing are admitted to all upper division courses upon completion of the following prerequisites, or consent of the instructor: Education 111, 117A, 151 (offered only in University Extension) or Physical Education 145A; Psychology 110; Sociology 142.

108. Nursing in Maternal and Child Health Services. (5) I, II.

Mrs. Bryan, Miss Justus, Miss Ragland

Lecture, four hours; laboratory, four hours.

Exploration and critical examination of modern concepts of maternal and child care coordinated with guided participation in meeting the nursing needs of children and families in hospital, home, and public health agency. Participation in individual and group teaching.

* Not to be given, 1956-1957.

- 109. Nursing in Adult Health Services.** (5) I, II. Miss Booth, Miss Quint
Lecture, four hours; laboratory, four hours.
Prerequisite: course 108.
Exploration and critical examination of modern concepts of care of adults. Guided participation in meeting nursing needs of individuals and families; special emphasis upon health promotion, disease prevention, nursing care; rehabilitation in hospital, home, public health and other community agencies. Participation in individual and group teaching.
- 110. Survey of Nursing.** (3) I, II. Miss Randolph
(Former number, 116.)
Critical analysis of studies in nursing and their relationship to the development of the profession.
- 115. History of Nursing.** (3) II. Miss Randolph
A study of the factors that have influenced modern nursing from the earliest times to the present. Emphasis will be placed upon the development of nursing in relation to social, economic, and health conditions.
- 122. Survey of Tuberculosis Nursing.** (2) I, II. Miss Booth
Lecture, one hour; laboratory, four hours. Prerequisite: written evidence of a positive tuberculin test.
Survey of recent advances in the prevention, treatment, and control of tuberculosis, and participation in nursing care in the hospital, the home, and public health agencies, including opportunity to assist in the rehabilitation of the tubercular patient and his family.
- 144A. Community Health Nursing.** (2) I, II. Mrs. Bryan, Mrs. Fisher, Mrs. Roth
Lecture, one hour; laboratory, four hours. Prerequisite: consent of the instructor.
A study of public health nursing and the functions and responsibilities of the nurse in community health programs, together with guided participation in a community health agency offering a family health service through a generalized health program.
- 144B. Community Health Nursing.** (4) I, II. Mrs. Bryan, Mrs. Fisher, Mrs. Roth, Miss Taylor
Section 2 for graduate students only.
Lecture, one hour; laboratory, twelve hours. Prerequisite: consent of the instructor.
Prerequisite: consent of the instructor.
A study of public health nursing and the functions and responsibilities of the nurse in community health programs together with guided participation in a community health agency offering a family health service through a generalized health program.
- 165. Fundamentals of Psychiatric Nursing.** (4) I, II. Miss Bartholomew and the Staff
Section 2 for graduate students only.
Lecture, four hours per week for eight weeks; laboratory, twenty hours per week for eight weeks.
Study of the changing concepts in the care of psychiatric patients, with guided participation in nursing care essential to meet the needs of the mentally ill patient and his family.
- 170. School Nursing.** (3) II. Mrs. Bryan, Mrs. Fisher
Lecture, two hours; laboratory, four hours.
Study of the philosophy, present practices, and trends in school nursing programs and the functions of the nurse in relation to the needs of the child in the school environment. Guided participation in the health program.

180. **Survey of Hospital Nursing Service. (2) I.** Mrs. M. S. Dunlap
Lecture, two hours per week.
Analysis of the administrative aspects of the hospital nursing unit and of the functions and relationships of the nursing team.
- *185. **The Nurse and the Law. (2) II.** Miss Randolph and the Staff
Prerequisite: consent of the instructor.
Analysis and discussion of the legal status, obligations, and liabilities of the nurse. Consideration will be given to the significance of the court's interpretation of the law.
190. **The Nurse and Rehabilitation. (3) I.** Miss Taylor
Prerequisite: consent of the instructor.
Exploration and critical examination of modern concepts of rehabilitation; responsibilities and functions of the nurse to the individual patient and family, to the health team, and to the program. Study and discussion of knowledges and skills needed and consideration of area needing special study and review.
199. **Special Studies in Nursing. (1-3) I, II.** The Staff
Prerequisite: consent of the instructor.
Individual study of a problem in the field of nursing.

GRADUATE COURSES

- 205A-205B. **Nursing Research and Statistical Data. (2-2) Yr.**
Miss Randolph, Miss Taylor
Exploration and evaluation of studies and research in nursing. Use of the scientific method and the handling of statistical data as an aid in the selection and solution of studies and thesis problems.
210. **Changing Perspectives in the Nursing Profession. (2) I.**
Mrs. Hassenplug, Miss Randolph
A critical examination of the current situation in nursing and a consideration of the changing perspectives in the health fields. Consideration of the social and economic aspects of nursing and the interrelationship of the nurse as a member of the health team. Discussion is directed toward developing a working philosophy for leaders of professional nursing.
225. **Administration in Nursing. (2) I, II.** Mr. Ferguson, Mrs. Hassenplug
Prerequisite or concurrent: course 205A.
A systematic study of the fundamentals of organization and administration, with emphasis upon their application to the field of nursing.
230. **Curriculum Development in Nursing. (2) I, II.**
Prerequisite: course 210. Mr. Ferguson, Miss Randolph
A critical evaluation of present-day nursing curricula, with a consideration of objectives, teaching methods, source materials, community resources, and sequence of instruction. Individual and group studies in University nursing-curriculum building.
236. **Current Concepts in Pediatric Nursing. (2) I.** Miss Johnson
A critical evaluation of new scientific discoveries in major clinical conditions occurring in childhood and of recent developments in the care and guidance of children from which principles and practices of pediatric nursing may be derived.

* Not to be given, 1956-1957.

237A-237B. Psychiatric Concepts in Nursing and Community Health Programs. (2-2) Yr.

Miss Bartholomew and the Staff

Prerequisite: consent of the instructor.

A study of theoretical and practical problems in human behavior which the nurse encounters when meeting mental health needs of individuals and their families.

252A-252B. Seminar in Nursing Service Administration. (2-2) Yr.

Mrs. M. S. Dunlap

Evaluation of the fundamentals of hospital nursing service administration, including ward administration, personnel management, in-service education programs, nursing functions, team activities, and community relationships. Individual and group study and field work.

253. Seminar in Tuberculosis Nursing. (2-4) I, II.

Miss Booth

Prerequisite: consent of the instructor.

Study of the fundamentals of administration of tuberculosis nursing, with emphasis upon program planning, supervision, personnel management, in-service education, and community activities. Individual and group study and field work.

254. Seminar in Nursing School Administration. (2-4) I, II.

Mrs. Hassenplug

Evaluation of the fundamentals of nursing school administration, including organization, control, personnel, physical and clinical facilities, curriculum, teaching, student selection, and student welfare. Individual and group study and field work.

256A-256B. Seminar in Public Health Nursing. (2-2) Yr.

Miss Taylor

Evaluation of the fundamentals of public health nursing administration, including agency interrelationships, student welfare, supervisory activities, and program planning in official and nonofficial agencies in urban and rural areas. Individual and group study and field work.

258A-258B. Seminar in Advanced Pediatric Nursing. (2-2) Yr.

Miss Johnson

Evaluation of the needs of infants and children at different age levels and the various programs designed to meet these needs in urban and rural areas. Individual and group study and field work in child-care programs.

261A-261B. Seminar in Advanced Psychiatric-Mental Health Nursing.

(2-2) Yr.

Miss Bartholomew

Critical analysis of the philosophy, therapeutic principles, skills, and techniques inherent in the professional nursing care of the mentally ill. Guided study and field work.

262A-262B. Seminar in Advanced Maternity Nursing. (2-2) Yr.

Miss Hjelle and the Staff

Evaluation of present obstetric practices, and analysis of recent advances and changing philosophy in the care of mother and baby; community organization for maternal and child care; individual and group study and field work.

270. Seminar in Advanced Medical-Surgical Nursing. (2-4) I, II.

Miss Coston and the Staff

Evaluation of the fundamentals of medical-surgical nursing; implications for nursing in recent scientific advances; current trends in rehabilitation. Critical analysis of methods used in patient care and student teaching. Individual and group study and field work.

401. Guided Supervision in Nursing Services. (5) I, II.

Laboratory, thirty hours. Prerequisite: master's degree or the equivalent, or consent of the instructor. May be repeated for credit.

A course in guided supervision in nursing service in hospitals and/or health agencies which places emphasis upon supervisor-nurse-team relationships and the evaluation process. Opportunity is given to apply the theory of supervision and to handle supervisory problems.

OCEANOGRAPHY

Roger R. Revelle, Ph.D., *Director of the Scripps Institution of Oceanography and Professor of Oceanography.*

Milton N. Bramlette, Ph.D., *Professor of Geology*

Adriano A. Buzzati-Traverso, Ph.D., *Professor of Biology.*

Carl Eckart, Ph.D., *Professor of Geophysics.*

Denis L. Fox, Ph.D., *Professor of Marine Biochemistry.*

Carl L. Hubbs, Ph.D., *Professor of Biology.*

Martin W. Johnson, Ph.D., *Professor of Marine Biology.*

G. F. McEwen, Ph.D., *Professor and Curator of Physical Oceanography, Emeritus.*

Walter H. Munk, Ph.D., *Professor of Geophysics.*

Norris W. Rakestraw, Ph.D., *Professor of Chemistry.*

Francis P. Shepard, Ph.D., *Professor of Submarine Geology.*

Claude E. ZoBell, Ph.D., *Professor of Marine Microbiology.*

Stanley S. Ballard, Ph.D., *Research Physicist.*

Seibert Q. Duntley, Ph.D., *Research Physicist and Director of the Visibility Laboratory.*

Alfred B. Focke, Ph.D., *Research Physicist and Director of the Marine Physical Laboratory.*

Hans E. Suess, Ph.D., *Research Geochemist.*

Charless D. Wheelock, M.A., *Research Engineer and Acting Director, Institute of Marine Resources.*

Gustaf O. Arrhenius, Ph.D., *Associate Professor of Biogeochemistry.*

Edward D. Goldberg, Ph.D., *Associate Professor of Chemistry.*

John D. Isaacs, B.S., *Associate Professor of Oceanography and Assistant to the Director.*

Leonard N. Liebermann, Ph.D., *Associate Professor of Geophysics.*

Henry W. Menard, Ph.D., *Associate Professor of Geology.*

Fred B. Phleger, Ph.D., *Associate Professor of Oceanography and Director of the Foraminifera Laboratory.*

Russell W. Raitt, Ph.D., *Associate Professor of Geophysics.*

Victor C. Anderson, Ph.D., *Associate Research Physicist.*

Philip Rudnick, Ph.D., *Associate Research Physicist.*

Fred N. Spiess, Ph.D., *Associate Research Physicist.*

James M. Snodgrass, A.B., *Associate Research Biologist.*

Robert S. Arthur, Ph.D., *Assistant Professor of Oceanography.*

Francis T. Haxo, Ph.D., *Assistant Professor of Biology.*

Douglas L. Inman, Ph.D., *Assistant Professor of Geology.*

Elizabeth K. Boden, Ph.D., *Assistant Research Biologist.*

Charles S. Cox, M.S., *Assistant Research Oceanographer.*

Harmon B. Craig, Ph.D., *Assistant Research Geochemist.*
 Gifford C. Ewing, Ph.D., *Assistant Research Oceanographer.*
 Jeffery D. Frautschy, B.S., *Assistant Research Geologist.*
 Gordon W. Groves, Ph.D., *Assistant Research Oceanographer.*
 Joel W. Hedgpeth, Ph.D., *Assistant Research Biologist.*
 Paul L. Horrer, M.S., *Assistant Research Oceanographer.*
 Lewis W. Kidd, B.S., *Assistant Research Oceanographer.*
 Ronald G. Mason, Ph.D., *Assistant Research Geophysicist.*
 Beatrice M. Merwin, Ph.D., *Assistant Research Biologist.*
 Grace L. Orton, Ph.D., *Assistant Research Biologist.*
 Frances L. Parker, M.S., *Assistant Research Geologist.*
 George G. Shor, Jr., Ph.D., *Assistant Research Geophysicist.*
 William G. Van Dorn, Ph.D., *Assistant Research Oceanographer.*
 Theodore J. Walker, Ph.D., *Assistant Oceanographer.*
 Warren S. Wooster, Ph.D., *Assistant Research Oceanographer.*
 Elbert H. Ahlstrom, Ph.D., *Research Associate.*
 Townsend Cromwell, M.S., *Research Associate.*
 John C. Marr, M.S., *Research Associate.*
 Milner B. Schaefer, Ph.D., *Research Associate.*
 Theodore M. Widrig, B.S., *Research Associate.*

The courses in oceanography are given at the Scripps Institution of Oceanography at La Jolla, California. For further information concerning the Institution, write to the Director.

Letters and Science List.—All undergraduate courses in oceanography are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Advanced degrees.—Work leading to the master's or Ph.D. degree in oceanography and certain other marine sciences is offered to a limited number of qualified students subject to the rules and regulations of the University as set forth in the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION. The student must be well trained in the fundamentals before coming to La Jolla. Resident work at Los Angeles or Berkeley may be required of candidates for advanced degrees.

Preliminary Requirements for a Degree in Oceanography†

(a) Graduation from an approved college or university, with major concentration in: mathematics, meteorology, engineering, or one of the physical or biological sciences.

(b) At least one one-year course in each of the following: mathematics, physics, chemistry, and one of the biological sciences.

(c) Preparation in foreign languages sufficient to pass a reading examination in German and/or French by the beginning of the second year. (Only one foreign language is required for the master's degree, but two for the doctor's degree.)

(d) Preparation in physical chemistry, organic chemistry, integral calculus, and geology is recommended.

During their first year, graduate students in oceanography will normally take the four upper division courses, 110, 111, 112, 113.

Requirements for an Advanced Degree in Other Fields of Study.—Through a cooperative arrangement with other departments of the University a student may do his research work in certain fields of study closely related to oceanography, i.e., chemistry, geological sciences, meteorology, microbiology, physical-biological science, plant science, and zoölogy. The preliminary requirements

† Students who fail to meet these requirements may be admitted in "unclassified" status until deficiencies are removed.

are the same as those listed under the corresponding departments or fields of study in this bulletin and in the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION. In addition, the student is required to complete at least two of courses 110 to 114 besides the work done in his special field. The credentials and proposed study program of the student must be approved by the chairman of the proper department or field of study, the Dean of the Graduate Division, Southern Section, and the Director of the Scripps Institution.

Any department of the University is invited to send its students to the Scripps Institution for special work. Ordinarily the department sending students will be responsible for the direction of the work but arrangements can be made for such students to work under the joint direction of the department and the staff of the Institution. Such students may register in one or more of the marine sciences at the Institution or they may register for some other subject in some other department of the University.

Students may not undertake graduate work at the Scripps Institution without approval in advance from the Dean of the Graduate Division, Southern Section.

UPPER DIVISION COURSES

110. Introduction to Physical Oceanography. (3) I.
Mr. Revelle, Mr. Arthur
Mr. Shepard, Mr. Inman
111. Submarine Geology. (3) I.
Mr. Johnson
112. Biology of the Sea. (3) I.
Mr. Johnson
113. Chemistry of Sea Water. (3) I.
Mr. Rakestraw, Mr. Goldberg
114. Marine Vertebrates. (3) I.
Mr. Hubbs
116. Principles of Underwater Sound. (2) II.
Mr. Baitt
Elementary discussion of the propagation of sound in an ideal medium. Differences between the ocean and an ideal medium. Refraction of sound rays by the temperature gradients in the ocean. Experimental results on the transmission of sound in the ocean. Oceanography of temperature gradients. The scattering of sound by the ocean surface, bottom, and volume. Theoretical and experimental results on backward scattering (reverberation).
117. Chemical Methods. (1) II.
Mr. Rakestraw
Prerequisite: Oceanography 113.
A laboratory course dealing with the chemical methods of analysis in routine use in oceanographic observations and the assembling and correlating of chemical data.
- *118. Statistics. (2) II.
Theory of correlation; frequency distribution; interpolation; harmonic analysis.
121. Marine Microbiology. (3) II.
Mr. ZoBell
Prerequisite: courses 110, 112, 113.
Methods of studying bacteria and allied microorganisms, with particular reference to their importance as biochemical and geological agents in the sea.
122. Marine Biochemistry. (3) II.
Mr. Fox
Prerequisite: fundamental courses in chemistry and biology, or Oceanography 112 and 113, and consent of the instructor.
The chemistry of living matter; marine colloids, comparative biochemical and physiological activities of marine animals; biochemical cycles in the sea.
123. Geochemistry. (2) II.
Mr. Goldberg
The study of the distribution of nuclear species throughout the universe, with particular attention to marine problems.

* Not to be given, 1956-1957.

125. **Physiology of Marine Algae.** (2) II. Mr. Haxo
Prerequisite: basic courses in biology and chemistry, and Oceanography 112, 113.

Comparative physiology and biochemistry of algae with emphasis on marine problems.

199. **Special Studies in Oceanography.** (1-4) I, II. The Staff
Introduction to the observational and experimental methods, research problems, and literature of one or more of the following oceanographic sciences: physical oceanography; submarine geology; chemical oceanography; biological oceanography, including marine biochemistry, marine microbiology, marine botany, marine vertebrates and invertebrates. Open to advanced students by arrangement.

GRADUATE COURSES

210. **Physical Oceanography—General.** (3) II. Mr. Arthur
Dynamics of ocean currents; turbulence; wind currents; atmospheric boundary layer; water masses and currents of the ocean; work at sea.

211. **Waves.** (3) II. Mr. Munk
Theory of surface and internal waves; wind waves, swell and surf; wave action on beaches; methods of observation; field work.

212. **Tides.** (3) I. Mr. Munk
Theory of tides; seiches; tides in adjacent seas; character of tides in different oceans; application of harmonic analysis.

217. **Hydrodynamics.** (3) I. Mr. Eckart
A systematic exposition of the principles governing the flow of fluids. The various mathematical forms of the conservation principles (matter, momentum, energy), and of the second law of thermodynamics, are derived and illustrated by examples and problems.

- †218. **Marine Sediments.** (3) II.
Mr. Bramlette, Mr. Inman, Mr. Menard, Mr. Phleger,
Mr. Revelle, Mr. Shepard
Seminar and laboratory. Origin, distribution, interpretation, and methods of study of marine sediments.

219. **Micropaleontology.** (2) II. Mr. Phleger
Prerequisite: course 111 or the equivalent.
Laboratory work, with occasional lectures, on the identification and ecology of foraminifera, with special emphasis on their significance in marine geology.

220. **Special Topics in Oceanography.** (2-4) I, II. The Staff and Visitors
Lectures and demonstrations by different members of the staff and visitors. Present problems in oceanography; applications of oceanographic knowledge.

- †221. **Problems in Submarine Geology.** (2) II.
Mr. Bramlette, Mr. Inman, Mr. Menard, Mr. Phleger,
Mr. Revelle, Mr. Shepard

Seminar.

222. **Biochromes.** (2) II. Mr. Fox
Prerequisite: course 122 or the equivalent, and consent of the instructor.
Physical and chemical foundations of color manifestation; the natural occurrence, chemical classification, distribution, and metabolic features of colored molecules, in aquatic and terrestrial environments.

- †223. **Beach and Nearshore Processes.** (2) I. Mr. Inman
Prerequisite: courses 110, 111.
Study of the physical processes in the nearshore environment, including waves and currents, and their effect on the transportation of sediments.
224. **Petrography of Sediments.** (2) II. Mr. Bramlette
Laboratory and occasional lectures on determination of the important constituents of sediments, organic and inorganic, with special emphasis on the immersion method of identifying mineral grains.
250. **Seminar in Oceanography.** (1) I, II. The Staff
251. **Problems in General Oceanography.** (3) I. ———
Presentation of reports and review of literature in general oceanography.

RESEARCH COURSE

299. **Research in Oceanography.** (1-6) I, II. The Staff
Research in one or more of the following oceanographic sciences: physical oceanography; submarine geology; chemical oceanography; biological oceanography, including marine biochemistry, marine microbiology, marine botany, marine vertebrates and invertebrates. Students must present evidence of satisfactory preparation for the work proposed.

ORIENTAL LANGUAGES

- Richard C. Rudolph, Ph.D., *Professor of Oriental Languages (Chairman of the Department)*.
Ensho Ashikaga, M.Litt., *Assistant Professor of Oriental Languages*.
*H. S. Hibbett, Jr., Ph.D., *Assistant Professor of Oriental Languages*.
Irfan Kavar, Ph.D., *Assistant Professor of Arabic*.
†Ichiro Nishizaki, Ph.D., *Visiting Assistant Professor of Oriental Languages*.
Y. C. Chu, M.A., *Associate in Chinese*.

Letters and Science List.—All undergraduate courses in Oriental languages are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Courses 1A-1B, 9A-9B, and 32 or 42. Recommended: Anthropology 1-2.

The Major.—Required: Twenty-four upper division units of Oriental languages, of which 16 units must be in language courses. Recommended: History 191A-191B, Geography 124B, Art 120A-120B. A reading knowledge of French and German is highly desirable.

LOWER DIVISION COURSES

- 1A-1B. **Elementary Modern Chinese.** (4-4) Yr. Mr. Chu
Introduction to the standard or "National Language" (Kuo Yü) of China. Not open to students with previous training. Five hours a week.
- 3A-3B. **Elementary Arabic.** (4-4) Yr. Mr. Kavar
A course in standard Arabic. Not open to students with previous training.
- 9A-9B. **Elementary Modern Japanese.** (4-4) Yr. Mr. Ashikaga
Not open to students with previous training. Five hours a week.

† Offered in alternate years.

* In residence fall semester only, 1956-1957.

† In residence spring semester only, 1956-1957.

- 13A-13B. **Classical Chinese.** (2-2) Yr. Mr. Rudolph
 Prerequisite: course 1A or consent of the instructor.
 Introduction to the development of Chinese writing and the Classical language in which the bulk of Chinese literature is written.
- *21A-21B. **Chinese Oral and Written Composition.** (3-3) Yr. Mr. Chu
 An elementary course for those who have had previous training in Chinese.
- *29A-29B. **Japanese Oral and Written Composition.** (3-3) Yr. Mr. Hibbett
 An elementary course for those who have had previous training in Japanese.
32. **History of Japanese Civilization.** (2) II. Mr. Rudolph
 A survey of the development of Japanese culture and its relationship to the Asiatic mainland.
42. **History of Chinese Civilization.** (2) I. Mr. Rudolph
 A survey of the development of the outstanding aspects of Chinese culture from prehistoric to modern times. No knowledge of Chinese is required.
- *52. **Arabic Culture.** (2) I, II. Mr. Kawar
 A course of lectures and collateral readings on certain phases of Arabic culture, emphasizing its contribution to Western civilization.

UPPER DIVISION COURSES

- 101A-101B. **Intermediate Chinese.** (3-3) Yr. Mr. Chu
 A continuation of 1A-1B.
- 103A-103B. **Intermediate Arabic.** (3-3) Yr. Mr. Kawar
 Prerequisite: course 3A-3B or consent of the instructor.
- 109A-109B. **Intermediate Modern Japanese.** (3-3) Yr. Mr. Hibbett, Mr. Nishizaki
 A continuation of 9A-9B.
112. **Chinese Literature in Translation.** (2) II. Mr. Hibbett
 Lectures and collateral reading of representative works—including classics, histories, belles-lettres, and fiction—in English translations. No knowledge of Chinese is required.
- 113A-113B. **Intermediate Classical Chinese.** (2-2) Yr. Mr. Rudolph
 Further readings in the classics.
- 119A-119B. **Advanced Modern Japanese.** (3-3) Yr. Mr. Hibbett, Mr. Nishizaki
 A continuation of 29A-29B and 109A-109B.
- 121A-121B. **Advanced Chinese.** (3-3) Yr. Mr. Chu
 A continuation of 21A-21B and 101A-101B, with practice in newspaper style.
- 129A-129B. **Classical Japanese and Kambun.** (2-2) Yr. Mr. Ashikaga
132. **Japanese Literature in Translation.** (2) I. Mr. Nishizaki
 History of Japanese literature from the beginning to modern times, emphasizing Chinese, Buddhist, and Western influences.
- 142A-142B. **Arabic Literature.** (2-2) Yr. Mr. Kawar
 Lectures on classical Arabic literature with reference to the cultural background. The Koran is included. No knowledge of Arabic is required.

- *153. **Manchu.** (2) II. Mr. Rudolph
Prerequisite: consent of the instructor.
163. **Readings in Chinese.** (3) I. Mr. Rudolph
Prerequisite: course 113A-113B.
Selections from masters in the *Ku wen* style.
- 164A-164B. **Tibetan.** (2-2) Yr. Mr. Ashikaga
170. **Archaeology of China.** (2) II. Mr. Rudolph
The important archaeological sites and types of antiquities of ancient China and peripheral regions; the history and development of archaeological work in China. No knowledge of Chinese is required.
173. **Chinese Historical Texts.** (2) II. Mr. Rudolph
Prerequisite: course 113A-113B.
- *195. **Methods and Bibliography in Chinese Research.** (2) II. Mr. Rudolph
Prerequisite: senior standing in the department and consent of the instructor.
199. **Special Studies in Oriental Languages.** (1-4) I, II. The Staff
Prerequisite: senior standing in the department and consent of the instructor.

PATHOLOGY PHARMACOLOGY

(Departments of the School of Medicine)

The departments of Pathology and Pharmacology offer certain courses which are open to qualified graduate students who are not pursuing the professional curriculum of the School of Medicine. For information concerning these courses and advanced degrees available, see the ANNOUNCEMENT OF THE SCHOOL OF MEDICINE, LOS ANGELES, and the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

PHILOSOPHY

- Rudolf Carnap, Ph.D., *Professor of Philosophy.*
Abraham Kaplan, Ph.D., *Professor of Philosophy (Chairman of the Department).*
Donald A. Piatt, Ph.D., *Professor of Philosophy.*
Hugh Miller, Ph.D., *Professor of Philosophy, Emeritus.*
———, *Flint Professor of Philosophy.*
*Hans Meyerhoff, Ph.D., *Associate Professor of Philosophy.*
J. Wesley Robson, Ph.D., *Associate Professor of Philosophy.*
Robert M. Yost, Jr., Ph.D., *Associate Professor of Philosophy.*
Donald Kalish, Ph.D., *Assistant Professor of Philosophy.*
———, *Assistant Professor of Philosophy.*
———, *Instructor in Philosophy.*
Richard Montague, M.A., *Acting Instructor in Philosophy.*
*———, *Acting Instructor in Philosophy.*



Ralph Cohen, Ph.D., *Assistant Professor of English.*

* Not to be given, 1956-1957

¹ In residence, fall semester only, 1956-1957.

² In residence spring semester only, 1956-1957.

Letters and Science List.—All undergraduate courses in this department are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Twelve units of lower division courses in philosophy, including courses 20A and 20B. Course 30 must be taken either as part of the preparation for the major or in the upper division.

The Major.—Twenty-four units in upper division courses, including at least 3 units in each of the following four groups:

1. 114, 152, 153, 157, 162, 163, 166, 170A, 170B.
2. 126, 148, 184A, 184B, 185, 187A, 187B.
3. 104A, 104B, 121, 136, 183, 188, 189.
4. 111, 112, 123, 124, 125, 146, 147, 175, 181.

Requirements for Admission of Philosophy Majors to Graduate Courses.—

1. Regular graduate standing.
2. At least 6 units in each of the four groups specified for the major.
3. Course prerequisites as stated, or consent of the instructor.

Requirements for the Master's Degree.—For the general requirements, see page 64. In addition, candidates for the master's degree in philosophy must satisfy the following:

1. A reading knowledge of one of the following languages: Greek, Latin, French, or German.
2. At least 20 semester units in courses numbered over 100, 9 or more of which must be in courses numbered over 200.
3. An oral examination designed to test the student's general knowledge of philosophy.
4. A thesis supervised and approved by the department.

Requirements for the Doctor's Degree.—For the general requirements, see page 66. In addition, candidates for the doctor's degree in philosophy must satisfy the following:

1. A reading knowledge of two of the following languages: Greek, Latin, French, or German.
2. At least 24 related upper division units approved by the adviser in any one of the following fields: (a) natural sciences, (b) social sciences, (c) life sciences, (d) humanities, excluding philosophy.
3. Qualifying examinations for advancement to candidacy consisting of a written examination in each of the following fields: logic, history, theory of value, and metaphysics. Ordinarily, preparation for these examinations includes some work in courses numbered over 200. In addition, there is an oral qualifying examination in one of the four fields and in the related fields represented by the nondepartmental members of the doctoral committee.
4. An oral examination in the field of the student's special interest as represented by his dissertation.

LOWER DIVISION COURSES

All lower division courses are introductory and without prerequisite, except as otherwise stated.

3. Logic in Practice. (2) II.

Language and its analysis as an instrument of sound thinking in morals, politics, and everyday life.

4. Short Introduction to Philosophy. (2) I, II.

Not open for credit to students who have completed 6A.

5. Problems of Ethics and Religion. (2) II.

Human conduct, its rules and natural law; the moral basis of institutions; religion and the moral order.

6A-6B. Introduction to Philosophy. (3-3) Yr. Beginning either semester.

_____, Mr. Meyerhoff, Mr. Montague

A philosophical analysis of the basic ideas and methods in political theory, morals, art, science, and religion; and of the interrelations of these fields. An attempt is made to provide the student with a critical technique for developing a well-considered philosophy of his own. Recommended as a course to satisfy requirement (G) (2) in the College of Letters and Science.

Course 6A is a prerequisite to course 6B, and is not open for credit to students who have completed course 4.

20A. History of Greek Philosophy. (3) I, II.

Mr. Piatt, Mr. Robson, Mr. Yost

The beginnings of Western science and philosophy; Socrates, Plato, and Aristotle; Greek philosophies in the Roman world and in the Christian era.

20B. History of Modern Philosophy. (3) I, II.

Mr. Piatt, Mr. Robson, Mr. Yost

The Renaissance and the rise of modern science; rationalism in Descartes, Spinoza, Leibniz; empiricism in Locke, Berkeley, Hume, Kant and his successors; recent movements.

25. Democratic and Totalitarian Ideologies. (3) I.

Mr. Kaplan

Not open to freshmen.

Contemporary philosophic conceptions of the relation between the state, society, and culture.

30. Inductive Logic and Scientific Method. (3) I, II. Mr. Kalish, _____

The use of logic in science and practical life; fallacies—theory of indirect evidence; construction of scientific hypotheses; probability and statistical method.

31. Deductive Logic. (3) I, II.

Mr. Montague, Mr. Kalish

The elements of formal logic; Aristotle's logic; modern symbolic logic. The forms of reasoning and the structure of language.

UPPER DIVISION COURSES

Upper division courses in philosophy include: (a) *General Studies* (numbered 101 to 147), dealing with the principles of wide fields of inquiry such as the natural sciences, the social sciences, and the humanities, or surveying the chief tendencies in the thought of a period. (b) *Historical Studies* (numbered 152 to 175), dealing more intensively with special periods or with individual thinkers. (c) *Systematic Studies* (numbered 181 to 189), pursuing a more rigorous analysis of the logical foundations of mathematics, science, and philosophy. Course 199A-199B is an individual problem course, available to exceptional students whose special studies are not included in the above curriculum.

General Studies

Prerequisite for all courses in this group; 6 units in philosophy or upper division standing, except as otherwise stated.

***101. The Philosophical Enterprise. (3) I.**

Prerequisite: course 6A-6B or 20A-20B, or consent of the instructor.

Modern conceptions of the aims, problems, and methods of philosophy as a part of culture.

104A. Ethics. (3) I.

Mr. Piatt

Morality in theory and practice: the history and development of ethical theory.

* Not to be given, 1956-1957.

104B. Ethics. (3) II.

Mr. Piatt

Prerequisite: course 104A.

Morality in theory and practice; the critical application of ethical theory to contemporary civilization, with special reference to economic and political life.

111. Metaphysics. (3) II.

Metaphysical theories of the universe and man's place in it; types of metaphysical approaches to philosophical problems; relations of metaphysics to science and to other philosophical disciplines.

112. Philosophy of Religion. (3) II.

The existence and nature of God, human free will, the problem of evil, the idea of immortality, the rivalry of living religions.

114. American Philosophy. (3) II.

Mr. Piatt

Philosophical foundations of American thought. Theories of human nature, political philosophy, and religion, from colonial times to the present.

121. Political Philosophy. (3) I.

Prerequisite: 6 units of philosophy, or adequate preparation in the social sciences and history.

A study of the evolution of government, showing its causal relation to the development of science and philosophy, and its issue in democracy.

123. Existentialist Philosophies. (2) I.

Mr. Meyerhoff

An analysis of existentialist thought in modern philosophy: the nineteenth century background (Kierkegaard and Nietzsche) and the major varieties of contemporary existentialism, both religious and nonreligious (Heidegger, Sartre, Marcel, and Buber).

***124. Oriental Philosophy. (3) I.**

Mr. Kaplan

Prerequisite: course 20A-20B. Recommended: course 30.

A survey of the major philosophical systems of China and India: Hindu, Buddhist, Confucian, and Taoist. Attention will be paid to differences and similarities between these and dominant Western conceptions of methodology, ethics, and social philosophy.

125. Nineteenth-Century Idealism and Romanticism. (2) II.

The philosophies of post-Kantian idealism, romanticism and evolution, with special reference to Hegel, Schopenhauer, Nietzsche, and Bergson.

126. Nineteenth Century: Scientific Philosophy. (2) I.

Prerequisite: course 20B.

Scientific philosophies of the nineteenth century, including positivism, materialism, and evolutionary philosophy, with special reference to Comte, Mill, Spencer, and Mach.

136. Philosophy of Art. (3) II.

Mr. Kaplan

Relation of the philosophy of art to the artist's activity, to aesthetic experience, and to the criticism of art. The principal theories of the nature of art; of aesthetic contemplation; and of beauty, sublimity, and other categories of aesthetic value. Nature and validity of standards of criticism.

146. Philosophy in Literature. (3) I.

Mr. Robson

A study of philosophical ideas expressed in the literary masterpieces of Plato, Lucretius, Dante, Shakespeare, Goethe, Tolstoy, Lewis Carroll, Thomas Mann, and others.

* Not to be given, 1956-1957.

***147. Philosophy of History. (3) II.**

Prerequisite: 6 units of philosophy, or adequate preparation in history and the social sciences.

A study of historical progress, relating human progress to the natural evolution described by modern science.

148. Philosophy of Science. (3) I.

Mr. Montague

A general survey and philosophical analysis of the concepts and laws of modern natural science.

Historical Studies

Prerequisite for all courses in this group; upper division standing in addition to the specific requirements stated.

***152. Plato and His Predecessors. (3) II.**

Mr. Meyerhoff

Prerequisite: course 20A or consent of the instructor.

153. Aristotle and Later Greek Philosophy. (3) II.

Prerequisite: course 20A or consent of the instructor.

***157. Medieval Philosophy. (3) II.**

Prerequisite: course 20A or the equivalent.

Philosophy in Christendom from the fourth to the fourteenth century, with particular reference to Augustine and Thomas Aquinas.

162. Continental Rationalism. (3) I.

Mr. Yost

Prerequisite: course 20B.

The philosophies of Descartes, Spinoza, and Leibniz.

163. British Empiricism. (3) II.

Prerequisite: course 20B.

The philosophies of Locke, Berkeley, and Hume.

***166. Kant. (3) II.**

Mr. Meyerhoff

Prerequisite: course 162 or 163.

170A-170B. Contemporary Philosophy. (3-3) Yr.

_____, Mr. Yost

Prerequisite: course 20B. Recommended: course 31.

Theories of knowledge and nature in Russell, Santayana, Whitehead, and others; logical positivism and logical empiricism; problems in philosophical analysis.

***175. Pragmatism. (2) II.**

Mr. Piatt

Prerequisite: consent of the instructor, based on the student's knowledge of the history of philosophy.

A systematic and critical analysis of American pragmatism, with special reference to James, Dewey, and Mead.

Systematic Studies

Prerequisite for all courses in this group: upper division standing in addition to the specific requirements stated.

181. Theory of Knowledge. (3) I.

Mr. Yost

Prerequisite: course 30 or the equivalent.

Theories of language, truth, probability, and meaning. The foundations of empiricism: the problem of impressions and the existence of external objects; the construction of our knowledge of the physical world on the basis of observation; the nature of psychology.

* Not to be given, 1956-1957.

183. Social Philosophy. (3) II.

Prerequisite: consent of the instructor, based on preparation in philosophy, psychology, and social science.

Problems of social policy and the logic of the social sciences, with special reference to recent developments in the conception of human nature and interpersonal relations.

184A. Intermediate Logic. (3) II.

Mr. Montague

Prerequisite: course 31 or the equivalent.

Formal development of sentential and lower-order functional calculi; methods of symbolic logic.

184B. Advanced Logic. (3) I.

Mr. Kalish

Prerequisite: course 184A or the equivalent.

Introduction to set theory and higher-order functional calculi; paradoxes of logic, concept of the infinite; foundations of mathematics.

***185. Foundations of Probability and Statistics. (3) I.**

Mr. Montague

Prerequisite: courses 30 and 31, or the equivalent.

Logical and mathematical theories of probability; development of the mathematical calculus of probability in a logistic form; outlines of a general mathematical theory of probability and statistics; different interpretations of probability; problem of induction; probability logic.

187A. Semantics. (3) I.

Mr. Kaplan

Prerequisite: course 30 or the equivalent.

General theory of signs; meaning and communication; logic and natural languages.

187B. Semantics. (3) II.

Mr. Kalish

Prerequisite: course 31 or the equivalent.

Formalized languages; theory of truth; synonymy and analyticity.

***188. Ethical Theory. (3) II.**

Mr. Platt

Prerequisite: course 104A-104B or consent of the instructor.

A systematic study of moral psychology; right and wrong; good and evil; and some leading theories about these topics.

***189. Esthetic Theory. (3) II.**

Mr. Kaplan

Prerequisite: courses 20A-20B, 136.

A survey of the major philosophies of art from Plato to the present.

199A-199B. Selected Problems in Philosophy. (2-3; 2-3) Yr.

Admission by special arrangement.

Mr. Kaplan in charge

GRADUATE COURSES

Prerequisites for Graduate Courses.—Philosophy majors see requirements listed above for admission of philosophy majors to graduate courses; graduate students from other departments may secure admission to graduate courses with the consent of the instructor.

***211. Philosophical Foundations of Physics. (3)**

Mr. Carnap

Prerequisite: course 148.

240. Semantics. (3) I.

Mr. Kalish

Prerequisite: course 187B.

241. Logic. (3) II.

Mr. Montague

Prerequisite: course 184A or 184B.

* Not to be given, 1956-1957.

- *242. **Probability and Induction.** (3) Mr. Carnap
Prerequisite: course 185.
- *251. **Seminar: Metaphysics.** (3) I. _____
Prerequisite: course 111.
252. **Seminar: Naturalism.** (3) I. Mr. Piatt
- *253. **Seminar: Pragmatism.** (3) Mr. Piatt
Prerequisite: course 175.
- *254. **Seminar: Philosophy of History.** (3) _____
Prerequisite: course 147.
- *255. **Seminar: Theory of Knowledge.** (3) Mr. Yost
Prerequisite: course 181.
257. **Seminar: Plato.** (3) I. Mr. Meyerhoff
Prerequisite: course 152.
- *258. **Seminar: Hume.** (3) Mr. Robson
Prerequisite: course 163.
259. **Seminar: Leibniz.** (3) II. Mr. Yost
Prerequisite: course 162.
- *260. **Seminar: Kant.** (3) Mr. Kaplan
Prerequisite: course 166.
- *261. **Seminar: Current Philosophical Literature.** (3) Mr. Kalish
265. **Seminar: General Theory of Value.** (3) II. Mr. Robson
- *266. **Seminar: Ethical Theory.** (3) Mr. Piatt
Prerequisite: course 188.
- *268. **Seminar: Social and Political Philosophy.** (3) Mr. Meyerhoff
Prerequisite: course 121 or 183.
269. **Seminar: Philosophy of Art.** (3) II. Mr. Kaplan, Mr. Cohen
Prerequisite: course 186.
- *270. **Seminar: Methodology of the Human Sciences.** (3) Mr. Kaplan
271. **Seminar: Logical Theory.** (3) II. Mr. Carnap
Prerequisite: course 184A or 184B.
- *272. **Seminar: Semantic Theory.** (3) Mr. Carnap
Prerequisite: course 187B.
273. **Seminar: Logical Foundations of Mathematics.** (3) I. Mr. Carnap
Prerequisite: course 184B.
- 298A-298B. **Special Study: Selected Problems in Philosophy.** (2-3; 2-4)
Yr. The Staff (Mr. Carnap in charge)

PHYSICAL EDUCATION

Ruth Abernathy, Ph.D., *Professor of Physical Education.*

Rosalind Cassidy, Ed.D., *Professor of Physical Education and Coördinator of the Women's Staff.*

Edward B. Johns, Ed.D., *Professor of Physical Education.*

Ben W. Miller, Ph.D., *Professor of Physical Education (Chairman of the Department).*

* Not to be given, 1956-1957.

- Laurence E. Morehouse, Ph.D., *Professor of Physical Education.*
†Raymond A. Snyder, Ed.D., *Professor of Physical Education.*
Carl Haven Young, Ed.D., *Professor of Physical Education.*
John F. Bovard, Ph.D., *Professor of Physical Education, Emeritus.*
Donald T. Handy, Ed.D., *Associate Professor of Physical Education.*
Alma M. Hawkins, Ed.D., *Associate Professor of Physical Education.*
Valerie Hunt, Ed.D., *Associate Professor of Physical Education.*
†Wayne W. Massey, Ph.D., *Associate Professor of Physical Education.*
Norman P. Miller, Ed.D., *Associate Professor of Physical Education.*
John Sellwood, Ed.D., *Associate Professor of Physical Education.*
Serena Arnold, Ed. D., *Assistant Professor of Physical Education.*
Ethel T. Bell, Ed.D., *Assistant Professor of Physical Education.*
Camille Brown, Ed.D., *Assistant Professor of Physical Education.*
‡Evelyn Davies, Ed.D., *Assistant Professor of Physical Education.*
Stanley Gabrielsen, Ed.D., *Assistant Professor of Physical Education.*
———, *Assistant Professor of Physical Education.*
Marjorie E. Latchaw, Ph.D., *Assistant Professor of Physical Education.*
June McCann, Ed.D., *Assistant Professor of Physical Education.*
*Ellen C. Millisor, Ed.D., *Assistant Professor of Physical Education.*
Charles Nagel, Ph.D., *Assistant Professor of Physical Education.*
Deane E. Richardson, Ed.D., *Assistant Professor of Physical Education.*
Magnus Syverson, Ed.D., *Assistant Professor of Physical Education.*
William H. Spaulding, A.B., *Director of Athletics, Emeritus.*
Norman D. Duncan, M.A., *Supervisor of Physical Education and Coordinator of Men's Staff.*
Cecil B. Hollingsworth, Ed.D., *Supervisor of Physical Education.*
Edith I. Hyde, M.A., *Supervisor of Physical Education.*
Orsie M. Thomson, M.A., *Supervisor of Physical Education.*
Paul Frampton, M.A., *Supervisor of Physical Education, Emeritus.*
———, *Associate Supervisor of Physical Education.*
Donald K. Park, B.S., *Associate Supervisor of Physical Education.*
Wilfred Sutton, Ed.D., *Associate Supervisor of Physical Education.*
Diana W. Anderson, M.A., *Assistant Supervisor of Physical Education and Special Supervisor of University Elementary School, Physical Education.*
Howard M. Curtis, M.A., *Assistant Supervisor of Physical Education.*
M. Briggs Hunt, Ed.B., *Assistant Supervisor of Physical Education.*
Gene A. Logan, M.S., *Assistant Supervisor of Physical Education.*
Joan L. Martin, M.S., *Assistant Supervisor of Physical Education.*
William F. Pillich, M.S., *Assistant Supervisor of Physical Education.*
Carol J. Scothorn, M.A., *Assistant Supervisor of Physical Education.*
James G. Dunkelberg, M.S., *Junior Supervisor of Physical Education.*
Glen H. Egtrom, M.S., *Junior Supervisor of Physical Education.*
Arden J. Johnson, M.Ed., *Junior Supervisor of Physical Education.*
Stephen E. Mitakis, M.S., *Junior Supervisor of Physical Education.*
Douglas M. Strehle, M.S., *Junior Supervisor of Physical Education.*
Mary E. Weber, M.S., *Junior Supervisor of Physical Education.*
———, *Junior Supervisor of Physical Education.*
———, *Junior Supervisor of Physical Education.*

* Absent on leave, 1956-1957

† Sabbatical leave in residence, 1956-1957.

‡ Sabbatical leave in residence, spring semester, 1956-1957.

Pia Gilbert, *Associate in Physical Education.*

Nanette T. McIntyre, M.S., *Associate in Physical Education.*

Jessica E. Nixon, *Associate in Physical Education.*

Kenneth V. Pike, M.A., *Associate in Physical Education.*



Donald S. MacKinnon, M.D., *Director, Student Health Service.*

Physical Education 1 (men and women), as an integral part of a student's general education, is prescribed for all first-year and second-year undergraduate students who are under twenty-three years of age until four semesters of work have been completed. Prescribed physical education must be taken in consecutive semesters until the requirement is fulfilled. A student claiming exemption because of age must present to the Registrar a petition on the prescribed form for such exemption.

All physical education activities are elective, with the exception of swimming, which is required for all lower division men. Exemption from swimming will be granted upon passing a competence test.

In fulfilling the four-semester requirement it is recommended that students select one rhythmic, one coeducational, one team, and one individual or dual activity in order to secure a variety of experiences.

Although it is not required, it is recommended that women students include a semester of swimming.

The same activity course may not be repeated to meet the four semester requirement. All general college students are restricted to one physical education class per semester except by special permission of the Men's or Women's Coordinator.

Any upper division student may elect Physical Education 1 for credit, but the total units presented for graduation may not exceed 4 units or eight semesters of work.

Medical Examination.—(a) Students entering the University for the first time and (b) reëntering students are required to obtain a clearance of their health status from the Student Health Service prior to registration. In case of injury, illness, or special health problem the medical examiner may exempt the student from required physical education or refer the student for assignment in adapted physical education.

A student already enrolled in class whose health requires either exemption or special assignment reports directly to the Medical Examiner. Pending action on any petition, the student will regularly attend the required course in physical education.

The following chart may be used as a guide in selecting activities:

	Men	Women	Coed.	Individual and/or dual	Team or group activity	Equipment provided by student
Apparatus and Tumbling.....	*			*		
Archery.....		*	*	*		
Badminton.....		*	*	*		*
Basic Fundamentals.....	*			*		
Basketball.....	*	*			*	
Body Mechanics.....		*		*		
Bowling (\$12 fee)†.....			*	*		
Dance: Folk, Social, Fundamentals, Comp.....		*	*	*		
Deck Sports.....		*	*	*		
Adapted (by referral only).....	*	*		*		
Fencing.....		*		*		
Games—Fall (Flag football, Volleyball) Spring (Speedball, Softball).....	*				*	
Golf.....		*	*	*		*
Orientation.....		*	*	*	*	
Relaxation (by referral only).....		*		*		
Skiing—Dry.....			*	*		*
Swimming.....	*	*		*		
Tennis.....	*	*	*	*		*
Track and Field.....	*			*		
Volleyball.....		*	*		*	
Water Composition.....			*	*		
Wrestling.....	*			*		

Complete uniform and towel are furnished by the Department of Physical Education, except that gym shoes and swimming caps are provided by the student.

College of Applied Arts

The Department of Physical Education offers the following majors:

1. Major in Physical Education.

WOMEN

Preparation for the Major.—Courses 29, 30, 31, 32, 35, 44; Chemistry 2, or Physics 10; Zoology 15, 25.

The Major.—At least 36 units of upper division courses in physical education, including courses 100, 102, 130, 131, 132, 138, 145A-145B, 152, 326A-326B, 327A-327B; and electives chosen from courses 103, 104, 106, 135, 139, 140, 141, 142A, 143, 144, 150, 151, 153A-153B, 154, 155, 160, 190A-190B-190C, 199.

† No refund on the bowling fee will be made after the final date for filing study lists. Bowling shoes will be required, but they can be rented at the bowling alley for ten cents per class meeting.

MEN

Preparation for the Major.—Courses 6, 7, 8, 9, 23, 5 or 24, 44; Chemistry 2, or Physics 10; Zoology 15, 25.

The Major.—At least 36 units of upper division courses in physical education chosen from courses 100, 102, 130, 131, 138, 145A-145B, 190A-190B, 370, 371A-B-C-D.

2. Major in School Health Education.

Plan I is a curriculum for students interested in health education who have a lower division background in physical education. Plan II is a curriculum for other students interested in health education who have a lower division background in such areas as science, sociology, and psychology.

(a) *Plan I. Health Education and Physical Education.*

Preparation for the Major.—Chemistry 2; Bacteriology 1; Zoology 15, 25; Psychology 1A, 1B or 33; English 1A-1B, or English 1A-Speech 1A, or Speech 1A-1B; Physical Education 5, 44, and 6, 7, 8, 9 (men), or 29, 30, 31, 32 (women).

The Major.—At least 36 units of upper division courses, including Home Economics 111, 138 or Sociology 142; Sociology 101; Psychology 145A; Education 111; Public Health 100, 145; Physical Education 100, 102, 132 145A-145B, 160.

(b) *Plan II. School-Community Health Education.*

Preparation for the Major.—Chemistry 2; Bacteriology 1; Zoology 15, 25; Psychology 1A, 1B or 33; English 1A-1B, or English 1A-Speech 1A, or Speech 1A-1B; Physical Education 1, 5, 44.

The Major.—At least 36 units of upper division courses, including Education 111, Home Economics 111, 138 or Sociology 142; Sociology 101; Psychology 145A-145B; Public Health 100, 110, 125, 134, 145; Physical Education 145A-145B, 160.

3. Major in Physical Therapy.

(a) *Affiliation Plan* (leading to degree and certificate). This program includes three years of University work (90 units) and a fourteen-month course at the Children's Hospital School of Physical Therapy,* which is affiliated with the University. The hospital work, which is completed in the senior year, is accepted in fulfillment of the residence requirement provided 24 units have been completed in the College of Applied Arts immediately prior to study at the Children's Hospital School of Physical Therapy. Students completing the combined program will receive the degree of Bachelor of Science and the Certificate in Physical Therapy.

Preparation for the Major.—Courses 1, 5, 42, 43, 44; Chemistry 2A; Physics 10; Zoology 15, 25; Psychology 1A, 1B or 33; plus 12 units of social science.

The Major.—Courses 100, 102; and the fourteen-month course at the Children's Hospital School of Physical Therapy. The Hospital program includes courses in anatomy, pathology, psychology, electrotherapy, hydrotherapy, massage, therapeutic exercise, physical therapy (as applied to medicine, neurology, orthopedics, surgery), ethics and administration, electives recommended by the American Medical Association and the American Physical Therapy Association, and clinical practice. A maximum of 30 units will be allowed for completion of the Hospital program.

* Students completing the three-year University program are not assured admission to the Children's Hospital School of Physical Therapy. When the number of qualified applicants exceeds the available facilities, selection of students will be made on the basis of scholarship and personal qualifications, as determined from the transcript of record, examination, and by personal interview.

(b) *Four-Year Plan* (leading to degree only). This program is designed for students who wish to earn the degree of Bachelor of Science before enrolling in a school of physical therapy.

Preparation for the Major.—Courses 1, 5, 42, 43, 44; Chemistry 2A; Physics 10 or 2A; Zoology 15, 25. Recommended: Art 27A; Psychology 1A, 1B or 33; Speech 1A-1B; Sociology 1, 12.

The Major.—Thirty-six units of upper division courses, including Physical Education 100, 102, 103, 104, 106, 190A, Public Health 106, 125; and electives selected from Physical Education 130, 139, 142A, 146, 171 (men), 190B; Education 110, 111, 112, 116, 147, 180; Psychology 108, 110, 112, 113, 161, 168, 169; Anthropology 150; Home Economics 111; Public Health 148, 170.

4. Major in Recreation.

This major is designed to develop professional leaders in recreation with a sound general education, and an insight into the social responsibilities of community agencies.

Preparation for the Major.—Courses 1, 5, 7, 23, 27A-27B, 43, 44; Art 27A-27B; Botany 1; English 1A; Music 30A-30B; Psychology 1A, 33; Speech 1A; Sociology 1, 12.

The Major.—At least 36 units of upper division courses, including Physical Education 132, 139, 140, 141, 142A, 143, 144, 155, 190C-190D; Theater Arts 156B; and electives selected from Art 330; Education 112, 181; Psychology 145A-145B, 147; Sociology 126, 143, 189; Physical Education 138, 330.

Teaching Minor in Physical Education

Not less than 20 units of coordinated courses, at least 6 of which are in the upper division. All courses must be approved by an adviser in the Department of Physical Education. For requirements, consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

The Minor in Recreation

Not less than 20 units of coordinated courses, at least 6 of which are in upper division. All courses must be approved by a recreation education adviser in the Department of Physical Education.

Courses: Physical Education 5, 7, 23, 27A-27B, Sociology 1, Psychology 33, Physical Education 132, 138, 139, 140, 141, 142A, 144, 190C-190D, 199.

Curriculum in Dance

For details concerning this curriculum, students should consult the coordinator of the women's staff, Department of Physical Education.

Preoccupational Therapy Curriculum

For details concerning this curriculum, see page 44 of this bulletin.

Requirements for the Special Secondary Credential

Students may complete a teaching major in physical education for a special secondary credential. For the general requirements, consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

Requirements for the General Secondary Credential

Students may complete requirements for the general secondary credential with a major either in physical education or in health education. For the general requirements, consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES. For more specific information, consult the Department of Physical Education.

Requirements for the Master's Degree

The degree of Master of Science is awarded with a program in either physical education, health education, or recreation education. With skillful planning, the student may combine a portion of the course work for the master's degree with the work for the general secondary credential, although,

generally, to complete both programs will require approximately three semesters of work. For the general requirements, see page 64 of this bulletin and the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

College of Letters and Sciences

Letters and Science List.—Courses 1, 44, 130, 139, 146, 147, 150, 151, and 155 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

LOWER DIVISION COURSES

†1. Physical Education Activities (Men and Women). (½) I, II.

Classes meet three hours weekly. Section assignments are made by the department. This course is prescribed for freshmen and sophomores and may be elected by juniors and seniors. Only 4 units are accepted toward a degree. Students whose physical condition indicates the need of modified activity are assigned to adapted physical education classes. (Special equipment and course fee are required for certain activities. Information regarding these activities may be obtained from the department at the time of registration, or see page 293 of this bulletin.)

The Staff

*2. Hygiene and Sanitation. (2) I, II.

A broad elementary course emphasizing the strictly practical aspects of hygiene.

5. Safety Education and First Aid. (2) I, II.

Prevention and care of common accidents and emergencies in the home, school, and community. An American Red Cross instructor's certificate will be granted upon satisfactory completion of an additional fifteen hours to those who qualify.

Mr. Syverson, Mr. Richardson

†6. Professional Activities (Men). (1½) I, II. Mr. Handy, Mr. Syverson
Designed for the orientation and guidance of major and minor students in physical education. Course must be taken during the first semester of enrollment in the major or minor.

*†7. Professional Activities. (1½) I, II.

Only for major and minor students in health, physical, and recreation education. Fundamental knowledge and skills in dance, including rhythm analysis and social-recreation dance.

Mr. Pillich

*†8. Professional Activities (Men). (1½). I, II. Mr. Hunt, Mr. Mitakis
Designed for major and minor students in physical education. Fundamental knowledges in swimming and wrestling.

*†9. Professional Activities (Men). (1½) I. Mr. Hollingsworth, Mr. Curtis
Designed for major and minor students in physical education. Fundamental knowledges and skills in track and field, and tumbling and apparatus.

* Not to be given, 1956-1957.

† The University requirements in physical education referred to in this section cover Physical Education 1 (men and women), ½-unit courses which are required of students in the freshman and sophomore years.

‡ This course may be accepted in lieu of the required course, Physical Education 1, with the consent of the adviser.

§ The University of California, Los Angeles, does not offer a major in physical education in the College of Letters and Science. A group major in physical education and hygiene is offered in the University at Berkeley. Students planning to transfer to Berkeley and to satisfy the requirements for this major are referred to the GENERAL CATALOGUE, DEPARTMENTS AT BERKELEY.

* Open to nonmajor students only by consent of the instructor.

23. Recreational Activities. (2) I, II.

Mr. Pike, Mr. Johnson

An introduction to a variety of social recreational activities, with opportunity for planning, participation, and leadership in music, dramatics, games and sports, camping, arts and crafts, dance, informal gatherings, and hobbies.

***24. Water Safety Instruction. (2) Men: I, II. Women: II.**

Mr. Park, Mr. Curtis

Men: The Senior Red Cross Life Saving and Instructor's Certificate will be issued to those students who meet the requirements. Qualifying test required.

Women: Instructor's Certificate will be issued to those students who meet the requirements.

***27A. Elementary School Physical Education Activities. (1) I, II.**

Prerequisite: sophomore standing.

Miss Latchaw, Mr. Nagel

Participation in playground activities designed for the elementary school child; emphasis on skills and knowledge leading to proficiency in physical education.

***27B. Elementary School Physical Education Activities. (1) I, II.**

Prerequisite: sophomore standing.

Miss Latchaw, Mr. Pillich, _____

Participation in physical education activities in the classroom, gymnasium, and rhythm room which are designed for the elementary school child.

§29. Professional Activities (Women). (3) I.

Open only to students with a major or minor in physical education.

An introduction to the field of physical education. Sports and dance activity units are approached through a study of competencies, skills, and personal qualities needed for teaching.

§30. Professional Activities (Women). (3) II.

Open only to students with a major or minor in physical education.

An introduction to the field of physical education. Sports and dance activity units are approached through a study of competencies, skills, and personal qualities needed for teaching.

§31. Professional Activities (Women). (3) I.

Open only to students with a major or minor in physical education.

Sports, games, and dance activities to develop further the competencies needed for teaching. Emphasis upon preparation for and experience in working with youth in a community situation.

§32. Professional Activities (Women). (3) II.

The Staff

Open only to students with a major or minor in physical education.

Sports, games, and dance activities to develop further the competencies needed for teaching. Emphasis upon preparation for and experience in working with youth in a community situation.

* Open only to students who are to be candidates for the elementary school credential and students majoring in recreation. Lower division students may not take these courses concurrently. Elementary and recreation education students may substitute this course for the required course, Physical Education 1, for the two semesters in which they are enrolled in Physical Education 27A and Physical Education 27B.

§ Students may substitute this course for the required course, Physical Education 1, for the semester in which they are enrolled.

* Open to nonmajor students only by consent of the instructor.

*†34. Stage Movement. (2) II.

Four hours, lecture and laboratory.

Study of the principles of physical timing, rhythm, and control in the acting situation.

35. Music Analysis for Dance Accompaniment. (2) I.

Mrs. Gilbert

Analysis of musical forms and structure in relation to their use in dance forms. A workshop class in study of rhythms, using piano and percussion instruments.

42. Orientation in Rehabilitation. (2) I.

Miss Hunt

A survey of rehabilitation and its ancillary services with reference to professional opportunities. Emphasis is placed upon physical therapy, occupational therapy, and physical education and recreation in rehabilitation.

†§43. Recreation for the Exceptional. (2) II.

Miss Hunt

Recreational activities as a means of rehabilitation for the exceptional child and adult in community or hospital. Includes group organization, teaching techniques, and modification of activities. Designed for social workers, nurses, therapists, recreation leaders, and teachers.

44. Principles of Healthful Living. (3) I, II.

Mr. Sutton, Mrs. Bell, Mr. Richardson, Mr. Nagel, Miss Thomson

Fundamentals of healthful living designed to provide scientific health information, and promote desirable attitudes and practices. A prerequisite to Physical Education 330 for all elementary school credential candidates.

UPPER DIVISION COURSES

100. Analysis of Human Movement. (5) I, II. Miss Hunt, Mr. Sellwood

Prerequisite: Zoology 15, 25.

Analysis of human movement based upon the integration of kinesiology and physiology of activity.

102. Adapted Physical Education. (3) I, II. Miss Hunt, Mr. Sellwood

Prerequisite: course 100.

Concerned with growth and developmental patterns with implications for special and regular physical education programs. Includes an analysis of postures and divergencies, with procedures for prevention and correction within the public schools.

103. Advanced Adapted Physical Education. (3) I.

Miss Hunt

Prerequisite: course 102.

For students with major interest in Adapted Physical Education. Study of prevalent disabilities and the general organization and supervision of adapted programs. Includes laboratory experiences in the University and community. This course is a prerequisite for student teaching in corrective physical education.

104. Neuromuscular Reeducation. (3) I.

Mr. Logan

Prerequisite: course 102 or consent of the instructor.

Appraisal of neuromuscular limitations as a basis for selection of activities for rehabilitation.

§ Students may substitute this course for the required course, Physical Education 1, for the semester in which they are enrolled.

* Theater arts majors may substitute this course for the required courses, Physical Education 1, for the semester in which they are enrolled.

† Open to nonmajor students only by consent of the instructor.

106. Massage. (2) II.

Miss Davies

Prerequisite: course 100 or consent of the instructor.

Survey and practice of massage and relaxation techniques. Does not include massage for pathological conditions.

130. History and Principles of Physical Education. (2) I, II.

Mr. Morehouse, Miss Brown

An historical analysis of the forces and factors affecting programs of physical education. Philosophical bases are developed from which basic principles are evolved to serve as guides in the profession.

131. Administration of Physical Education. (3) I, II.

Mr. B. W. Miller, Miss Thomson

An analysis and study of the underlying philosophy, principles, policies, and procedures of administration as applied to physical education. Legal aspects and the interrelationships with the general school curriculum at the local, state, and national levels are considered.

132. Conduct of the Program of Sports. (2) I.

Section 1. Women physical education majors.

Miss Brown

Section 2. All others.

Mr. N. P. Miller, Mr. Strehle

Prerequisite: for women physical education majors, courses 130, 326A, and 326B, or consent of the instructor; no prerequisite for recreation majors.

A study of the principles and policies underlying the program of sports in the secondary schools and community centers; class management, organization of clubs, tournaments, care of equipment and facilities, program planning, and sports days. Intramural sports and other laboratory experiences required.

***133. Organization of the Class (Men). (2) I, II.**

Mr. Handy

One lecture and two laboratory periods.

Teacher responsibilities in class organization and management on the secondary school level.

135. Evaluation Procedures. (2) I.

Miss Latchaw

Introduction and general acquaintance with basic tools and techniques through the interpretation of tests and measurements, rating scales, observation, and other evaluation procedures in health, physical, and recreation education.

138. Recreation and the School. (2) I, II.

Mr. Gabrielsen

The role of the school and its staff in the total community recreation program. A study of school and community recreation programs, with emphasis on basic principles, organization, and administration, supplemented with field trips.

139. Principles of Recreation. (3) I, II.

Mrs. Arnold

A consideration of philosophy and foundations of recreation, the environmental factors influencing it, and the basic principles underlying community organization and professional practice in recreation.

140. Organization of Community Recreation. (3) II.

Mrs. Arnold

Prerequisite: course 139 or consent of the instructor.

A study of the organization of recreation in the community, with implications for the administration of public and voluntary agency programs.

141. Club Activities. (2) I.

Mrs. Arnold

An analysis of the activities of clubs of various types, with emphasis upon leadership requirements and program planning to meet needs and interests of groups.

142A. Outdoor Education. (2) II.

Mr. Pike

A study of camping and outdoor education philosophy and practices including: the selection, use and care of camping equipment; trip planning; camp site development; preparation and care of food; outdoor science education; and conservation education. Laboratory experience required. Prerequisite for course Physical Education 142B.

142B. Outdoor Education Leadership. (2) I.

Mr. Pike

A study of the camping and outdoor education program of public and private agencies and the role of the counselor as a leader and teacher. Field trips required. Prerequisite: course 142A or consent of the instructor.

143. Problems in Group Work. (2) II.

Mrs. Arnold

Principles and procedures of group work in recreation, with emphasis on group structure, community relations, and program planning.

144. Recreation Survey. (2) I.

Mrs. Arnold

An examination of the fields and methods of recreation research, with special emphasis on the design and administration of the community recreation survey.

145A. School Health Education. (3) I, II.

Mr. Sutton, Mr. Johns, Miss Abernathy

Prerequisite: course 44 or consent of the instructor.

A study of the school health program as an integral part of the school curriculum; the underlying principles and functions of health instruction, health service, healthful school living; and the contributing community health agencies.

145B. School Health Education. (3) I, II.

Mr. Sutton, Mr. Johns, Miss Brown

Prerequisite: courses 44, 145A, or consent of the instructor.

A synthesis of the major areas of health education in the elementary and secondary school program, including safety education.

146. Social Aspects of Health. (2) I, II.

Mrs. Bell

Prerequisite: course 44 or consent of the instructor.

A study of the basic health factors underlying democratic society, with special emphasis on health as a social problem.

147. Development of Modern Health Problems. (3) I, II.

Miss Thomson, Mrs. Bell

Prerequisite: course 44 or consent of the instructor. Open to elementary school credential candidates.

A study of the history and development of modern health problems, with special emphasis on interpretation of their effect on individuals and community life.

150. History of Dance and the Related Arts. (2) I.

Mrs. Scothorn

A survey of the historic development of various media of expression, interrelating these arts: dance, music, painting, sculpture, architecture, literature, and poetry.

151. **History of Dance in America.** (2) II. Mr. Pillich
152. **Organization of Public Performances.** (2) II. Miss Hyde
Consideration of purpose, sources of materials, production procedure for folk festivals, dance recitals, and other special events.
- 153A-153B. **Dance Composition Workshop.** (2-2) Yr. Mrs. Scothorn
Prerequisite: consent of the instructor.
Analysis of the elements and process of dance composition, and practice in individual and group composition and evaluation.
154. **Advanced Music Analysis for Dance.** (2) II. Mrs. Gilbert
Prerequisite: course 35 or consent of instructor.
Piano and percussion improvisation; analysis of music for the dance; the historical development of musical forms used in dance; building an accompanist's repertoire.
155. **Folk Festivals.** (2) II. Mr. Johnson
Prerequisite: one semester of folk dance or consent of the instructor.
Study of folklore in relation to festivals and pageants. The preparation of an original festival.
160. **Counseling in the Health, Physical, and Recreation Education Program.** (2) II. Miss Cassidy
A study of the counseling responsibilities and procedures of teachers and leaders in all three professional areas.
171. **Conditioning of Athletes and Care of Injuries (Men).** (2) I, II. Mr. Logan
Lecture, one hour; laboratory, two hours.
Prerequisite: course 102 or consent of the instructor.
Anatomical and physiological approach to conditioning as it relates to athletic teams. Prevention, examination, and care of athletic injuries, methods of taping, bandaging, and therapeutic exercises applied to athletic injuries; diets; training room equipment, protective devices, and supplies.
- 190A-B-C-D-E-F. **Field Work in the Profession.** (3 units each) I, II.
Observation and practical experiences in public, private, and/or voluntary agency programs.
- 190A-190B. **Rehabilitation.** Mr. Young
Prerequisite: course 102 or consent of the instructor.
- 190C-190D. **Recreation.** Mr. Gabrielsen, Mrs. Arnold
Prerequisite: course 140 or consent of the instructor.
- 190E-190F. **Health Education.** Mr. Johns
Prerequisite: Public Health 134 or consent of the instructor.
199. **Special Studies in the Profession (Individual).** (1-4) I, II. Beginning either semester. Mr. B. W. Miller
Prerequisite: consent of the instructor.

GRADUATE COURSES

201. **Secondary School Curriculum in Physical Education.** (2) II. Mr. Handy, Miss Brown
Seminar and laboratory assignments.
A study of physical education programs based on the needs of boys and girls in American secondary schools. (Required of fifth-year students preparing for the general secondary credential.)
227. **Comparative Study of Materials and Methods in Dance.** (2) II. Miss Hawkins
A study of educational ideas and practices as they relate to the various forms of dance, primarily designed for students in the fifth-year preparing for the general secondary credential.

- 230. The Elementary School Program in Health, Physical, and Recreation Education. (2) II.** Mr. Nagel
 Prerequisite: consent of the instructor.
 The study of administrative, supervisory, instructional, and curricular problems and practices in elementary school programs of health, physical, and recreation education.
- 235. Advanced Evaluation Procedures. (2) II.** Miss Latchaw
 Prerequisite: course 135 or consent of the instructor.
 Study and application of advanced evaluation procedures and scientific instruments in the solution of professional problems and projects.
- 245. Curriculum Development in Health Education. (2) II.** Mr. Johns
 Prerequisite: course 145A-145B or consent of the instructor.
 The development of the health instruction program based on the health needs of school-age children. The formulation of objectives, scope and sequence of instruction, the examination of teaching methods, source materials, community resources, and evaluation procedures.
- 250. Changing Perspectives in the Profession. Seminar. (2) I, II.**
 Seminar and group conferences. Mr. Snyder, Miss Abernathy
 A student-staff examination of changing perspective in the field directed toward the formulation of a working professional philosophy in the fields of health education, physical education, and recreation, including a historical development.
- 254. Current Problems in Health Education. (2) I.** Mr. Johns
 A critical analysis of new findings in the basic health education areas (nutrition, mental health, family health, consumer health, safety, communicable and chronic diseases) contributing to healthful living in the family, school, and community.
- 255. Administrative Interrelationships in Health Education. Seminar. (2) II.** Mr. Johns
 Prerequisite: consent of the instructor.
 A consideration of the principles, policies, and practices involved in the interrelationships of the school curriculum, the public and private health agencies in the community.
- 256. Administrative Problems in Physical Education. Seminar. (2) I.** Mr. B. W. Miller
 A consideration of policies, problems, and practices in school and college physical education administration; interrelationships with the general curriculum, and among the local, state, and federal levels.
- 257. Administrative Problems in Recreation. Seminar. (2) II.** Mr. N. P. Miller
 A consideration of policies, problems, and current administrative practices and interrelationships in public and private recreation agencies at the local, state, and national levels.
- 258. Problems in Adapted Physical Education. (2) II.** Mr. Young
 Identification and solution of problems in the administration, supervision, instruction, curriculum, research, evaluation, and personnel services in adapted physical education at the local, state, and national levels.
- 259. Intertherapy Education. Seminar. (2) I.** Mr. Young
 Prerequisite: consent of the instructor.
 The scope, functions, and interrelationships of physical therapy, occupational therapy, recreational therapy, and adapted physical education pertaining to programs of prevention, treatment, and adjustment in the schools and community.

- 265. Foundations of the Curriculum. Seminar. (2) I.** Miss Cassidy
A study of the process of present-day curriculum making in physical education based on a critical analysis of the areas of individual and group needs in contemporary society. Students may center their individual studies at elementary, secondary, or college level.
- 266. Social Bases of the Profession. Seminar. (2) I.** Miss Abernathy
Analysis of the social forces and relationships bearing on the fields of health education, physical education, and recreation, and the significant role of the professional person in these areas.
- 267. Physiological Bases of the Profession. Seminar. (2) II.** Mr. Morehouse
Critical analysis of the physiological bases of health education, physical education, and recreation, with special attention to concepts from which principles and criteria of the profession are derived.
- 275. Seminar in Health, Physical, and Recreation Education. (2) I, II.** Mr. Young, Mr. Morehouse
An exploration of research in the profession and a critical evaluation of needed studies through survey of literature and other sources leading to the identification and analysis of individual research problems.
- 276. Methods of Research in Health, Physical, and Recreation Education. (2) I, II.** Mr. Massey
Prerequisite: course 275 or consent of the instructor.
The scientific methods and techniques of research in the organization, solution, and writing of theses, dissertations, and other research studies and projects.
- *280. Research in Health, Physical, and Recreation Education. Seminar. (2) I, II.** Mr. Massey
Prerequisite: consent of the instructor.
Individual and group analysis of student research problems in progress through discussion, interpretation, and critical evaluation of research methods and resources.
- 299. Independent Study. (2-4) I, II.** Mr. B. W. Miller
Prerequisite: course 275 or the equivalent and consent of the instructor.
Individual investigation of a special professional problem based on the research needs and interests of the student and developed and written according to acceptable research standards.

PROFESSIONAL COURSES IN METHOD

- 326A-326B. Principles of Teaching Sports (Women). (2-2) Yr.** Miss McCann
Must be taken concurrently with course 327A-327B.
Analysis of problems in teaching sports, including safety techniques and game forms, with special reference to their use in planning teaching units and lesson plans. Advanced practice is provided in team activities, with emphasis on the interpretation of rules and the technique of officiating.
- 327A-327B. Principles of Teaching Dance (Women). (2-2) Yr.** Miss Hawkins
Prerequisite or concurrent: course 35 or 154. Must be taken concurrently with course 326A-326B.
A study of methods, curricular materials, and evaluation procedures as related to the teaching of dance in the secondary schools.

* Not to be given, 1956-1957.

330. Health, Physical, and Recreation Education in the Elementary School.
(3) I, II. Miss Anderson, Miss Latchaw, Mr. Nagel

Prerequisite: upper division standing, courses 27A-27B, and 44, or the equivalent, and Education 111. A course to prepare the student to guide elementary school-age children through a well-balanced program in health, physical, and recreation education. Study of aims and objectives, procedures, methods, evaluation and program planning. Prerequisite to all supervised teaching for the kindergarten-primary or general elementary credentials.

370. The Teaching of Physical Education (Men). (3) I, II. Mr. Handy
Lecture, two hours; laboratory, three hours. (Laboratory assignments to be made by instructor.)

Prerequisite: senior standing.

A study of methods, curricular materials, and evaluation procedures in elementary and secondary schools, including directed observation, field experience, class organization, and management of games and relays.

371A-B-C-D. Technique of Teaching Activities (Men). (3-3-3-3)

Lecture, two hours; laboratory, four hours.

Prerequisite: senior standing and consent of instructor.

371A. Basketball and Speedball. I. Mr. Richardson

371B. Baseball and Volleyball. I, II. Mr. Syverson

371C. Football. I. Mr. Duncan

371D. Track and Field, Tumbling, Apparatus. II. Mr. Hollingsworth

A critical analysis of the methods and problems in teaching and coaching. Application is made to the secondary-school teaching situation, with emphasis on lesson planning, development of teaching units, organization for class activity, and administration of the program. Advanced practice is provided in the activities, with emphasis on strategy, selection of players, officiating, interpretation of rules, scoring, scouting, systems of team play, and administration of inter-school meets.

RELATED COURSE IN ANOTHER DEPARTMENT

Integrated Arts 1A-1B. Man's Creative Experience in the Arts. (3-3) Yr.
Mr. With

PHYSICS

Alfredo Bafios, Jr., Dr. Eng., Ph.D., *Professor of Physics.*

Leo P. Delsasso, Ph.D., *Professor of Physics.*

Joseph W. Ellis, Ph.D., *Professor of Physics.*

Joseph Kaplan, Ph.D., *Professor of Physics.*

E. Lee Kinsey, Ph.D., *Professor of Physics (Chairman of the Department).*

Vern O. Knudsen, Ph.D., *Professor of Physics.*

Robert W. Leonard, Ph.D., *Professor of Physics.*

Kenneth R. MacKenzie, Ph.D., *Professor of Physics.*

*J. Reginald Richardson, Ph.D., *Professor of Physics.*

Norman A. Watson, Ph.D., *Professor of Physics.*

*Byron T. Wright, Ph.D., *Professor of Physics.*

Laurence E. Dodd, Ph.D., *Professor of Physics, Emeritus.*

Robert J. Finkelstein, Ph.D., *Associate Professor of Physics.*

Isadore Rudnick, Ph.D., *Associate Professor of Physics.*

* Absent on leave, 1956-1957.

*David S. Saxon, Ph.D., *Associate Professor of Physics.*

*Harold K. Ticho, Ph.D., *Associate Professor of Physics.*

Horace A. Howe, Ph.D., *Visiting Assistant Professor of Physics.*

Michael A. Melkanoff, Ph.D., *Visiting Assistant Professor of Physics.*

Steven A. Moszkowski, Ph.D., *Assistant Professor of Physics.*

John H. Mulvey, Ph.D., *Visiting Assistant Professor of Physics.*

Robert A. Satten, Ph.D., *Assistant Professor of Physics.*

Donald H. Stork, Ph.D., *Assistant Professor of Physics.*

Ralph E. Behrends, Ph.D., *Instructor in Physics.*

Stanley C. Freden, Ph.D., *Instructor in Physics.*



Jürgen Holmboe, M.Sc., *Professor of Meteorology.*

Robert E. Holzer, Ph.D., *Professor of Geophysics.*

Louis B. Slichter, Ph.D., *Professor of Geophysics.*

Letters and Science List.—All undergraduate courses in physics except 370 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major in Physics.—Required: Physics 1A, 1B, 1C, 1D, or, with the consent of a departmental adviser, Physics 2A, 1C, 1D or Physics 2A, 2B; Chemistry 1A, 1B; Mathematics 5A, 5B, 6A, 6B; or 1-3A, 3B, 4A, 4B; or their equivalents.

The Major in Physics.—The following upper division courses in physics, representing at least one course in each of the main subjects in physics, are required: 105, 107, 107C, 108B, 108C, 110, 112, 114A, 121, 113 or 124, 113C or 114C or 124C. An average grade of C or higher must be maintained in the above courses. Required: Mathematics 110AB or 110C or 119A. Strongly recommended: Mathematics 122A-122B. Recommended: a reading knowledge of German and French. This major leads to the degree of Bachelor of Arts in the College of Letters and Science.

Preparation for the Major in Applied Physics.—Required: Physics 1A, 1B, 1C, 1D, or, with the consent of a departmental adviser, Physics 2A, 1C, 1D, or Physics 2A, 2B; Chemistry 1A, 1B; Mathematics 5A, 5B, 6A, 6B, or Mathematics 1-3A, 3B, 4A, 4B, or their equivalents; recommended: mechanical drawing. The last-named course may be taken in high school, University Extension, or elsewhere.

The Major in Applied Physics.—Required: Mathematics 110AB or 110C and one of the following groups of courses prescribed to give a specialization in some particular field of physics:

(a) *Specialization in electronics:* Physics 105, 107, 107C, 108B, 108C, 110, 112, 114A, 116A, 116B, 116C, 116D, 121, 124.

(b) *Specialization in optics and spectroscopy:* Physics 105, 107, 107C, 108A, 108B, 108C, 109, 112, 113, 113C, 114A, 116A, 116C, 121.

(c) *Specialization in acoustics and electronics:* Physics 105, 107, 107C, 108B, 108C, 112, 114A, 114B, 114C, 116A, 116B, 116C, 116D, 121.

(d) *Specialization in chemical physics:* Physics 105, 107, 107C, 108B, 108C, 112, 113, 113C or 124C, 116A, 121, 124; Chemistry 8, 110A, 110B, 111.

(e) *Specialization in nuclear physics:* Physics 105, 107, 107C, 108B, 108C, 112, 113, 113C, 114A, 116A, 116B, 116C, 121, 124, 124C.

(f) *Specialization in atmospheric physics:* Physics 105, 107, 107C, 108B, 108C, 110, 112 or Meteorology 107, 113, 114A, 116A, 116C, 121, 124; Meteorology 104; Geophysics 155.

An average grade of C or higher must be maintained in the above courses. Recommended: a reading knowledge of German and French. This major leads to a degree of Bachelor of Science in the College of Letters and Science.

* Absent on leave, 1956-1957.

LOWER DIVISION COURSES

Physics 1A, 1B, 1C, and 1D form a sequence of courses in general physics for major students in physics and applied physics. All, or part, of the sequence is also required or recommended as first choice for major students in: astronomy, chemistry, engineering, meteorology, and certain interdepartmental fields of concentration. Students in departments other than those listed and with correct prerequisites may elect course 1A and any other courses in the sequence. (Course 1A is prerequisite to any of the other courses in the sequence.)

Physics 2A and 2B form a one-year sequence of courses in general physics which is required of students specializing in the following fields: agriculture, bacteriology, geology, medical technology, pre dentistry, pre medicine, pre optometry, pre public health, and zoölogy. It is an alternate sequence (but only on approval of the appropriate departmental adviser) for major students in physics, applied physics, astronomy, chemistry, and meteorology. Students in other departments and with correct prerequisites may elect 2A or 2A and 2B. (Course 2A, or 1A, is always prerequisite to course 2B.)

Physics 10 is a one-semester, nonlaboratory course which surveys the whole field of general elementary physics. It is designed primarily for the liberal arts student.

Certain combinations of lower division courses involve limitations of total credit as follows: 2A and 1A or 1B, 5 units; 2A and 1A and 1B, 6 units; 2B and 1C or 1D, 6 units; 2B and 1C and 1D, 7 units. Six units are allowed for 10 and 1A or 1B or 1C or 1D. Seven units are allowed for 10 and 2A or 2B. In general, not more than 12 units of credit will be given for any amount of lower division work. Credit in excess of 12 units will be given only in exceptional cases, when approved by the department.

1A. General Physics: Mechanics of Solids. (3) I, II.

Mr. Watson, Mr. Ellis

Lecture and demonstration, three hours; laboratory, two hours. Prerequisite: high school physics or chemistry; Mathematics 5A, or 1-3A with Mathematics 3B taken concurrently with Physics 1A.

1B. General Physics: Mechanics of Fluids, and Heat. (3) I, II.

Mr. Melkanoff

Lecture and demonstration, three hours; laboratory, two hours. Prerequisite: course 1A; Mathematics 5B, or Mathematics 4A taken previously or concurrently.

1C. General Physics: Electricity and Magnetism. (3) I, II.

Mr. Baños, Mr. Behrends

Lecture and demonstration, three hours; laboratory, two hours. Prerequisite: course 1A or 2A; Mathematics 5B, or 4A taken concurrently.

Upper division credit will be allowed to students who are not majors in physics, who take the course while in the upper division, and who do not have upper division credit for Physics 1D or are not taking Physics 1D for upper division credit.

1D. General Physics: Light and Sound. (3) I, II. Mr. Rudnick, Mr. Ellis

Lecture and demonstration, three hours; laboratory, two hours. Prerequisite: course 1A or 2A; Mathematics 5B, or 4A taken concurrently.

Upper division credit will be allowed to students who are not majors in physics, who take the course while in the upper division, and who do not have upper division credit for Physics 1C or are not taking Physics 1C for upper division credit.

2A. General Physics: Mechanics, Heat, and Sound. (4) I, II.

Mr. Behrends, Mr. Melkanoff

Lectures and demonstrations, four hours; laboratory, two hours. Prerequisite: three years of high school mathematics, or two years of high school mathematics and one 3-unit college course in algebra or trigonometry.

2B. General Physics: Electricity, Magnetism, and Light. (4) I, II.

Mr. Kaplan, Mr. Freden

Lectures and demonstrations, four hours; laboratory, two hours. Prerequisite: course 2A or 1A.

10. General Physics. (3) I, II.

Mr. Kaplan

Prerequisite: high school algebra and plane geometry.

An introductory survey course in classical and modern physics designed primarily for liberal arts students.

Students enrolled in this course who desire laboratory work in lower division physics are referred to course 21 (10).

21. Supplementary Laboratory Courses in General Physics. (1)

Lower Division Staff (Mr. Watson in charge)

These courses, except 21 (10), are intended for students entering the University with partial credit in general physics and are part of the regular work of courses 1A, 1B, 1C, 1D, 2A, and 2B. 21 (10) is intended for students who wish a laboratory supplement to Physics 10. Students should enroll under the appropriate one of the following numbers:

21 (1A). Mechanics of Solids. I, II.

21 (1B). Mechanics of Fluids, and Heat. I, II.

21 (1C). Electricity and Magnetism. I, II.

21 (1D). Light and Sound. I, II.

21 (2A). Mechanics, Heat, and Sound. I, II.

21 (2B). Electricity, Magnetism, and Light. I, II.

21 (10). General Physics. I, II.

UPPER DIVISION COURSES

Prerequisite for all upper division courses: Physics 1A, 1B, 1C, 1D, or 2A, 1C, 1D, or 2A-2B; Mathematics 5A, 5B, 6A, 6B; or 1-3A, 3B, 4A, 4B; or the equivalents. Upper division standing is required for all courses except 105, 107, 107C, 108A, 109, 121.

105. Analytic Mechanics. (3) I, II.

Mr. Delsasso, Mr. Watson

The statics and dynamics of particles and rigid bodies.

107. Electrical Theory and Measurements. (3) I, II. Mr. Stork, Mr. Howe

Lectures on direct and alternating current theory and measurements, and on introductory electronics.

107C. Electrical Measurements Laboratory. (2) I, II. Mr. Stork, Mr. Howe

Laboratory to accompany course 107.

***108A. Geometrical Optics. (3) II.**

Mr. Satten

Lecture, two hours; laboratory, three hours.

Principles of geometrical optics and applications to the design of optical instruments.

- 108B. Physical Optics. (3) I.** Mr. Ellis
Wave motion. Interference, diffraction, absorption, scattering and polarization of light. Crystal optics. Relativity effects in optics.
- 108C. Physical Optics Laboratory. (1) I.** Mr. Satten
Laboratory to accompany 108B.
- 110. Electricity and Magnetism. (3) II.** Mr. Stork
Prerequisite: courses 105 and 107, or consent of the instructor.
A survey of field theory, to include systems of charged conductors and of linear circuits, simple dielectric and magnetic media, and the formulation of Maxwell's equations.
- 112. Thermodynamics and Introduction to Kinetic Theory. (3) I.** Mr. Rudnick
- 113. Atomic Spectroscopy. (3) II.** Mr. Ellis
Black body radiation and the origin of the quantum theory. Atomic spectra and quantum theoretical interpretations. Effects of electron and nuclear spins. X-ray spectra. Zeeman and Stark effects.
- 113C. Spectroscopy Laboratory. (1) II.** Mr. Satten
Prerequisite or concurrent: course 113.
- 114A. Mechanics of Wave Motion and Sound. (3) I, II.** Mr. Watson
Prerequisite: course 105.
Vibration of particles and elastic bodies; mechanical sound sources; propagation in elastic media.
- 114B. Mechanics of Wave Motion and Sound. (3) II.** Mr. Leonard
Prerequisite: course 114A or the equivalent.
Propagation of sound in gases; reflection, refraction, interference, and diffraction of sound; acoustic impedance; applications.
- 114C. Mechanics of Wave Motion and Sound Laboratory. (2) II.** Mr. Leonard
Prerequisite: courses 107 and 107C completed, and 114B completed or taken concurrently, or consent of the instructor.
- 116A. Electronics. (3) II.** Mr. Stork
Prerequisite: course 107 or the equivalent.
The properties of electrons; thermionic and photoelectric emission; conduction of electricity in gases; vacuum tubes, gas tubes, and associated circuits.
- 116B. Electronics. (3) I.** Mr. Leonard
Prerequisite: course 116A or the equivalent.
Wave filters, lines, and wave guides; ultra high frequency generators and measuring equipment.
- 116C. Electronics Laboratory. (2) II.** Mr. MacKenzie
Laboratory to accompany 116A.
- 116D. Electronics Laboratory. (2) I.** Mr. Leonard
Laboratory to accompany 116B.
- 117. Hydrodynamics. (3) I.** Mr. Moszkowski

- 119. Kinetic Theory of Matter. (3) II.** Mr. Finkelstein
Prerequisite: course 112 or the equivalent.
An introduction to the elementary classical and quantum mechanical theories of statistical mechanics. Emphasis is placed on the application to various fields in modern physics such as fluctuation phenomena, low temperature physics, and the theory of metals.
- 121. Atomic Physics. (3) I, II.** Mr. Satten
The atomic nature of matter and atomic composition. The propagation of electromagnetic waves and their interaction with matter. Special relativity. Atomic spectra and electron distribution. Basic concepts of wave mechanics.
- 124. Nuclear Physics. (3) I.** Mr. Howe
Basic nuclear concepts. The origin and interaction with matter of alpha, beta, and gamma rays. Nuclear forces. Neutrons. Nuclear disintegration. Detection equipment. Particle accelerators. Fission.
- 124C. Atomic and Nuclear Physics Laboratory. (1) I.** Mr. Howe
Prerequisite: course 121. Laboratory to accompany course 124.
Electron diffraction. X-ray diffraction. Beta-ray spectroscopy. Neutron absorption. Artificial radioactivity. Rutherford scattering of alpha-particles and other experiments.
- 199. Special Problems in Physics. (1-3) I, II.**
The Staff (Mr. Ellis in charge)

GRADUATE COURSES

- 208. Advanced Classical Optics. (3) I.** Mr. Satten
Propagation of light waves in isotropic and anisotropic media, interference, diffraction, dispersion, scattering, and polarization on the basis of the electromagnetic theory of light. Recommended: course 210A or its equivalent.
- 210A. Electromagnetic Theory. (3) II.** Mr. Baños
An advanced course on electromagnetic theory based on the vector treatment of Maxwell's equations. The vector and scalar potentials, the Hertz polarization potentials, energy considerations, the electrostatic and magnetostatic fields, and a general discussion of plane homogenous waves in unbounded, isotropic media. Boundary value problems.
- 210B. Electromagnetic Theory. (3) I.** Mr. Baños
Theory of wave propagation in cylindrical structures, with particular applications to wave guides and coaxial lines. The general theory of electromagnetic cavity resonators from the point of view of the Lagrangian formulation. Spherical waves and applications to the general problem of radiation. Introduction to relativistic electrodynamics.
- 212. Thermodynamics. (3) I.** Mr. Finkelstein
- *213. Molecular Spectroscopy. (3) I.** Mr. Ellis
- 214. Advanced Acoustics. (3) I.** Mr. Delsasso
- *215. Statistical Mechanics. (3) II.** Mr. Kaplan
- 217. Hydrodynamics. (3) II.** Mr. Holmboe
Not open for credit to students who have credit for Meteorology 217.
- 220A. Theoretical Mechanics. (3) I.** Mr. Kinsey

* Not to be given, 1956-1957.

220. **Theoretical Mechanics.** (3) II. Mr. Kinsey
- 220C. **Quantum Mechanics.** (3) II. Mr. Moszkowski
- 220D. **Quantum Mechanics.** (3) I. Mr. Moszkowski
- 224A. **Nuclear Physics.** (3) I. Mr. MacKenzie
 A summary of the present knowledge and descriptive theory of nuclear forces, nuclear reactions, and radioactivity, with emphasis on a critical evaluation of the experimental evidence, and a discussion of possible future experimental lines of attack on problems in nuclear physics.
- 224B. **Nuclear Physics.** (3) II. Mr. Moszkowski
 An advanced course in the theory of nuclear forces and nuclear radiation, with particular emphasis on the meson theory of nuclear forces and the general application of quantum mechanics to the theory of nuclei.
- *231. **Methods of Theoretical Physics.** (3) I. Mr. Bafos
 An advanced course in which the general mathematical methods employed in the solution of boundary value problems arising in all chapters of theoretical physics are systematically developed and coordinated. A detailed discussion is given of the use of Green's functions, characteristic functions, variational methods, conformal mapping, and of integral equations the solution of which is based on the theory of the Fourier and Laplace transforms.
261. **Seminar in Special Problems in Theoretical Physics.** (1-3) I, II.
 ———, Mr. Finkelstein
262. **Seminar in Physics of the Solid State.** (1-3) I. Mr. Finkelstein
264. **Seminar in Advanced Acoustics.** (1-3) II.
 Mr. Delsasso, Mr. Knudsen
- *266. **Seminar in Propagation of Waves in Fluids.** (1-3) II. Mr. Rudnick
- *268. **Seminar in Atomic Physics.** (1-3) II. Mr. Satten
269. **Seminar in Nuclear Physics.** (1-3) I, II. Mr. MacKenzie
281. **Experimental Techniques in Modern Physics.** (2) II. Mr. MacKenzie
 Essentially a laboratory course with some lectures on the theory of the techniques used. An effort is made to develop a critical research attitude on the part of the student and considerable freedom is allowed in the choice of problems to be attacked. High-vacuum technique, atomic magnetic resonance, magnetic spectrograph, electron diffraction, cloud chamber, electrical counting of particles, conduction of electricity through gases, etc.
284. **Experimental Techniques in Acoustics.** (2) II. Mr. Rudnick
 A laboratory course in experimental acoustics designed to train the student in the techniques and instrumentation used in modern acoustic research.
- 290A-290B. **Research.** (1-6; 1-6) Yr. The Staff (Mr. Kinsey in charge)

RELATED COURSES AND CURRICULUM

GEOPHYSICS

See page 12 for an interdepartmental curriculum in geophysics involving physics and geology.

* Not to be given, 1956-1957

UNDERGRADUATE COURSES

155. Electrical and Magnetic Phenomena of the Atmosphere. (3) II.

Mr. Holzer

A survey of electrical, magnetic, and electromagnetic phenomena of the atmosphere, including the problems of the ionosphere and related problems in geomagnetism.

For other undergraduate courses, see offering of Department of Geology, page 204.

GRADUATE COURSES

250. Seminar in Geophysics. (3) I, II.

Mr. Slichter

Seismology, geophysical prospecting, electromagnetic prospecting. Selected topics in earth physics. The content will vary from year to year.

255. Seminar in Atmospheric Physics. (3) I.

Mr. Holzer

Selected problems in physics of the high atmosphere, electromagnetic waves in ionized media; magnetic noise; atmospheric electrical currents. The content will vary from year to year.

290A-290B. Research. (1-6; 1-6) Yr.

The Staff

This course will include experimental studies in the electromagnetic and seismic model laboratories; research relative to gravity earth-tides (Mr. Slichter). Properties of matter at high pressure (Mr. Griggs). Atmospheric electrical phenomena (Mr. Holzer).

The student may select other special topics in geophysics with the approval of his adviser.

PHYSICAL SCIENCES

PROFESSIONAL COURSE IN METHODS

370. Methods and Materials for Teaching Physical Sciences. (3) II.

Prerequisite: graduate or senior standing. Mr. Bissiri, Mr. Kinsey

Reference books, visual aids, sources of materials and equipment, problems of teaching astronomy, chemistry, geology, meteorology, and physics in the junior and senior high schools; lectures, demonstrations, and field trips.

PHYSIOLOGICAL CHEMISTRY PHYSIOLOGY

(Departments of the School of Medicine)

The departments of Physiology and Physiological Chemistry offer certain courses which are open to qualified graduate students who are not pursuing the professional curriculum of the School of Medicine. For information concerning these courses and advanced degrees available, see the ANNOUNCEMENT OF THE SCHOOL OF MEDICINE, LOS ANGELES, and the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

PLANT PATHOLOGY

Kenneth F. Baker, Ph.D., *Professor of Plant Pathology.*John G. Bald, Ph.D., *Professor of Plant Pathology.*Pierre A. Miller, M.S., *Professor of Plant Pathology (Vice-Chairman of the Department).*Donald E. Munnecke, Ph.D., *Assistant Professor of Plant Pathology.*

The Major.—The major is offered on the Berkeley and Davis campuses. See the PROSPECTUS of THE COLLEGE of AGRICULTURE and consult the appropriate adviser for students in agriculture.

UPPER DIVISION COURSES

120. **Plant Diseases.** (4) I. Mr. Munnecke
Lectures, two hours; laboratory, six hours.
Prerequisite: Botany 1 or the equivalent. Recommended: Bacteriology 1.
A general course treating on the nature, cause, and control of plant diseases.
130. **Diseases of Subtropical Fruit Plants.** (4) I. Mr. Miller
Lectures, three hours; laboratory, three hours.
Prerequisite: Botany 1 or the equivalent. Recommended: Bacteriology 1 and Plant Pathology 120.
The pathology of citrus and other subtropical fruit plants. The distribution, economic importance, nature, cause, and control of the principal diseases.
140. **Diseases of Floricultural Plants.** (3) I. Mr. Baker, Mr. Bald
Laboratory, lecture, and discussion, nine hours. Several field trips.
Prerequisite: Plant Pathology 120 or the equivalent.
The pathology of floricultural plants in relation to cultural practices. Recognition, environmental relations, etiology, and control of important types of diseases.
- 199A-199B. **Special Study for Advanced Undergraduates.** (2-4; 2-4) Yr.
Prerequisite; senior standing and consent of the instructor. The Staff

GRADUATE COURSES

- 265A-265B. **Seminar in Plant Pathology.** (1-1) The Staff
- 282A-282B. **Research in Plant Pathology.** (2-6; 2-6) Yr. The Staff

POLITICAL SCIENCE

- Winston W. Crouch, Ph.D., *Professor of Political Science (Chairman of the Department).*
- Russell H. Fitzgibbon, Ph.D., LL.D., *Professor of Political Science.*
- Malbone W. Graham, Ph.D., *Professor of Political Science.*
- J. A. C. Grant, Ph.D., *Professor of Political Science.*
- Dean E. McHenry, Ph.D., *Professor of Political Science.*
- *Thomas P. Jenkin, Ph.D., *Professor of Political Science.*
- *Foster H. Sherwood, Ph.D., *Professor of Political Science.*
- H. Arthur Steiner, Ph.D., *Professor of Political Science.*
- Frank M. Stewart, Ph.D., *Professor of Political Science.*
- Charles H. Titus, Ph.D., *Professor of Political Science.*
- John C. Bollens, Ph.D., *Associate Professor of Political Science.*
- Ernest A. Engelbert, Ph.D., *Associate Professor of Political Science.*
- David G. Farrelly, Ph.D., *Associate Professor of Political Science.*
- Ivan H. Hinderaker, Ph.D., *Associate Professor of Political Science.*
- Robert G. Neumann, Ph.D., *Associate Professor of Political Science.*
- Charles R. Nixon, Ph.D., *Associate Professor of Political Science.*
- Currin V. Shields, Ph.D., *Associate Professor of Political Science.*
- David T. Cattell, Ph.D., *Assistant Professor of Political Science.*

* Absent on leave, 1956-1957.

*James S. Coleman, Ph.D., *Assistant Professor of Political Science.*
 Dwaine Marvick, Ph.D., *Assistant Professor of Political Science.*
 Douglas H. Mendel, Jr., Ph.D., *Assistant Professor of Political Science.*
 ———, *Instructor in Political Science.*

Letters and Science List.—All undergraduate courses in political science are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Two courses from among courses 1, 2, and 103.

The Major.—Twenty-four units in upper division political science courses numbered from 110 to 199. The work in political science must be so distributed that at least three courses are taken in one of the groups and at least one course in each of three other groups in which the upper division courses of the department are divided: Group I (Courses 110–118), Group II (Courses 120–138), Group III (Courses 141–148), Group IV (Courses 150–159), Group V (Courses 161–168, 117, 133A–133B, 187), and Group VI (Courses 171–187, 166). For details the student should consult a departmental adviser. The student must maintain an average grade of C or higher in all upper division courses in political science.

Related Curricula.—For the curriculum in public service and the curriculum in international relations, students are referred to pages 20 and 14.

LOWER DIVISION COURSES

1. Introduction to Government. (3) I, II.

Mr. Bollens, Mr. Engelbert, Mr. Farrelly, Mr. Hinderaker,
 Mr. Marvick, Mr. McHenry, Mr. Shields

An introduction to the principles and problems of government with particular emphasis on national government in the United States. This course fulfills in part the requirement of American History and Institutions. Students who have credit for American Institutions 101 will receive only one unit of credit for Political Science 1.

2. Introduction to Government. (3) I, II.

Mr. Cattell, Mr. Coleman, Mr. Mendel, Mr. McHenry,
 Mr. Neumann, Mr. Shields

A comparative study of constitutional principles, governmental institutions, and political problems of selected governments abroad.

UPPER DIVISION COURSES

Prerequisite for all upper division courses: upper division standing, except as indicated below.

Courses 101, 102, 103, 104 may not be counted toward upper division requirements for the major.

101. American Institutions. (2) I, II.

The Staff

This course counts toward satisfaction of the "Requirement of American History and Institutions." (See page 23 C of this bulletin.) It may not be applied toward the political science major, and is not open to students who have credit for Political Science 1 or Political Science 3A.

The fundamental nature of the American constitutional system and of the ideals upon which it is based.

* Absent on leave, 1956–1957.

102. Contemporary World Politics. (3) I, II. Mr. Graham, Mr. Mendel
Current problems and issues in the foreign policies of the world powers since World War II, with particular attention to diplomatic, political, and security affairs. Open without prerequisite to both lower and upper division students, but not applicable to the requirements of the major in political science or international relations.

103. Principles of Political Science. (2) I, II. The Staff
Prerequisite: course 1 or 2, or the equivalent.
Principles of political organization; the major institutions and practices of government, such as political parties, legislatures, constitutions, etc., or the functions they perform.

104. Parliamentary Organization and Procedure. (1) I, II. Mr. Marvick
Prerequisite: upper division standing.
Theory and practice of the parliamentary law and procedure of public and private bodies, with particular emphasis on its application to organized groups.
Majors in political science must distribute their upper division work so that they have at least three courses in one of the following groups, and at least one course in each of three other groups.

Group I.—Political Theory

110. History of Political Ideas. (3) I, II. Mr. Jenkin, Mr. Nixon, Mr. Shields
An exposition and critical analysis of the ideas of the major political philosophers and schools from Plato to the seventeenth century.

112. Modern Political Theory. (3) I, II. Mr. Jenkin, Mr. Nixon, Mr. Shields
An exposition and critical analysis of the ideas of the major political philosophers from the seventeenth century to the present.

113. American Political Thought. (3) I, II. Mr. Jenkin, Mr. Nixon, Mr. Shields
A survey of the development of American ideas concerning political authority from Cotton and Williams to the present.

117. Jurisprudence. (3) II. Mr. Sherwood
Development of law and legal systems; comparison of methods and procedure in making and enforcing law in Roman and common law systems; consideration of fundamental legal concepts; contributions and influence of modern schools of legal philosophy in relation to law and government. This course may be counted in either *Group I* or *Group V*.

118. Nature of the State. (3) I. Mr. Jenkin, Mr. Nixon
Prerequisite: course 110, 112, or 113.
A systematic analysis of modern concepts and problems of political association.

Group II.—International Relations

120. Colonies in World Politics. (2) I, II. Mr. Coleman, Mr. Fitzgibbon
A brief survey of the more important historical imperial systems, followed by a study of colonial governments and the problems of imperialism in the world today.

125. Foreign Relations of the United States. (3) I, II.

Mr. Coleman, Mr. Graham, Mr. Neumann, Mr. Steiner

A survey of the factors and forces entering into the formation and carrying out of American foreign policy, with special emphasis on contemporary problems.

126. Latin-American International Relations. (3) I.

Mr. Fitzgibbon

The major problems of Latin-American international relations and organization in recent decades.

127. International Relations. (3) I, II.

Mr. Coleman, Mr. Graham, Mr. Neumann, Mr. Steiner, Mr. Cattell

A general survey of the institutions and agencies of international government, including the United Nations, with major stress on outstanding issues in contemporary diplomacy.

130. World Politics and National Policies: Atlantic Area. (3) I.

Mr. Mendel, Mr. Steiner

A contemporary survey of the foreign policies of the North Atlantic countries and of coöperative efforts to attain political, economic, and military coördination on a regional basis. Replaces Political Science 130A.

131. World Politics and National Policies: Soviet Sphere. (3) II.

Mr. Cattell, Mr. Steiner

A contemporary survey of the foreign policies and aspirations of the Soviet Union and other states in the Soviet bloc; analysis of content and effects of Communist doctrine affecting relations between the Soviet and democratic spheres. Replaces Political Science 130B.

133A-133B. International Law. (3-3) Yr.

Mr. Cattell, Mr. Neumann, Mr. Sherwood

A critical analysis of the general principles of the law of nations as demonstrated in the decisions of international and municipal tribunals and in the practices of nations. This course may be counted in either *Group II* or *Group V*.

136. Problems of the Pacific Area. (3) I.

Mr. Mendel

A survey of contemporary problems of special international interest, with particular reference to Japanese foreign affairs and the Western Pacific area.

138. Far Eastern International Relations. (3) II.

Mr. Steiner

The relations of the countries of the East Asian seaboard, especially China, with their neighbors and the Western Powers, with emphasis on contemporary questions affecting the interests and policies of the United States.

Group III.—Politics

141. Politics. (3) I, II.

Mr. Hinderaker, Mr. Nixon, Mr. Titus

An analysis of political activities, with emphasis on methods of operating, capturing, and creating organizations.

142. Elections. (2) I.

Mr. Titus

An analysis of the history, rules, procedures, techniques, and politics of the American system of elections.

143. Legislatures and Legislation. (3) II.

Mr. Farrelly, Mr. Hinderaker, Mr. Marvick

The functions of legislatures, the organization and procedure of typical legislative bodies, and the problems and principles of law making.

145. Political Parties. (2) I, II.

Mr. Farrelly, Mr. Hinderaker, Mr. McHenry, Mr. Nixon
 Organization, functions, and practices of political parties primarily in the United States.

146. Public Opinion and Propaganda. (2) I, II.

Mr. Hinderaker, Mr. Nixon

Prerequisite: upper division standing only.

A study of the nature and the means of formation of public opinion. Public opinion as a factor in popular government and as a control device in the modern state, with special reference to current conditions in American democracy.

147. Political Behavior Analysis. (3) I.

Mr. Marvick

An introduction to quantitative methods in the study of political behavior, especially in relation to voting patterns, political participation, and techniques of political action.

148. Public Relations. (2) I, II.

Mr. Hinderaker, Mr. Titus

An analysis of principles, activities, problems, and distinctive types of organizations in the field of public relations.

Group IV.—Comparative Government

150A–150B. The Governments of Latin America. (3–3) Yr.

Mr. Fitzgibbon

A study of the constitutional development, governmental organization and operation, and political practices and attitudes in Latin-American states. Neither semester is prerequisite to the other; either semester may be taken separately.

152. British Government. (3) I. Mr. Jenkin, Mr. Coleman, Mr. McHenry

The government and politics of the United Kingdom; the British constitution, parliament, parties and elections, foreign policies, administrative problems, and local governments.

153. The British Commonwealth of Nations. (2) II.

Mr. McHenry

The constitutional and political relations of the United Kingdom and dominion governments; the governments of Canada, Australia, New Zealand, and the Union of South Africa.

154. The Governments of Central Europe. (3) II.

Mr. Neumann

An intensive study of the political and constitutional organization of Germany and Danubian Europe, with special attention to contemporary political issues, parties, elections, and foreign relations.

155. The Governments of Eastern Europe. (3) I, II.

Mr. Cattell, Mr. Neumann

An intensive study of the political and constitutional organization of the Soviet Union and its component parts, with special attention to contemporary political issues, parties, elections, and foreign relations.

156. The Governments of Tropical Africa. (3) I, II.

Mr. Coleman

The governments of the independent states and dependent territories of Africa south of the Sahara and north of the Union of South Africa, with special reference to comparative colonial policies, nationalism, and the problems of nation building.

157. **Governments of Western Europe.** (3) I. Mr. Cattell, Mr. Neumann
The constitutional and political structure and development of the countries of western continental Europe, with special attention to contemporary problems.

158. **Japanese Government and Politics.** (3) II. Mr. Mendel
The structure and operation of the contemporary Japanese political system, with special attention to domestic political forces and problems.

159. **Chinese Government and Politics.** (3) I. Mr. Steiner
Organization and structure of Chinese government, with particular attention to the policies, doctrines, and institutions of Chinese communism; political problems of contemporary China.

Group V.—Public Law

161. **The Anglo-American Legal System.** (3) I, II. Mr. Grant
Evolution of the English common law courts and their legal system, with special emphasis on the contributions made by canon law, the law merchant and equity; the theory of *stare decisis* as illustrated by the evolution of modern rules of negligence.

166. **Administrative Law.** (3) I. Mr. Sherwood
The rights, duties, and liabilities of public officers; relief against administrative action; extraordinary legal remedies; jurisdiction, conclusiveness, and judicial control; legal principles and tendencies in the development of public administration. This course may be counted in either *Group V* or *Group VI*.

167A. **Constitutional Law.** (3) I, II. Mr. Farrelly, Mr. Grant
General principles of constitutional law, federal and state; relations and powers of the federal government and the states.

167B. **Constitutional Law.** (3) I, II. Mr. Farrelly, Mr. Grant
Limitations on the federal government and the protection accorded to individual rights under the American constitutional system.

168. **Government and Business.** (3) I, II. Mr. Grant
Governmental activities in the preservation and regulation of competition, with special emphasis upon problems of administration and intergovernmental cooperation; regulation of trades and professions.

Group VI.—Public Administration and Local Government

171. **State and Local Government.** (3) I, II. Mr. Bollens, Mr. Crouch, Mr. Stewart
Development of state constitutions; the political, administrative, and judicial systems of state and county government; and relations between the state and local rural government, with special reference to California.

172. **Municipal Government.** (3) I, II. Mr. Bollens, Mr. Crouch, Mr. Stewart
A study of the modern municipality in the United States; legal aspects of city government; local election problems; types of municipal government; problems of metropolitan areas; relationship of the cities to other units; problems bearing on city government today.

181. **Principles of Public Administration.** (3) I, II. Mr. Bollens, Mr. Crouch, Mr. Engelbert, Mr. Stewart
Development of public administration and its relation to other branches of government; the process of centralization; the process of integration; reorganization of administration; budgets; purchasing; problems of personnel; and types of control of the administration.

183. Problems in Public Administration. (3) II.

Mr. Engelbert, Mr. Bollens, Mr. Stewart

Problems of policy, organization, and procedure in selected fields of public administration, with emphasis on administrative functions.

184. Municipal Administration. (3) II.

Mr. Bollens, Mr. Crouch, Mr. Stewart

A study of governmental functions performed at the municipal level, such as planning, zoning, water supply, housing, recreation and parks, public health, traffic, law enforcement, public works, and municipal finance; development of modern concepts of administration in local areas.

185. Public Personnel Administration. (3) I. Mr. Crouch, Mr. Engelbert

Evolution of public employment policies; a study of the principles and practices of public service personnel, including recruitment, promotion, morale and discipline, retirement, classification, compensation, unions of employees, organization of the personnel agency, and training for public employment.

186. National Policy and Administration. (3) I.

Mr. Crouch, Mr. Engelbert, Mr. Marvick

A study of the major policies and programs of the national government and their administration as illustrated in such areas as national defense, social welfare, agriculture, etc. Particular attention will be paid to the role of the President and other administrators in formulating public policy and in maintaining a responsible bureaucracy.

187. The Administrative Process. (3) II. Mr. Sherwood, Mr. Crouch

An analysis of (1) judicial control of the way in which administrative agencies operate, and (2) within these limits, the most effective procedures as demonstrated by experience. This course may be counted in either *Group V* or *Group VI*.

*Ungrouped***199. Special Problems in Political Science. (1-3) I, II.**

Prerequisite: credit for 6 units of upper division courses in political science, and the special requirements necessary for the field selected for special study. Permission to register for this course is required.

Section 1. Techniques of Legal Research. Mr. Farrelly, Mr. Sherwood

Section 2. Problems in International Relations.

Mr. Coleman, Mr. Graham

Section 3. Readings in Political Theory.

Mr. Jenkin, Mr. Nixon, Mr. Shields

Section 4. Methods of Administrative Management.

Mr. Bollens

Section 5. Problems in Comparative Government.

Mr. Graham, Mr. Neumann

Section 6. Problems in Politics and Legislation.

Mr. Hinderaker

Section 7. Problems in Latin-American Political Institutions.

Mr. Fitzgibbon

Section 8. Problems of the Pacific Area.

Mr. Steiner

Section 9. Problems of the British Empire.

Mr. McHenry

Section 10. Problems in Public Administration.

Mr. Engelbert

Section 11. Individual Study.

The Staff

GRADUATE COURSES

Prerequisite for graduate courses 211 through 228: satisfactory completion of at least two upper division courses in the field, or the equivalent.

- 203. Scope and Methods. (3) I, II.** Mr. Farrelly, Mr. Shields, Mr. Marvick
The scope, methods, techniques, interrelationships, and literature of political science as a whole. The course includes an examination of the historical development of political science, of its relation to other social sciences, of methods of dealing with problems of political science, and of techniques of research. Required of all candidates for a graduate degree.
- 211. Political Theory. (3) II.** Mr. Jenkin, Mr. Nixon
An analysis of the central problems of political theory and their relation to allied disciplines.
- 212. International Relations. (3) II.** Mr. Steiner
An intensive analysis of the principles and practices of international organization, chiefly as illustrated in the operation of the United Nations and its specialized agencies.
- 214. Politics. (3) II.** Mr. Hinderaker, Mr. Nixon, Mr. Titus
An analysis of political leaderships, with emphasis on the American presidency and its relation to various aspects of American politics, including Congress, political parties, elections, and public opinion.
- 215. Comparative Government. (3) I.** Mr. McHenry, Mr. Neumann, Mr. Fitzgibbon
An intensive and systematic analysis, employing the comparative approach, of the basic principles and problems of government of the major states and areas.
- 216. Public Law. (3) I.** Mr. Sherwood, Mr. Grant
A systematic analysis of the scope and nature of public law, with particular attention given to its materials and methods as illustrated in concepts and doctrines drawn from various of its subject fields.
- 218. Public Administration and Local Government. (3) I, II.** Mr. Bollens, Mr. Crouch, Mr. Engelbert, Mr. Stewart
The nature and scope of public administration and its role in a democratic society; basic problems in the execution of public policies on all levels of government, such as organization, personnel, finance, internal management, administrative powers and responsibilities, intergovernment relationships, and the impact of public opinion, pressure groups, and political parties on administration.
- 228. Administrative Management. (3) II.** Mr. Crouch, Mr. Stewart
An intensive study of the role of the modern budget process and of the personnel program in government administration. This course is required for candidates for the M.P.A. degree; it may be elected by other qualified graduate students.

GRADUATE SEMINARS

Prerequisite for all graduate seminars: advance consent of instructors.

- 250. Seminar in Governments and International Relations of Latin America. (3) II.** Mr. Fitzgibbon
- 252. Seminar in Public Law. (3) II.** Mr. Farrelly, Mr. Grant, Mr. Sherwood
- 253. Seminar in International Relations. (3) I, II.** Mr. Graham, Mr. Neumann, Mr. Steiner
- 254. Seminar in Public Administration. (3) I.** Mr. Crouch, Mr. Engelbert, Mr. Stewart

256. Seminar in Comparative Government. (3) I, II.
Mr. Graham, Mr. McHenry, Mr. Neumann, Mr. Steiner
257. Seminar in Political Theory. (3) I, II.
Mr. Jenkin, Mr. Nixon, Mr. Shields
259. Seminar in Political and Electoral Problems. (3) I.
Mr. Hinderaker, Mr. Nixon, Mr. Titus
262. Seminar in Municipal Government. (3) I. Mr. Bollens, Mr. Crouch
263. Seminar in Political and Administrative Aspects of Planning. (3) II.
Mr. Engelbert
298. Special Study and Research for M.A. Degree Candidates. (1-3) I, II.
The Staff
299. Special Study and Research for Ph.D. Degree Candidates. (2-6) I, II.
The Staff
- 401A-401B. Internship in Public Service. (1-3) I, II. Mr. Bollens
Directed work in applying the techniques of public administration during a period of service in a governmental agency. A required course for students enrolled in the Master of Public Administration program. Open to other properly qualified graduate students upon application.

BUREAU OF GOVERNMENTAL RESEARCH

The Bureau of Governmental Research was established in 1937 chiefly to perform the three functions of: (1) maintaining a collection of current pamphlets, periodicals, and documents relating to public administration and local governments; (2) providing facilities for upper division and graduate students and members of the faculty to pursue study and research in public administration, local government, and related fields; and (3) conducting studies of governmental functions of particular interest to southern California and coöperating with public officials in solving their administrative problems.

Further information may be obtained by consulting the Director, Room 46, Library.

PORTUGUESE

For courses in Portuguese, see under Department of Spanish and Portuguese.

PSYCHOLOGY

Roy M. Dorcus, Ph.D., *Professor of Psychology and Professor of Psychology in the School of Medicine.*

Franklin Fearing, Ph.D., *Professor of Psychology.*

Joseph A. Gengerelli, Ph.D., *Professor of Psychology.*

Howard C. Gilhousen, Ph.D., *Professor of Psychology (Chairman of the Department).*

Milton E. Hahn, Ph.D., *Professor of Psychology.*

¹Bruno Klopfer, Ph.D., *Clinical Professor of Psychology.*

George F. J. Lehner, Ph.D., *Professor of Psychology.*

Donald B. Lindsley, Ph.D., *Professor of Psychology and Professor of Psychology in the School of Medicine (Psychiatry).*

¹ In residence fall semester only, 1956-1957.

- John P. Seward, Ph.D., *Professor of Psychology.*
 †Marion A. Wenger, Ph.D., *Professor of Psychology.*
 Kate Gordon Moore, Ph.D., *Professor of Psychology, Emeritus.*
 Richard Centers, Ph.D., *Associate Professor of Psychology.*
 James C. Coleman, Ph.D., *Associate Professor of Psychology.*
 S. Carolyn Fisher, Ph.D., *Associate Professor of Psychology.*
 F. Nowell Jones, Ph.D., *Associate Professor of Psychology.*
 George E. Mount, Ph.D., *Associate Professor of Psychology and Associate Professor of Engineering.*
 Jessie L. Rhulman, Ed.D., *Associate Professor of Psychology.*
 Richard P. Barthol, Ph.D., *Assistant Professor of Psychology.*
 Wendell E. Jeffrey, Ph.D., *Assistant Professor of Psychology.*
 Erwin J. Lotsof, Ph.D., *Assistant Professor of Psychology.*
 Andrew L. Comrey, Ph.D., *Assistant Professor of Psychology.*
 Irving Maltzman, Ph.D., *Assistant Professor of Psychology.*
 Bertram H. Raven, Ph.D., *Assistant Professor of Psychology.*
 †Joseph G. Sheehan, Ph.D., *Assistant Professor of Psychology.*
 Charles Y. Nakamura, Ph.D., *Instructor in Psychology.*
 Zanwil Sperber, Ph.D., *Instructor in Psychology.*



- Laurence A. Petran, Mus.M., Ph.D., *Professor of Music and University Organist.*
 Harry W. Case, Ph.D., *Professor of Engineering and Professor of Psychology.*
 Ruth S. Tolman, Ph.D., *Clinical Professor of Psychology.*
 Bertram R. Forer, Ph.D., *Associate Clinical Professor of Psychology.*
 Harry M. Grayson, Ph.D., *Associate Clinical Professor of Psychology.*
 Harrington V. Ingham, M.D., *Associate Clinical Professor of Psychology and Neuropsychiatrist, Student Health Service.*
 Frank J. Kirkner, Ph.D., *Associate Clinical Professor of Psychology.*
 Morse P. Manson, Ph.D., *Associate Clinical Professor of Psychology.*
 John R. Schlosser, Ph.D., *Associate Clinical Professor of Psychology.*
 J. Arthur Waites, *Associate Clinical Professor of Psychology.*
 Dorothy M. Clendenen, Ed.D., *Lecturer in Psychology and Manager, Student Counseling Center.*
 Warren H. Schmidt, Ph.D., *Lecturer in Psychology.*
 Elise S. Hahn, Ph.D., *Associate Professor of Speech and Associate in the Psychological Clinic.*
 Dorothy V. Anderson, Ph.D., *Assistant Clinical Professor of Psychology.*
 F. Harold Giedt, Ph.D., *Assistant Clinical Professor of Psychology.*
 Mathew Ross, M.D., *Assistant Clinical Professor of Psychology and Neuropsychiatrist, Student Health Service.*
 Charlyne T. Seymour, Ph.D., *Assistant Clinical Professor of Psychology.*
 Barbara M. Stewart, Ph.D., *Assistant Clinical Professor of Psychology.*
 Frances B. Berres, M.A., *Associate in the Clinic School.*
 Evelyn Gentry Hooker, Ph.D., *Research Associate in Psychology.*
 Margaret Hubbard Jones, Ph.D., *Research Associate in Psychology.*
 Irving Weschler, Ph.D., *Assistant Professor of Personnel Management, Assistant Research Psychologist, Institute of Industrial Relations, and Lecturer in Psychology.*

† In residence fall semester only, 1956-1957.

Letters and Science List.—All undergraduate courses in psychology are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Required of all majors: Psychology 1A-1B. Students who have upper division status and who have had 6 or more units of credit in lower division psychology but have not had 1B, will be required to take it if they are not eligible to take Psychology 108. Upper division students changing to psychology should consult an adviser regarding lower division requirements. (For nonmajors, course 101 will be acceptable as prerequisite for certain upper division courses as specified on page 323.

Recommended: courses from the following areas according to the student's interests: (a) natural science such as physics, chemistry, zoology, physiology; (b) social science such as anthropology, sociology, economics, political science, history; (c) mathematics, statistics; (d) humanities such as philosophy, languages, literature, art, music, drama.

Recommended for students who expect to do graduate study in psychology, at least 18 units, distributed among the following: (a) 6 units of cultural or social anthropology and/or sociology; (b) not less than 3 units of college chemistry; (c) one year of college physics, including laboratory; (d) college algebra and analytic geometry or mathematics for the social and life sciences; (e) not less than one year of work chosen from the following: general zoology, elementary physiology, elementary zoology and physiology, applied human physiology, general physiological biology, endocrinology, genetics. These students should also plan to take such courses as will give them the reading knowledge of two foreign languages required for the Ph.D. degree.

The Major.—Courses 105A, 106A, 126, 137, and 145A or 147, plus other upper division courses in psychology, to total not less than 24 upper division units. Upper division courses in other departments may not be substituted for this requirement. Courses 105A, 106A, 126, and 137 to be taken in the junior year. Students coming to this campus in the second semester of the junior year or later, or who have changed to a psychology major late in their college career, will be asked to take these courses at the earliest opportunity. Normally, 105A and 126 will be taken in the first semester of the junior year, and 106A and 137 in the second semester.

Requirements for the M.A. Degree.—The department follows Plan II. (See page 65.) Detailed statements of the requirements and types of examinations may be obtained in the departmental office.

Requirements for the Ph.D. Degree.—In addition to the general requirements of the Graduate Division, students intending to become candidates for the Ph.D. degree must pass a series of examinations designated as Examinations A, B, and C. The department will endorse petitions for candidacy, and will request the appointment of doctoral committees only for applicants who have passed the examinations with credit. Detailed statements of the requirements and a summary of graduate work in Psychology may be obtained from the departmental office.

LOWER DIVISION COURSES

1A. Introductory Psychology. (3) I, II. Mr. Gengerelli in charge
(Former number, 21.)

Consideration of facts and principles pertaining to the topics of perception, imagination, thought, feeling, and emotion, leading to the problems of experimental psychology, and the topics of intelligence and personality.

1B. Elementary Physiological Psychology. (3) I, II. Mr. Jones in charge
(Former number, 22.)

Prerequisite: 1A or course 21 taken in previous years.

Study of the integrative relations of psychological processes to nervous, muscular, and glandular features of the response mechanism, including the structure and functions of the sense organs.

33. Personal and Social Adjustment. (3) I, II. Mr. Lehner, Miss Rhulman
(Former number, 23.)

Prerequisite: 1A or course 21 taken in previous years.

The principles of mental hygiene. Orientation in the practical use of psychological principles in problems and circumstances encountered in college and later life.

UPPER DIVISION COURSES

Except as otherwise indicated, courses 1A and 1B are normally prerequisite to all upper division courses. Exceptions to the requirements are made for students who are not majoring in psychology, for the following courses: 120, 126, 142, 143, 145A-145B, 147, 167A-167B, 175, 177, 180, 185, 186. For these courses, 1A and 33 or the equivalent will be accepted as meeting the prerequisite.

101. Principles of Psychology. (3) I, II. Mr. Centers, ———

Open to upper division students who do not have credit for courses 1A and 1B. For non-majors, may be offered in substitution for courses 1A and 1B as the prerequisite for certain upper division courses.

A critical discussion of the basic topics in psychology. Elementary details, including essential information concerning nervous, muscular, and glandular mechanisms will be covered by examinations based on readings.

105A. Mental Measurements. (3) I, II. Mr. Comrey

A study of the construction, techniques of application, and interpretation of tests and scales. Practice in statistical procedures applicable to data derived from tests. Students who have credit for any other course in statistics will receive only 1 unit of credit for this course.

105B. Mental Measurements. (2) I, II. Mr. Jeffery

Prerequisite: course 105A.

Further study of the principles of measurement, stressing basic concepts. Application to problems of test construction, administration, and interpretation.

105C. Mental Measurements. (2) I, II. ———

Prerequisite: course 105B and consent of the instructor.

Practice in individual intelligence testing.

106A. Experimental Psychology. (3) I, II. Mr. Mount

Prerequisite or concurrent: course 105A.

Lectures and demonstrations, two hours; laboratory, two hours; assigned readings.

Methods, techniques, and typical results in experimental research in psychology.

106B. Experimental Psychology. (3) I, II. Mr. Jones

Lectures, two hours; laboratory, two hours; assigned readings and reports.

Prerequisite: course 106A.

Continuation of the study of methods, techniques, and typical results in experimental research. Emphasis is placed on the conditions and requirements of representative laboratory experiments and evaluation of associated experimental literature.

107. Advanced Psychometric Methods. (3) I, II. Mr. Gengerelli

Recommended: course 105B; Mathematics 3B or 37. The application of higher statistical methods to psychological data.

- 108. Physiological Psychology. (3) I.** Mr. Wenger
Prerequisite: course 1A-1B.
Integrative activities, consciousness, intelligent behavior, receptor and effector processes in relation to neuromuscular structure and function. Facts, problems, and methods.
- *109. Research Methods in Human Dynamics. (3) I.** Mr. Seward
Application of experimental techniques to problems in human adjustment. Group and individual projects will give experience in planning research, treating and interpreting data, and describing experiments.
- 110. Educational Psychology. (3) I, II.** Miss Rhulman
A general survey of the basic principles of psychology that are pertinent to education. Includes a study of growth and development, abilities, intelligence, social and emotional factors, and principles of learning.
- 112. Child Psychology. (3) I, II.** Mr. Jeffery
An elaboration of the developmental aspects of physical, mental, social, and emotional growth from birth to adolescence.
- 113. Psychology of Adolescence. (2) II.** _____
Prerequisite: course 112.
The physical, psychological, and social development of the adolescent. Essentially a continuation of child psychology, but with relatively greater emphasis on personality formation and problems of social adjustment.
- 120. History of Psychology. (3) I, II.** Miss Fisher
The development of psychological theories and research to the end of the nineteenth century.
- 126. Contemporary Psychology. (2) I, II.** Miss Fisher
Recommended: course 120.
The variant tendencies in current psychology, including a critical examination of the more important so-called "schools" of psychology.
- 131. Sensation and Perception. (2) I.** Miss Fisher
Intensive study of sense perception, with reference to the structure and functions of sense mechanisms, and experimental findings.
- 134. Motivation. (2) II.** _____
Theories and experimentally determined facts concerning drives, needs, preferences, and desires.
- 135. Imagination and Thought. (2) I.** Mr. Maltzman
An analysis of experimental studies of problem solving, reasoning, insight, concept formation, and related topics.
- 137. Learning: Simple Processes. (2) I.** Mr. Seward
Prerequisite: course 105A; recommended, course 126.
An experimental approach to the primary problems of how learning is related to what an individual perceives, wants, and does. Basic facts of conditioning and other elementary forms of learning provide an introduction to the major contemporary theories.
- 138. Feeling and Emotion. (2) I.** Mr. Wenger
The nature and basis of the affective factor in life, with particular emphasis on the critical evaluation of affective theory. This is not a course in personality and emotional adjustment.

139. Learning: Complex Processes. (3) II.

Mr. Seward

Prerequisite: course 137.

Integration of verbal and motor skills; conditions of remembering, forgetting, and transfer of training. Emphasis is on the theoretical significance of experimental findings. Students may conduct their own experiments.

142. Human Communication. (2) I.

Mr. Fearing

Prerequisite: courses 145A-145B or 147, or consent of the instructor.

Role of communication in human social organization; psychological factors involved in the creation and manipulation of symbols; art, drama, and science as forms of communication. Particular attention will be given to the social and psychological aspects of the mass media of communication, radio, and motion pictures.

143. Propaganda and Public Opinion. (2) II.

Mr. Fearing

Prerequisite: course 145A-145B or 147, or consent of the instructor.

Propaganda as a form of communication. The detection, analysis, and effects of propaganda. The creation, manipulation, and measurement of public opinion; the relation between public opinion and propaganda; the relation between the mass media of communication and public opinion and propaganda.

144. Psychological Interviewing and Case History Methods. (3) II.

Mr. Sperber

Prerequisite: senior or graduate standing and permission of the instructor.

Procedures, methods, and problems in the collection of personal data in the interview situation.

145A-145B. Social Psychology, General Course. (2-2) Yr. Mr. Centers

Interaction between the individual and the group; the individual in the group. Critical analysis of concepts of group mind, imitation and suggestion; rational and irrational motives in group living. Social motivation, attitudes, values, opinions, and beliefs, in relation to group personality structure. Adjustments and maladjustments as conditioned by cultural and subcultural group pressures. 145A is prerequisite to 145B.

146. Attitude and Opinion Measurement. (3) I.

Mr. Centers

Prerequisite: two semesters of social psychology or consent of the instructor.

The nature of attitudes and opinions, and their measurement by means of various types of attitude scales and public opinion surveys. Study design, formulation of questionnaires and interview schedules, sampling methods, techniques of interviewing, analysis of results, and applications to various psychological problems. Class projects and field work.

147. The Psychological Method in the Social Sciences. (3) II.

Mr. Fearing

Psychological factors in major social problems, including social control, propaganda, group conflict, cultural determination, etc.

148. Personality Structure and Development. (2) I.

Mr. Lotsof

Consideration of the cultural and biological determinants of personality.

149. Group Dynamics. (3) I.

Prerequisite: course 145A or 147.

The theory and phenomena of group behavior; effects of group membership on the individual; relations between groups; methods of group observation; role of groups in society.

- 150A. Animal Psychology. (3) I.** Mr. Gilhousen
General survey of the behavior of the higher forms of animal life.
- 150B. Animal Psychology. (3) II.** Mr. Gilhousen
Prerequisite: course 150A or consent of the instructor.
A more intensive study of facts and theories concerning motivation, learning, and problem solving. Lectures and laboratory demonstration.
- 160. Mental Deficiency. (2) I.** Mr. Lindsley
Prerequisite: course 112 or the equivalent.
A study of mental retardation and related abnormalities in children and adults, including a consideration of causes, classifications, special traits, and educational, vocational, and social problems and needs (lectures, readings, discussion, demonstration).
- 161. The Psychology of Exceptional Children. (3) II.** Mr. Lotsof
Prerequisite: course 112 or the equivalent.
A study of the nature, diagnosis, and treatment of exceptional disabilities and problem behavior in individual children or special groups.
- 162. Speech Pathology. (2) I.** Mr. Sheehan
Recommended: courses 103, 163.
A clinical approach to speech problems with emphasis on stuttering and neurological disorders and their treatment.
- 167A. Remedial Techniques in Basic School Subjects. (2) I, II.** Mr. Coleman
The diagnosis and treatment of reading, spelling, and other school disabilities in children and adults. Clinical demonstration, testing, and training of typical cases.
- 167B. Laboratory in Remedial Techniques. (2) I, II.** Mr. Coleman
Lecture, one hour; laboratory, five hours. Laboratory course for course 167A.
- 168. Abnormal Psychology. (3) I, II.** Mr. Sperber
Prerequisite: recommended: Psychology 108, or Zoölogy 25 or 106. Students may be required, early in the semester, to demonstrate an acquaintance with the elementary facts of structure and function of the nervous system.
Disorders of sensation, perception, feeling, and thought; their nature, causation, effects on life, and amelioration.
- 169. Psychology of the Physically Handicapped. (2) II.** Mr. Lindsley
A study of the basic facts, principles, and methods of understanding the personality and behavior of individuals who possess physical handicaps, with particular reference to methods of reeducation and adjustment. Psychological disabilities resulting from sensory and motor disorders, illness and disease, and injury will be discussed.
- 172A*-172B. Psychology of Music. (3-3) Yr.** Mr. Petran
A study of the psychological factors and problems in music from the points of view of the listener, performer, and composer.
- *175. Psychology of Religion. (3) II.** _____
The place of religion in personal and social life and its historical development in Western cultures. Specific beliefs are considered only in relation to their psychological conditions and effects.

* Not to be given, 1956-1957.

***177. Psychology and Art. (3) I.**

Problems of the appreciation of the materials and ideas of the fine arts, with special references to the psychological processes of imagination, feeling, and emotion.

180. Psychology of Advertising and Selling. (2) I.

The relative strength of the desires in buying; attention value of form, size, color, and typographical layout and methods of measuring the effectiveness of advertisements; characteristics of salesmen.

185. Personnel Psychology. (2) I.

The methods of selection, classification, and training of employees.

186. Occupational Counseling and Job Classification. (2) II.

Prerequisite: courses 105A, 185.

Principles of occupational counseling; nature and sources of occupational information; methods of job analysis and creation of job families.

187. Industrial Psychology. (2) II.

Mr. Case

Description of factors such as illumination, noise, and temperature as they affect production.

188A-188B. Psychological Bases of Counseling. (2-2) Yr.

Mr. Hahn

Prerequisite: open to senior and graduate students who have preparation in educational psychology, statistics, tests and measurements, mental hygiene, or abnormal psychology. Permission of the instructor.

The logical and experimental approaches to human aptitudes, abilities, and interests as used in counseling. Mental organization, physiological and psychological traits, individual and group educational-vocational-personality characteristics, derivation of interest and ability patterns, pattern analysis and its counseling applications.

199. Special Problems in Psychology. (3) I, II.

Prerequisite: courses 105A, 106A, and 6 other units in upper division psychology. Specific permission to enroll is necessary.

Section 1. Training in the fundamentals of psychological research. Primarily for students who expect to do graduate work in psychology.

Mr. Case and the Staff

Section 2. Primarily for students preparing for the school psychometrist credential. Special prerequisite: Psychology 105C or the equivalent.

Section 3. For students who have been selected for the Honors Program.
The Staff

GRADUATE COURSES

201A-201B. Pro-Seminar in Psychology. (2-2) Yr.

Mr. Gilhousen, Mr. Seward and the Staff

An intensive survey of the major areas, problems, and methodologies in the field of psychology.

Required of all regular graduate students in the first year of residence.

207A-207B. Advanced Psychometric Methods. (2-2) Yr.

Mr. Gengerelli, Mr. Comrey

Prerequisite: course 107 or the equivalent.

213. Experimental Design in Psychology. (2) I, II.

Mr. Seward

Prerequisite: courses 106B and 107, or the equivalent.

The function of experiment in relation to theory, the requirements of a

* Not to be given, 1956-1957.

good experiment, and the interdependence of experimental design and statistical evaluation of results. Students will evaluate typical designs and construct their own, in preparation for original research.

- 215A-215B. Commercial and Industrial Psychology.** (2-2) Yr. _____
 Prerequisite to 215B: course 107 or the equivalent.
 Selection and training of employees; factors influencing efficiency of work.
- 216. Critical Problems in Psychology.** (2) I, II. Mr. Maltzman, Mr. Mount
 Some critical problems in the field of psychology will be discussed, depending on the interests of the instructor and the class. This course may be repeated without duplication of credit.
- 217A-217B. Clinical Psychology.** (2-2) Yr. Mr. Lotsof
 Prerequisite: course 161 or 168, or the equivalent.
 Discussion and integration of basic concepts in clinical psychology.
- 218. Communication, Propaganda, and Public Opinion.** (2) I. Mr. Fearing
 Problems, methods, and theories in communications research. Particular attention is given to the analysis of communications content, the theory and role of propaganda, and the dynamics of public opinion.
- 219A-219B. Clinical Measurement Techniques.** (2-2) Yr. Mr. Sheehan
 Prerequisite: course 105C or the equivalent.
 Advanced study of tests in clinical diagnostic study, including the special application of individual and group tests of intelligence, personality, diagnosis and projective techniques. Emphasis will be placed upon application in the clinical situation.
- 220. Clinical Neurology.** (2) II. _____
 Prerequisite: courses 108 and 217A, or their equivalents.
 Presentation of selected neurological cases. This course is designed to integrate the student's knowledge of mental and motor dysfunction with the neurological bases of such dysfunction.
- *221. Experimental Psychology.** (3) I. Mr. Mount
 Prerequisite: course 106B and consent of the instructor.
 Methods, techniques, and apparatus applicable to research problems of various types. Attention will be given to sources of error, difficulties in operation, and limitations on interpretations.
- 222. Personality Dynamics.** (2) II. Mr. Coleman
 A survey of the theoretical views of Freud, Jung, Adler, Rank, and various modern writers, including Allport, Lewin, Murray, and Murphy.
- †224A-224B. Theory and Practice in Projective Methods.** (2-2) Yr. Mr. Klopfer
 Prerequisite: courses 217A, and 217B or 219A or 252A; consent of the instructor. Recommended: courses 144, 219B.
 Survey of theories and fields of application of projective methods, and supervised practice in techniques.
- 225. Advanced Rorschach Interpretation.** (3) I. Mr. Klopfer
 Prerequisite: course 224A-224B. Recommended: course 213.
 Rationale and methods of research in projective techniques.

* Not to be given, 1956-1957.

† Both 224A and 224B to be given fall semester only.

226. Experimental Approaches to Clinical Psychology. (2) I.

Mr. Lindsley

A survey of techniques and procedures employed in experimental and physiological psychology as they relate to problems in clinical psychology. Emphasis will be placed upon research in, and the development of, new psychodiagnostic measures, using the classical experimental literature on perception, attention, emotion, action, etc., as a guide.

***227A-227B. Tools and Techniques of Diagnosis in Psychological Counseling. (3-3) Yr.**

Mr. Hahn and the Counseling Staff

Prerequisite: courses 105A-105B, 148, or the equivalents.

Study of the theoretical and practical problems arising from the use of psychological methods and instruments on case work material.

Recommendation of adviser and consent of instructor.

228. Psychophysiology of Brain Function. (2) II.

Mr. Lindsley

Modern concepts of the functional organization of the brain, with particular reference to psychological phenomena and behavior. Recent advances in neurophysiology and electroencephalography bearing on perception, attention, drive, sleep-wakefulness, levels of consciousness, etc. Some emphasis on pathology of behavior resulting from brain injury.

251. Seminar in Problems of Learning in Psychology. (3) II.

Mr. Seward

A consideration of the major theories of learning and related research, with particular emphasis on human problems.

252A-252B. Seminar in Mental Measurements. (3-3) Yr.

Mr. Comrey

***253A-253B. Seminar in Physiological Psychology. (3-3) Yr.**

Mr. Wenger

Prerequisite: course 108 or the equivalent.

254. Seminar in Experimental Child Psychology. (3) I.

Mr. Jeffery

255A-255B. Seminar in Social Psychology. (3-3) Yr.

Mr. Fearing

256. Seminar in Group Behavior. (3) I.

Mr. Fearing

Prerequisite: a course in social psychology or consent of the instructor.

Consideration of the psychological theories, methods of study, and dynamics of the various forms of collective behavior.

257A. Introduction to Psychotherapy. (3) I.

Open to students enrolled in Psychology 279A-279B or 401A-401B, or upon consent of the instructor

257B. Individual Psychotherapy. (3) II.

Mr. Ingham

Open to students enrolled in Psychology 279A-279B or 401A-401B, or upon consent of the instructor.

257C. Group Psychotherapy. (3) I.

Mr. Lehner

258A-258B. Seminar in Abnormal Psychology. (3-3) Yr.

Mr. Doreus

259. Seminar in Motivation. (3) II.

Mr. Gilhausen

***260. Seminar in Comparative Psychology. (3) I.**

Mr. Gilhausen

* Not to be given, 1956-1957.

- 261A*-261B-261C. Seminar in Sensation.** (3 units each) Mr. Jones
Prerequisite: consent of the instructor.
Consideration of the problems, methods, and research literature in the psychology of sensation.
- *262. Seminar in Advanced Speech Pathology.** (2) I. Mr. Sheehan
- 266. Seminar in Opinion and Attitude Research.** (3) II. Mr. Centers
- 267. Mass Communication as a Social Force.** (2) II. Mr. Fearing
Prerequisite: open to graduate students in journalism and theater arts; open to graduate students in psychology with consent of the instructor.
The social implications of motion picture, newspaper, radio, theater, and television in the integration of human society.
- 268. Individual Dynamics and Their Social and Cultural Determinants.**
(3) II. Mr. Centers
Consideration of the facts, problems and theories concerning the interdependence between motivation systems, value patterns, attitudes, beliefs, and other personality characteristics of the individual and the cultural and social environment.
- 277A-277B. Field Work in Personnel Psychology.** (3-6; 3-6) Yr.
Miss Clendenen and the Counseling Staff
Prerequisite: regular graduate standing and upper division or graduate work in tests and measurements, statistics, mental hygiene or abnormal psychology, and counseling methods; recommendation of the adviser and consent of the instructor.
Internship in the Student Counseling Center, which includes psychometrics, observation of counseling, preparation of case materials for counselors, record keeping, test scoring, case discussions, and participation in other service activities. Minimum of ten hours per week, including one to two hours of staff meetings and conferences.
- 278A-278B. Research in Psychology.** (1-6; 1-6) Yr.
Mr. Wenger, Mr. Gengerelli and the Staff
Required each semester of all graduate students, beginning with the first semester of the second year (except for terminal M.A. candidates).
- 279A-279B. Field Work in Clinical Psychology.** (3-6; 3-6) Yr.
Prerequisite: consent of the adviser.
Students in the Veterans Administration Clinical Training Program are required to register for this course each semester.
- Section 1. General Clinical Psychology.**
Mr. Lehner and the Clinical Staff
Practical work in hospitals and clinics in clinical diagnostic testing and psychotherapy.
- Section 2. Speech Pathology.** Mr. Sheehan
Practical work in hospitals and clinics in diagnostic testing and psychotherapy with speech disorders.
- Section 3. Counseling Psychology.** Mr. Case
- 401A-401B. Internship in Applied Psychology.** (3-6; 3-6) Yr.
Section 1. Clinical Psychology. Mr. Lehner and the Clinical Staff
Section 2. Psychological Counseling. Mr. Hahn and the Staff
Prerequisite: consent of the adviser.

* Not to be given, 1956-1957.

PUBLIC HEALTH

- Wilfrid J. Dixon, Ph.D., *Professor of Biostatistics and Professor of Preventive Medicine and Public Health.*
- Lenor S. Goerke, M.D., M.S.P.H., *Professor of Public Health and Professor of Preventive Medicine and Public Health (Acting Chairman of the Department).*
- Wilton L. Halverson, M.D., Dr.P.H., *Professor of Public Health and Professor of Preventive Medicine and Public Health.*
- Charles E. Smith, M.D., D.P.H., *Professor of Public Health (Berkeley)*
- John Beeston, M.B., D.P.H., *Associate Professor of Public Health and Associate Professor of Preventive Medicine and Public Health.*
- A. Harry Bliss, M.S., M.P.H., *Associate Professor of Public Health and Associate Professor of Preventive Medicine and Public Health.*
- John M. Chapman, M.D., M.P.H., *Associate Professor of Epidemiology and Associate Professor of Preventive Medicine and Public Health.*
- Frank J. Massey, Ph.D., *Associate Professor of Biostatistics.*
- John N. Belkin, Ph.D., *Lecturer in Public Health and Associate Professor of Entomology.*
- Kenneth M. Eastman, B.S., *Lecturer in Hospital Administration.*
- Sam M. Houston, M.A., Ph.D., *Lecturer in Public Health Administration.*
- Paul LeVan, M.D., *Lecturer in Venereal Disease Control and Assistant Clinical Professor of Medicine.*
- Donald B. Loveland, M.S., *Lecturer in Biostatistics.*
- Harold Mazur, M.D., M.P.H., *Lecturer in Public Health.*
- Wilber J. Menke, M.D., Dr.P.H., *Lecturer in Public Health and Associate Clinical Professor of Preventive Medicine and Public Health.*
- Byron O. Mork, M.D., M.P.H., *Lecturer in Public Health and Assistant Clinical Professor of Pediatrics.*
- Agnes A. O'Leary, R.N., M.P.H., *Lecturer in Public Health and Associate Professor of Public Health Nursing.*
- Melvin Robert Plancey, M.D., M.P.H., *Lecturer in Public Health.*
- Charles Senn, B.S. (C.E.), M.S. (P.A.), *Lecturer in Public Health.*
- Raymond V. Stone, D.V.M., *Lecturer in Public Health.*
- Margaret S. Taylor, R.N., M.A., *Lecturer in Public Health and Associate Professor of Public Health Nursing.*
- Leo Tepper, M.D., *Lecturer in Tuberculosis Control.*
- J. Albert Torribio, M.S.S.W., M.S.W., *Lecturer in Health Education.*
- Frederick N. Cooper, B.S., *Associate in Sanitation.*
- Lowell F. Bernard, A.B., *Assistant in Health Education.*

Letters and Science List.—Courses 5, 100, 106, 110, 145, 147A, 147B, 160A are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

School of Public Health

Admission: Undergraduate students who have satisfactorily completed at least 60 units of work in one of the colleges of the University, or transfer credit evaluated as equivalent, may apply for admission to the School of Public Health. A formal application must be filed in the office of the School. Students are admitted on a competitive basis of aptitude and scholastic record. Any prerequisites in the student's curriculum must be completed in addition to the upper division major requirements. The College of Applied Arts offers a prepublic health curriculum (page 45). It is suggested that interested

students follow this program, although it is not necessary that these requirements be completed prior to admittance to the School of Public Health.

Requirements: Candidates for the degree of Bachelor of Science must have completed at least 128 units of college work, of which at least the last 24 units shall have been completed in the School of Public Health. The student must have obtained at least as many grade points as there are units in the total credit value of all courses undertaken by him in the University of California. (See page 60 of this bulletin for degree requirements.)

Graduate Work in Public Health.—See ANNOUNCEMENT OF THE SCHOOL OF PUBLIC HEALTH, and page 61 of this bulletin.

LOWER DIVISION COURSES

- 5. Introduction to Public Health. (3) I, II.** Mr. Beeston
A survey of the entire field of public health, including a consideration of the evolution of disease prevention and control; the social, medical, and economic aspects of sickness, disability, and death; and orientation in the administration of health programs by official agencies and by voluntary health organizations.
- 49. Field Training Course. (Noncredit) I, II.** Mr. Bliss
Field training course in health departments and/or military establishments for learning administrative methods and practical procedures in environmental sanitation.

UPPER DIVISION COURSES

The prerequisite to all upper division courses is course 5, Introduction to Public Health, or the equivalent, except that this requirement may be waived by the instructor in individual cases.

- 100. Public Health Administration. (3) I, II.** Mr. Goerke, Mr. Mork
Principles of public administration and fundamentals of organization and administration in public health.
- 101. Hospital Administration. (3) II.** Mr. Eastman
Prerequisite: course 100 or consent of the instructor.
Principles of hospital and medical care organization and administration.
- 106. Medical Care Problems. (2) I, II.** Mr. Beeston
A medical survey of social problems, including a survey of the medical care agencies and programs which exist and which may be required to meet the needs of the community.
- 110. Environmental Sanitation. (3) I.** Mr. Senn
Fundamentals of housing, heating, ventilation, lighting, water supply, waste disposal, insect and rodent control, and control of milk and other food supplies.
- 113A. Principles and Practices in Sanitary Science. (3) I.** Mr. Bliss
Lecture, two hours; laboratory or field trips, three hours. Prerequisite: course 110 and consent of the instructor.
Objectives and special techniques in general sanitation covering communicable disease control, water and sewage, housing, ventilation, lighting and vector control.
- 113B. Principles and Practices in Sanitary Science. (3) II.** Mr. Bliss
Lecture, two hours; laboratory or field trips, three hours.
Prerequisite: course 110 or consent of the instructor.
Objectives and special techniques in food sanitation covering milk, meat, markets, restaurants, and processing plants.

- 114. Advanced Study in Sanitation.** (1-5) I, II. Mr. Bliss
Prerequisite: senior or graduate standing in the School of Public Health.
- 125. Maternal and Child Health.** (3) II. Mr. Beeston
A consideration of conditions pertaining to the health of children from the time of conception to the end of puberty.
- 131. Health Education Laboratory.** (1) I, II. Mr. Beeston
Laboratory, three hours. Prerequisite: course 134, or taken concurrently with 134.
Emphasis will be placed on techniques of teaching health to adults through the media of radio, films, slides, posters, press, printed materials, and lectures. Research in these fields will be evaluated and exercises in preparing and using materials will be included.
- 134. Community Health Education.** (2) I, II. Mr. Beeston, Mr. Torribio
Primarily for students majoring in some area of health work. Theory and field problems in community health organization.
- 145. Community Control of Communicable Disease.** (3) I, II. Mr. Mazur
The epidemiology and community control of communicable diseases, including tuberculosis and the venereal infections.
- 147A. Principles of Epidemiology.** (2) I. Mr. Chapman
Prerequisite: courses 145 and 162, or their equivalents, or consent of the instructor.
Principles of epidemiology and the study of the infection chains of certain type diseases.
- 147B. Principles of Epidemiology.** (2) II. Mr. Chapman
Lecture, one hour; laboratory, three hours.
Prerequisite: courses 145 or 147A, and 162 or 160A.
Methods of investigating epidemics; collection and analysis of data.
- *148. Epidemiology of Chronic Diseases.** (2) I. Mr. Beeston
Prerequisite: course 106.
The study of epidemiological methods as applied to the occurrence of the non-infectious diseases, and the conditions associated with the aging process.
- *153A. Applied Biology of Sanitation.** (2) I. _____
Lecture, two hours. Prerequisite: Bacteriology 103. Primarily for students in the public health sanitarian curriculum, but open to others by permission of the instructor.
Principles of life sciences relevant to control of environmental sanitation, and techniques of their application.
- *153B. Applied Biology of Sanitation.** (2) II. _____
Laboratory, six hours. Prerequisite: Bacteriology 103. Primarily for students in the public health sanitarian curriculum, but open to others with the consent of the instructor.
Principles of life sciences relevant to control of environmental sanitation, and techniques of their application.
- 160A. Biometry.** (3) I. Mr. Dixon, Mr. Massey
Lecture, two hours; laboratory, three hours.
Open only to students who have completed at least 8 units of laboratory courses in the biological sciences. Students who have completed courses in statistics may enroll only with the consent of the instructor.
Elements of statistical analysis; introduction to the methods of statistical analysis and their application in the fields of the biological sciences.

- 160B. Biometry. (3) II.** Mr. Dixon, Mr. Massey
Lecture, two hours; laboratory, three hours.
Prerequisite: course 160A or consent of the instructor.
Bivariate distributions, elementary methods of sampling, introduction to analysis of variance, special methods applicable to biological data.
- 161A. Applied Biostatistics. (3) I.** Mr. Massey
Lecture, two hours; laboratory, three hours.
Elements of vital statistics and demography. Includes consideration of problems of registration, enumeration, morbidity, and mortality statistics.
- 161B. Applied Biostatistics. (4) II.** Mr. Massey
Lecture, two hours; laboratory, six hours. Prerequisite: course 161A.
Extension of methods introduced in 161A to more advanced problems. Methods of establishing record systems for health activities, including case registers for chronic diseases; evaluation and analysis.
- 162. Public Health Statistics. (3) I, II.** Mr. Massey
Lecture, two hours; laboratory, three hours.
An applied course in public health statistics designed primarily for students not majoring in biostatistics.
- 170. Industrial Health. (2) I, II.** Mr. Plancey
A survey of the field of industrial health and hygiene. Discussion of occupational diseases and hazards, their evaluation, and methods of control; plant medical services and other organizations concerned with industrial health problems.
- 180. Principles of Public Health. (5) I, II.** Mr. Goerke, Miss O'Leary, Miss Taylor, and Staff
Lecture, five hours. Prerequisite: B.N., or junior standing in the School of Nursing.
Principles of epidemiology, preventive medicine, and public health administration.
- *186. Venereal Disease Control and Epidemiology of Tuberculosis. (2) II.** Mr. LeVan, Mr. Tepper
Prerequisite: consent of the instructor.
A consideration of the basic medical data; epidemiology; the prevention and administrative control of tuberculosis and the venereal diseases; evaluation of methods used.
- 198. Directed Group Study. (1-5) I, II.** Mr. Bliss
Field trips are often required. Students will furnish their own transportation.
- 199. Special Study for Advanced Undergraduates. (1-5) I, II.** The Staff (Mr. Bliss in charge)

GRADUATE COURSE

- 299. Special Study for Graduate Students. (2 to 4) I, II.** The Staff (Mr. Halverson in charge)

* Not to be given, 1956-1957.

RADIOLOGY

(A department of the School of Medicine)

The Department of Radiology offers certain courses which are open to qualified graduate students who are not pursuing the professional curriculum of the School of Medicine. For information concerning these courses and advanced degrees available, see the ANNOUNCEMENT OF THE SCHOOL OF MEDICINE, LOS ANGELES, and the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

ROMANCE LANGUAGES AND LITERATURE

†Harry F. Williams, Ph.D., *Associate Professor of French.*

GRADUATE COURSES

*201A-201B. *French Historical Grammar and Methodology of Romance Linguistics.* (2-2) Yr. Mr. Williams

A knowledge of Latin is indispensable.

*203A-203B. *Old Provençal: Reading of Texts.* (2-2) Yr. Mr. Williams

SCANDINAVIAN LANGUAGES

For courses in Scandinavian Languages, see under Department of Germanic Languages.

SLAVIC LANGUAGES

Dimitry M. Krassovsky, *Candidate of Law, Assistant Professor of Russian.*

Kenneth E. Harper, Ph.D., *Assistant Professor of Slavic Languages (Chairman of the Department).*

Peter P. Lapikien, Ph.D., *Assistant Professor of Slavic Languages.*

Noel A. Voqe, Ph.D., *Assistant Professor of Slavic Languages.*

Marie A. Mestchersky, *Associate in Slavic Languages.*

Letters and Science List.—All courses in Slavic languages are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Courses 1, 2, 3A-3B, 18A-18B, and History *149A-149B (to be taken in the sophomore year).

The Major.—(1) Requirement in language: 103A-103B; 8 units chosen from courses 104A-104B, 119A-119B, 120A-120B, 122A-122B, 124A-124B. (2) Requirement in literature: 130; 9 units chosen from courses 132, 137, 143A-143B, 145, 149.

LOWER DIVISION COURSES

1. *Beginning Russian.* (4) I, II.

The Staff

The first course in the Russian language. To meet five times a week.

† Absent on leave, 1956-1957.

* Not to be given, 1956-1957.

- *1G. Elementary Russian—Reading course for graduate students. (No credit) I.** Mr. Harper
Four hours a week.
- 2. Elementary Russian. (4) I, II.** The Staff
Prerequisite: course 1.
Continuation of course 1. To meet five times a week.
- 3A–3B. Second-Year Russian. (3–3) Yr.** The Staff
(Former number, 102A–102B.)
Prerequisite: courses 1, 2. Upper division students who are not majors in Slavic languages may receive upper division credit for this course.
- 6. Readings in Russian. (3) I.** Mr. Harper
Prerequisite: course 2. To be taken in conjunction with course 3A or 3B.
- 18A–18B. Elementary Russian Conversation. (1–1) Yr.** The Staff
A course in Russian conversation designed to accompany the lectures and recitations of courses 1 and 2. Open only to students who are taking 1 or 2.

UPPER DIVISION COURSES

- 103A–103B. Third-Year Russian. (3–3) Yr.** Mr. Lapiken
Prerequisite: course 3A–3B.
- 104A–104B. Fourth-Year Russian. (3–3) Yr.** Mr. Lapiken
Prerequisite: course 103A–103B.
- 119A–119B. Intermediate Russian Conversation. (2–2) Yr.** Mrs. Mestchersky
Prerequisite: courses 1, 2, and 18A–18B, or the equivalent.
- 120A–120B. Advanced Russian Conversation. (2–2) Yr.** Mr. Lapiken
Prerequisite: course 119A–119B.
- *122A–122B. The Russian Language. (2–2) Yr.** Mr. Lapiken
Prerequisite: course 3A–3B.
Phonetics, morphology, and syntax.
- 124A–124B. Advanced Russian Composition. (2–2) Yr.** Mr. Lapiken
Prerequisite: course 103A–103B.
- 130. Survey of Russian Literature to 1917. (3) I.** Mr. Harper
Lectures and reading in English. Required of all majors. Open to all upper division students, and to sophomores with the permission of the instructor.
- 132. Russian Literature since 1917. (3) II.** Mr. Harper
A survey of Soviet literature. Lectures and reading in English. Open to all upper division students.
- *137. The Russian Drama. (3) II.** Mr. Harper
A survey of Russian drama from the seventeenth century to the twentieth. Lectures and reading in English.
- 143A–143B. Russian Novelists of the Nineteenth Century. (2–2) Yr.** Mr. Voge
Lectures and reading in English. Open to all upper division students.
143A is not prerequisite to 143B.

* Not to be given, 1956–1957.

*145. Tolstoy. (3) II.

Mr. Harper

A study of Tolstoy's principal novels, short stories, plays, and essays, in English. Open to all upper division students.

149. Survey of Russian Poetry. (3) I.

Mr. Lapiken

Selected readings in the major poets from Pushkin to Blok. Conducted in Russian.

199A. Special Studies: Russian Bibliography. (1 to 3) II. Mr. Krassovsky

Prerequisite: senior standing and adequate proficiency in the language. Study of types, forms and subjects of bibliographies; principal American collections of Russian bibliography; study and practice in methods of bibliographical research.

SOCIAL WELFARE

Donald S. Howard, Ph.D., L.H.D., *Dean of the School of Social Welfare and Professor of Social Welfare (Chairman of the Department)*.

†Judd Marmor, M.D., *Visiting Professor of Social Welfare and Clinical Professor of Psychiatry*.

Karl de Schweinitz, L.H.D., *Professor of Social Welfare, Emeritus*.

Mary E. Duren, M.S., *Associate Professor of Social Welfare*.

Olive M. Stone, Ph.D., *Associate Professor of Social Welfare*.

Yvonne Giroux, A.M., *Assistant Professor of Social Welfare*.

Marjorie T. McDonald, M.S.W., *Assistant Professor of Social Welfare*.

Jean A. Shores, M.A., *Assistant Professor of Social Welfare*.

Elizabeth H. Eckart, M.S., *Lecturer in Social Welfare and Field Work Supervisor*.

Mary B. Novick, M.A., *Lecturer in Social Welfare*.

†Charles I. Schottland, A.B., *Social Welfare Certificate, Lecturer in Social Welfare*.

Katherine M. Kolodziejki, M.S.W., *Associate in Social Welfare*.

Nathalie E. Kennedy, M.S.W., *Lecturer in Social Welfare, Chief Social Worker and Acting Head, Division of Social Welfare in Medicine, Medical Center*.

Louis W. Liverman, M.S.W., *Associate in Social Welfare*.

Roger O. Egeberg, M.D., *Clinical Professor of Medicine*.

Arthur H. Parmelee, Jr., M.D., *Assistant Professor of Pediatrics*.

Richard C. Maxwell, B.S.L., LL.B., *Professor of Law*.

Arvo Van Alstyne, A.B., LL.B., *Professor of Law*.

For information concerning courses and curricula, see the ANNOUNCEMENT OF THE SCHOOL OF SOCIAL WELFARE, LOS ANGELES.

SOCIOLOGY

For courses in sociology, see under Department of Anthropology and Sociology, page 79.

* Not to be given, 1956-1957.

† Absent on leave, 1956-1957.

SPANISH AND PORTUGUESE

John A. Crow, Ph.D., *Professor of Spanish.*

Manuel Pedro González, Ph.D., *Professor of Spanish-American Literature.*

Anna Krause, Ph.D., *Professor of Spanish.*

Ernest H. Templin, Ph.D., *Professor of Spanish.*

Marion Albert Zeitlin, Ph.D., *Professor of Spanish.*

Hermenegildo Corbató, Ph.D., *Professor of Spanish, Emeritus.*

José R. Barcia, Licenciado en Filosofía y Letras, *Associate Professor of Spanish.*

William E. Bull, Ph.D., *Associate Professor of Spanish.*

Donald F. Fogelquist, Ph.D., *Associate Professor of Spanish.*

James Richard Andrews, Ph.D., *Assistant Professor of Spanish.*

Joseph H. Silverman, Ph.D., *Assistant Professor of Spanish.*

Maria L. de Lowther, M.A., *Assistant Professor of Spanish, Emeritus.*

Stanley L. Robe, Ph.D., *Assistant Professor of Spanish.*

Samuel G. Armistead, Ph.D., *Instructor in Spanish.*

Judith Senior, Ph.D., *Instructor in Spanish.*

Leonor Montau, A.B., *Associate in Spanish.*

Charles M. Vance, M.A., *Associate in Spanish.*



Virginia G. Baños, Ph.D., *Lecturer in Spanish.*

SPANISH

Letters and Science List.—All undergraduate courses in Spanish and Portuguese except Spanish 370 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—(1) Spanish 1, 2, 3, 4, 25A–25B or 100, and 42, 44, or the equivalent, to be tested by examination. (2) English 1A–1B. (3) A minimum of two years of a second foreign language in high school, or of two semesters at the college level, or English 46A–46B, or History 8A–8B.

Students who wish to make Spanish their major subject must have maintained at least an average grade of C in the college courses in Spanish taken prior to admission to the upper division.

The Major.—Required: 102A–102B, 146, and 15 additional units elected from courses 104A–104B through 149. Students entering upper division without credit for 25A–25B may offer 101A–101B instead. Students who complete 101A with a grade of A or B may be excused from 101B. Spanish 108 may not be counted on the 18 elective units. Students desiring to specialize in Spanish literature may choose the elective units from courses 105 to 120; those desiring to specialize in Spanish American literature, from courses 120 to 136. With the permission of the department a maximum of 4 units of upper division work in literature in French, Italian, or Portuguese, in folklore, or in linguistics and general philology, may be included among the elective units.

All Spanish majors preparing for the general secondary credential are required to take Spanish 100 before the end of the junior year, and Spanish 147 and 148 in the senior year. Other requirements for the general secondary credential are courses 104A–104B, 108, and 149 or 256.

Students planning to obtain the Master of Arts degree in Spanish are expected to take Spanish 115 or offer an equivalent.

As general electives the department recommends courses in (1) philosophy;

(2) English literature; (3) French, German, Greek, Italian, Latin, and Portuguese language and literature; (4) the history, anthropology, geography, political institutions, and international relations of Spain or Spanish-American countries.

Students who fail to maintain at least an average grade of C in the Spanish courses taken in the upper division will, upon approval of the Dean of the College of Letters and Science, be excluded from the major in Spanish.

Requirements for Admission to Graduate Courses

The requirement is ordinarily the undergraduate major in Spanish, or its equivalent, with a minimum grade-point average of 1.75. This requirement is prerequisite to the 24 units demanded for the M.A. degree. If the candidate is deficient in this prerequisite, he must fulfill it by undergraduate work which is not counted toward his graduate residence.

Requirements for the General Secondary Credential

Consult the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

Requirements for the Master's Degree

1. For the general requirements, see page 64. The department follows Plan II, as described on page 65. The Master's Comprehensive Examination consists of two three-hour written examinations, which are given in the next-to-the-last week preceding the final examination period of each semester. The student will be expected to show (1) a fair knowledge of the history of the Spanish language and a general acquaintance with the history of Spanish literature; (2) a more thorough acquaintance with the authors, works, and movements of either (a) Spanish literature or (b) Spanish-American literature. A list of suggested readings in the literature of the student's choice will be provided and will constitute the basis for part of the examination.

2. Departmental requirements: (a) All students must complete courses 115, 119, and either 149 or 256. (b) Students specializing in Spanish literature must complete at least 8 units chosen from courses 201A-201B, 203A-203B, 206, 209A-209B, 210A-210B, 215A-215B, and 220. (c) Those specializing in Spanish-American literature must complete at least 8 units chosen from courses 220, 240, 241, 242, 243A-243B, 245, 246, 247, 248, 249. (d) The remaining units of the required 24 may include, with the approval of the graduate adviser, a maximum of 6 units of upper division or graduate courses in the history, geography, anthropology, political institutions, or international relations of Spain or the Spanish-American countries, in Portuguese and Brazilian literature and language, in other literatures, or in philosophy.

Requirements for the Ph.D. Degree

For the general requirements, see page 66. Course 256 is required of all candidates for the Ph.D., degree. Graduate work with concentration in Spanish is offered leading to the degrees of the Ph.D. in Hispanic Languages and Literature and Ph.D. in Romance Languages and Literature. For specific requirements for these degrees, see the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION, or consult the departmental adviser.

LOWER DIVISION COURSES

The prerequisite for the various lower division courses are given in each case.

All entering or transfer students who, because of speaking the Spanish language natively, of travel or residence in Spanish-speaking countries, or because of any other reason, consider themselves to be able to take a more advanced course than that for which they have formal prerequisites should consult the chairman of the department for assignment to a course of the proper level.

- 1. Elementary Spanish—Beginning.** (4) I, II. The Staff
This course corresponds to the first two years of high school Spanish. Sections meet five hours weekly, including one hour of oral practice.
- 1G. Elementary Spanish—Reading Course for Graduate Students.**
(No credit) I, II. The Staff
Four hours a week.
- 2. Elementary Spanish—Continued.** (4) I, II. The Staff
Prerequisite: course 1, two years of high school Spanish, or the equivalent. Sections meet five hours weekly, including one hour of oral practice.
- 3. Intermediate Spanish.** (4) I, II. The Staff
Prerequisite: course 2, three years of high school Spanish, or the equivalent. Sections meet five hours weekly, including one hour of oral practice.
- 4. Intermediate Spanish—Continued.** (4) I, II. The Staff
Prerequisite: course 3, four years of high school Spanish, or the equivalent.
- 8A-8B. Elementary Spanish Conversation.** (1-1) Yr. Beginning each semester. The Staff
Classes meet two hours weekly. Open to students who have completed Spanish 3 or its equivalent. Those with grade A or B in Spanish 2 may be admitted.
- 8C-8D. Advanced Spanish Conversation.** (1-1) Yr. Beginning each semester. The Staff
Classes meet two hours weekly. Open to students who have completed course 8B.
- 25A-25B. Composition and Rapid Reading.** (2-2) Beginning either semester. Mr. Crow, Miss Krause
Prerequisite: course 4 or the equivalent. Designed especially for freshmen and sophomores who propose to make Spanish their major subject.
- 42. Spanish Civilization.** (3) I. Mr. Andrews, Mr. Bull
Prerequisite: sophomore standing. Conducted in English. No knowledge of Spanish required. Required of major students in Spanish.
A study of the growth and development of Spanish culture in its most important manifestations.
- 44. Latin-American Civilization.** (3) II. Mr. Crow, Mr. Fogelquist
Prerequisite: sophomore standing. Conducted in English. No knowledge of Spanish required. Required of major students in Spanish.
Origins and main currents of Latin-American culture.

UPPER DIVISION COURSES

Prerequisite: 16 units of lower division Spanish or the equivalent.

- 100. Advanced Grammar.** (3) I, II. Mr. Robe, Mr. Silverman
Prerequisite: course 4 or the equivalent. Required of students working for the general secondary credential.
- 101A-101B. Intermediate Composition and Conversation.** (2-2) Yr. Beginning either semester. Mr. Andrews, Mr. Crow, Mr. Robe
May not be taken concurrently with or following 146. Does not count on the major.

- 102A-102B. Introduction to Spanish Literature. From the Middle Ages to the Present. (3-3).** Beginning either semester.
Mr. Barcia, Miss Krause; Mr. Zeitlin
Prerequisite: course 42. Required of all major students in Spanish.
- 104A-104B. Introduction to Spanish American Literature. From the Beginnings to the Present. (3-3).** Beginning either semester.
Mr. Crow, Mr. Fogelquist
Prerequisite: course 44 or the equivalent. Required of all credential majors.
- 105. Spanish Literature from 1850-1900. Realism and Naturalism. (3) I.** Mr. Bull
Prerequisite: course 102B. May not be taken for credit by students who have completed 103B prior to September, 1954.
- 106. Spanish Literature from 1700-1850. Neo-Classicism and Romanticism. (3) II.**
Prerequisite: course 102B. May not be taken for credit by students who have completed course 106 or 103A prior to September, 1954.
- 108. The Folk Song in Spain and Spanish America. (1) II.** _____
Class meets two hours weekly. Required of credential candidates.
A study of the origins and development of Spanish folk music and of the different types of folk songs and folk poetry peculiar to the various regions of Spain and Spanish America.
- 110. Contemporary Spanish Literature. (3) II.** Mr. Barcia, Miss Krause
Prerequisite: course 102B. May not be taken for credit by students who have completed 110A, 110B, or 110A-110B prior to September, 1954.
- 115. Don Quijote. (3) I.** Mr. Andrews, Mr. Templin
Prerequisite: course 102A. Students planning to get the M.A. in Spanish are expected to take this course or offer an equivalent. Not to be taken for credit by students who have completed 115A, 115B, or 115A-115B prior to September, 1954.
- 117. Spanish Literature of the Siglo de Oro. (3) II.**
Prerequisite: course 102A. Mr. Andrews, Mr. Templin
- 119. Readings in Spanish Literature of the Middle Ages. (3) I.**
Prerequisite: course 102A. Mr. Zeitlin, Miss Krause
- 120. Literary Criticism in Spain and Spanish America. (3) I.** _____
Not to be taken for credit by students who have completed course 112 prior to September, 1954.
- 130. Main Literary Currents in Spanish America. (3) II.** Mr. Fogelquist, Mr. González
- 132. The Spanish American Novel. (3) I.** Mr. Fogelquist, Mr. González
- 134. The Spanish American Short Story. (2) II.** _____
- 136. The Spanish American Essay. (2) II.** _____
May not be taken for credit by students who have completed course 140 prior to September, 1954.
- 146. Advanced Composition and Style. (3) I, II.** Mr. Barcia, Miss Krause
Prerequisite: courses 20, 25AB or 100, 101AB. May not be taken for credit by students who have completed course 116A or 116B prior to September, 1954.

147. **Grammar for Teachers.** (2) I, II. Mr. Bull, Mr. Robe, Mr. Zeitlin
Prerequisite: course 100. May not be taken for credit by students who have completed course 116B prior to September, 1954.
148. **Phonetics.** (1) I, II. Mr. Robe
Class meets two hours weekly.
149. **Introduction to the History of the Spanish Language.** (1) I. Mr. Silverman
Meets requirement in philology for the general secondary credential and the master's degree.
- 199A-199B. **Special Studies in Spanish.** (1-3; 1-3) Yr. The Staff
Prerequisite: senior standing, at least 10 units of upper division Spanish, the approval of the departmental adviser, and the consent of the instructor in the field selected for special study.

GRADUATE COURSES

- 201A. **Studies in Spanish Poetry.** (2) I. Mr. Templin
The *Cancioneros* and the *Romancero*.
- 201B. **Studies in Spanish Poetry.** (2) II. Mr. Templin
The *Siglo de Oro*, especially in relation to the Baroque.
- 203A-203B. **Studies in Spanish Literature of the Nineteenth Century.**
(2-2) Yr. _____
206. **Eighteenth-Century Writers.** (2) II. Mr. Corbató
- 209A-209B. **The Spanish Drama of the Golden Age.** (2-2) Yr. Mr. Templin
- 210A-210B. **Studies in Contemporary Spanish Literature.** (2-2) Yr. Miss Krause
- 215A-215B. **Studies in Spanish Prose Writers of the Golden Age.** (2-2) Yr. Mr. Barcia
220. **The Spanish Chroniclers of the Americas.** (2) II. Mr. Robe
240. **Studies in the Contemporary Novelists of Spanish America.** (2) I. Mr. Crow
241. **Studies in the Spanish-American Short Story.** (2) II. Mr. Crow
242. **Studies in the Contemporary Poets of Spanish America.** (2) II. Mr. Fogelquist
- 243A-243B. **The Modernista Movement in Spanish America.** (2-2) Yr. Mr. González
245. **The Contemporary Mexican Novel.** (2) II. Mr. González
246. **Argentine Literature.** (2) I. Mr. González
247. **The Gaucho Epic.** (2) I. Mr. González
248. **Studies in Major Figures of Spanish-American Literature.** (2) II. Mr. González
249. **Mexican Literature.** (2) II. Mr. González
255. **Contemporary Spanish Linguistics.** (2) II. Mr. Bull

256. Spanish Historical Grammar. (3) II.

Mr. Zeitlin

A knowledge of Latin is indispensable. Meets requirement in philology for the general secondary credential and for the master's degree. Required of all doctoral candidates.

290A-290B. Special Study and Research. (2-6; 2-6) Yr.

The Staff

PROFESSIONAL COURSE IN METHOD**370. The Teaching of Spanish. (3) I.**

Mr. Bull

Required of all candidates for the general secondary credential whose major subject is Spanish. To be taken concurrently with Education G377. (Note that Spanish 370 is given only in the fall semester.)

PORTUGUESE**LOWER DIVISION COURSES****1. Elementary Portuguese—Beginning. (4) I.**

Mr. Zeitlin

This course corresponds to the first two years of high school Portuguese.

2. Elementary Portuguese—Continued. (4) II.

Mr. Zeitlin

Prerequisite: course 1 or two years of high school Portuguese.

3. Intermediate Portuguese. (4) I.

Mr. Zeitlin

Prerequisite: course 2 or the equivalent.
Grammar, composition, and reading of texts.

4. Intermediate Portuguese. (4) II.

Mr. Zeitlin

Prerequisite: course 3 or the equivalent.
Grammar, composition, and reading of texts.

UPPER DIVISION COURSES**122. Portuguese Literature. (3) I.**

Mr. Zeitlin

Prerequisite: course 4 or the equivalent.

Survey of the literature of Portugal, with emphasis on the sixteenth and nineteenth centuries.

123. Brazilian Literature. (3) II.

Mr. Zeitlin

Prerequisite: course 4 or the equivalent. It is advisable that students also offer course 122 as a prerequisite.

Survey of the literature of Brazil, with emphasis on the nineteenth and twentieth centuries.

199A-199B. Special Studies in Portuguese. (1-3; 1-3) Yr.

Mr. Zeitlin

Prerequisite: 8 units of Portuguese, or the equivalent, and consent of the instructor.

RELATED COURSES (See page 335)**Romance Languages and Literatures****201A-201B. French Historical Grammar and Methodology of Romance Linguistics. (2-2) Yr.**

Mr. Williams

203A-203B. Old Provençal: Reading of Texts. (2-2) Yr.

Mr. Williams

SPEECH

For courses in Speech, see under Department of English.

SUBJECT A: ENGLISH COMPOSITION

Bernard O. Phinney, Ph.D., *Chairman, Committee on Subject A.*

Everett L. Jones, M.A., *Supervisor of Instruction in Subject A.*

Ella O. Hutchins, M.A., *Associate in Subject A.*

Gretchen G. Martin, M.A., *Associate in Subject A.*

Cathleen H. Wheat, Ph.D., *Associate in Subject A.*

Hortense H. Williams, M.A., *Associate in Subject A.*

Subject A. (No credit) I, II.

The Staff

Fee, \$20.

Three hours weekly for one semester. Although this course yields no credit, it displaces 2 units on the student's program. Every student who does not pass the examination in Subject A is required to take, in the semester immediately following this failure, the course in Subject A. Sections are limited to thirty students. For further details, see page 22 C of this bulletin.

Training in correct writing, including drill in sentence and paragraph construction, diction, punctuation, grammar, and spelling. Weekly compositions and written tests on the text.

SUBTROPICAL HORTICULTURE

Jacob B. Biale, Ph.D., *Professor of Subtropical Horticulture.*

Sidney H. Cameron, Ph.D., *Professor of Subtropical Horticulture (Chairman of the Department).*

Robert W. Hodgson, M.S., *Professor of Subtropical Horticulture.*

William H. Chandler, Ph.D., *Professor of Horticulture, Emeritus.*

Charles A. Schroeder, Ph.D., *Associate Professor of Subtropical Horticulture.*

Arthur Wallace, Ph.D., *Associate Professor of Subtropical Horticulture.*

George F. Ryan, Ph.D., *Assistant Professor of Subtropical Horticulture.*

Leland M. Shannon, Ph.D., *Assistant Professor of Subtropical Horticulture.*

_____, *Assistant Professor of Subtropical Horticulture.*

Preparation for the Major.—Required courses, or their equivalent: Chemistry 1A, 1B, 8; Botany 1, 107; Subtropical Horticulture 2. Recommended courses, or their equivalent: Plant Pathology 130; Irrigation and Soils 105, 126; Entomology 134.

The Major.—Twelve units of upper division courses in the major, which should normally include Subtropical Horticulture 100 and 110.

LOWER DIVISION COURSE

2. Introduction to Horticulture. (3) I.

Mr. Cameron

Lecture, three hours. Prerequisite: Botany 1 or the equivalent. This course is equivalent to Pomology 2, given at Berkeley and at Davis.

The principles and practices of general horticulture.

UPPER DIVISION COURSES

***100. Systematic Pomology. (3) I.**

Mr. Schroeder

Lecture, one hour; laboratory, six hours. Prerequisite: course 2 or the equivalent.

The botanical classification and relationships of the principal fruits; horticultural races and groups; growth and bearing habits; bud and fruit morphology; varietal characters.

* Not to be given, 1956-1957.

101. Citriculture. (4) II.

Mr. Hodgson, Mr. Shannon

Lecture, three hours; laboratory, three hours; four or five Saturday field trips. Prerequisite: course 2 or the equivalent.

The characteristics of the citrus fruits and their responses to environmental influences and cultural practices; the economics of the citrus fruit industry.

102. Subtropical Fruits Other Than Citrus. (4) I.

Mr. Schroeder

Lecture, three hours; laboratory, three hours; four or five Saturday field trips. Prerequisite: course 2 or the equivalent.

A survey of the knowledge concerning the requirements and responses of the subtropical fruit plants other than *Citrus*; the economics of their industries. The fruits considered include the walnut, pecan, almond, fig, olive, avocado, date, oriental persimmon, and certain others grown in California.

110. Plant Propagation. (2) II.

Mr. Ryan

Laboratory and lecture, six hours. Prerequisite: Botany 1 or the equivalent. Recommended: Botany 6 and 107 (may be taken concurrently).

Principles and practices in plant propagation.

*†111. Respiration and Respiratory Enzymes. (2) I.

Mr. Biale

Lecture-discussion, two hours. Prerequisite: Chemistry 8 or the equivalent.

Basic concepts of respiration; aerobic and anaerobic processes; the Pasteur effect; respiratory substrates; intermediates and end products; kinetics and mechanism of enzyme action; proteins and prosthetic groups of enzymes; oxidases, dehydrogenases, and carriers; phosphorylations; metabolic and enzyme cycles.

113. Fruit Physiology and Storage Problems. (2) I.

Mr. Biale

Lectures and discussions, two hours. Prerequisite: Botany 107 or the equivalent.

Anatomical, physiological, and chemical changes in developing fruits; composition of mature fruits; maturity standards; respiratory and fermentative processes; production of emanations; low-temperature effects; ordinary and modified air storage; field, packing house, and transit practices; frozen fruit products; specified fruit problems.

142. Physiology of Fruit Trees. (3) II.

Mr. Wallace

Lecture, three hours. Prerequisite: Botany 107 or the equivalent.

Discussions of recent findings on the responses of fruit trees to their environment and management practices.

147. Fruit Breeding. (3) I.

Lecture, two hours; laboratory, three hours. Prerequisite: consent of the instructor.

Application of genetics and cytogenetics to the improvement of fruit plants, including hybridization, varietal selection, incompatibility, apomixis, polyploidy, and mutations.

199A-199B. Special Study for Advanced Undergraduates. (2-4; 2-4) Yr.

Prerequisite: senior standing and consent of the instructor. The Staff

GRADUATE COURSES

240. Horticultural Experimentation. (3) I.

Mr. Cameron, Mr. Wallace

Lecture and discussion, three hours. Prerequisite: graduate standing and consent of the instructor.

A critical review and analysis of horticultural research in selected fields.

* Not to be given, 1956-1957.

† Not applicable toward the major in subtropical horticulture.

- 255A-255B. Seminar in Horticultural Science. (2-2) Yr. The Staff
 281A-281B. Research in Subtropical Horticulture. (2-6; 2-6) Yr.
 The Staff

THEATER ARTS

- Ralph Freud, *Professor of Theater Arts (Chairman of the Department)*.
 Walter Kingson, Ed.D., *Professor of Theater Arts*.
 Kenneth Macgowan, B.S., *Professor of Theater Arts*.
 George M. Savage, Ph.D., *Professor of Theater Arts*.
 Walden Boyle, Ph.D., *Associate Professor of Theater Arts (Head of the Theater Division)*.
 *G. Edward Hearn, M.A., *Associate Professor of Theater Arts*.
 William Melnitz, Ph.D., *Associate Professor of Theater Arts*.
 Horace W. Robinson, M.A., *Visiting Associate Professor of Theater Arts*.
 *Henry Schnitzler, *Associate Professor of Theater Arts*.
 Willard F. Bellman, Ph.D., *Assistant Professor of Theater Arts*.
 *Curtis Courant, *Assistant Professor of Theater Arts*.
 Arthur Friedman, Ph.D., *Assistant Professor of Theater Arts*.
 Henry Goodman, Ph.D., *Visiting Assistant Professor of Theater Arts*.
 Hugh Gray, *Assistant Professor of Theater Arts*.
 Richard C. Hawkins, M.A., *Assistant Professor of Theater Arts*.
 Melvyn Helstien, M.F.A., *Assistant Professor of Theater Arts*.
 F. Claude Hempen, Ph.D., *Assistant Professor of Theater Arts*.
 Patricia Hungerland, M.A., *Assistant Professor of Theater Arts*.
 John Jones, M.A., *Assistant Professor of Theater Arts*.
 John W. Young, M.A., *Assistant Professor of Theater Arts*.
 *Nordstrom C. Whited, A.B., *Acting Professor of Theater Arts*.



- Fred L. Gerber, M.S., *Lecturer in Theater Arts (Acting Head of the Radio Division)*.
 Jack Morrison, M.A., *Lecturer in Theater Arts*.
 Charlotte Motter, M.A., *Lecturer in Theater Arts*.
 Arthur Ripley, *Lecturer in Theater Arts (Head of the Motion Picture Division)*.
 William Shull, B.S., *Lecturer in Theater Arts*.
 L. S. Trimble, M.S., *Lecturer in Theater Arts*.
 Richard Tumin, A.B., *Lecturer in Theater Arts*.
 Richard G. Adams, M.A., *Associate in Theater Arts*.
 John Mahon, M.A., *Associate in Theater Arts*.
 Ernest Rose, M.A., *Associate in Theater Arts*.
 J. Palmer Schoppe, *Associate in Theater Arts*.
 George Seaton, *Lecturer in Theater Arts*.

* Absent on leave, 1956-1957.

* In residence spring semester only, 1956-1957.

College of Applied Arts

The Department of Theater Arts offers four specializations:

1. Theater.

Preparation for the Major.—Courses 1, 2A, 7, 24, 27, 28A-B-C-D-E, English 1A-1B, Humanities 1A-1B.

The Major.—Forty units of coordinated upper division courses, including English 114C-D-E, Classics 113, Theater Arts 105, 156A, 149A-B-C-D, 159A, 159C-D-E, and electives approved by the departmental adviser.

2. Motion Pictures.

Preparation for the Major.—Courses 1, 2A, 7, 24, 27, 28A-B-C-D-E, English 1A-1B, Humanities 1A-1B.

The Major.—Forty units of coordinated upper division courses, including Theater Arts 105, 149A, 149B, 149C, 149D, 164A, 164B, 164C, 165A-165B, 166A, 167A, 169, 179A, 181A, and electives in the following categories approved by the departmental adviser: 5 units of English; 4 units of art, music, philosophy, or psychology, and sufficient theater arts courses to bring total to 40 units.

3. Radio.

Preparation for the Major.—Courses 1, 2A, 7, 24, 27, 28A-B-C-D-E, English 1A-1B, Humanities 1A-1B.

The Major.—Forty units of coordinated upper division courses, including English 114C-D-E, Classics 113, Theater Arts 116A, 125A-125B, 128A, 129A, 129C-D-E, 149A, 149B, 149C, 149D, and electives approved by the departmental adviser.

4. Language Arts.

Preparation for the Major.—Courses 2A-2B, 24, 28A-B-C-D-E, English 1A-1B, 46A-46B, Journalism 2.

The Major.—Thirty-nine units of upper division courses, including English 106L, 114C-D-E; 3 units from English 131, 132, 190A, 190B; Education 370; Theater Arts 103, 105, 123, 125B, 149A, 149B, 156A, 159A, 180, and electives approved by the departmental adviser.

College of Letters and Science

Letters and Science List.—Courses 7, 24, 102, 104, 105, 106, and 169 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

GRADUATE DIVISION

Admission to Regular Graduate Status

In addition to the general requirements of the Graduate Division, the applicant must:

1. Have completed the undergraduate theater arts major or its equivalent.
2. Provide the department with the results of certain diagnostic tests, letters of reference, and a photograph. Information regarding this requirement should be obtained from the chairman of the department at least three months prior to the beginning of the semester in which the student plans to enroll.

Requirements for the Master's Degree

The Department of Theater Arts follows Plan I or Plan II. (See page 65.)

The program requires at least one year (two semesters) of intensive study and laboratory exercises. In addition to the minimum courses for completion of the master's degree, the chairman of the department, in consultation with

the other members of the student's advisory committee, may prescribe such additional courses as he believes are necessary to satisfy the educational needs of the student. All students are required to take an active part in the production program of the department as partial fulfillment of the degree requirements. In planning his course of study, the candidate will place his emphasis upon the theater, motion pictures, radio, theatrical and dramatic history and literature, or playwriting. Candidates who wish to place their major emphasis on playwriting must submit a long play or a number of short plays for admission to the program.

LOWER DIVISION COURSES

- 1. Social Aspects of Mass Communication. (2) I.** Mr. Kingson
Lecture, two hours; laboratory, two hours.
An orientation course devoted to the study of the relation of man to society. Particular attention will be given to the theater, motion pictures, and radio as media of communication and of integration in human society. The responsibilities of professional workers in these fields will be stressed.
- 2A-2B. Acting Fundamentals. (3-3) Yr. Beginning either semester.**
Lecture, two hours; laboratory, three hours. Mr. Helstien in charge
2A. The acting process. Exercises in characterization, interpretation, speech, diction, and movement.
2B. Elementary stage techniques based on the study of selected dramatic scenes.
- *7. Theater Arts Survey. (2) I, II.** Mr. Freud and the Staff
A course of lectures designed to provide the beginning student with a general knowledge of the objectives and procedures of the department. Required of all undergraduates during first year of residence.
- 24. The History of Theater Arts. (3) I, II.** Mr. Goodman
The history of the development of the theater and its relationship to the arts, sciences, and disciplines of society from Aristotle to the motion picture, radio, and television.
- 27. Film Techniques. (2) I, II.** Mr. Young
Lecture, two hours; laboratory, two hours.
Prerequisite or concurrent: course 7.
Techniques and practices in photography, sound, editing, direction, animation, design, writing, management and budgeting for the motion picture, and their place in theater arts.
- 28A. Theater Arts Crafts. (2) I, II.** Mr. Bellman
Lecture, two hours; laboratory, three hours; theater arts practice, by assignment.
Study of and laboratory practice in the construction and handling of scenery. The use of scenic materials and equipment for theater, motion pictures, and television.
- 28B. Theater Arts Crafts. (2) I, II.** Mrs. Hungerland
Lecture, two hours; laboratory, three hours; theater arts practice, by assignment.
Study of costume construction techniques. Laboratory practice in cutting, fitting, and assembling of costumes. An introductory survey of the history of costume.

* Not to be given, 1956-1957.

- 28C. Theater Arts Crafts. (2) I, II.** Mr. Bellman
Lecture, two hours; laboratory, two hours; theater arts practice, by assignment.
Study of the physical aspects of lighting. Laboratory practice in the use of basic theater arts lighting equipment.
- 28D. Theater Arts Crafts. (2) I, II.** Mr. Morrison
Lecture, two hours; laboratory, three hours; theater arts practice, by assignment.
Theory and practice in the managerial aspects (promotion, planning, budgeting, accounting) in theater, film, radio, and television.
- 28E. Theater Arts Crafts. (1) I, II.** Mr. Hempen
Lecture, one hour; laboratory, theater arts practice, by assignment.
The theory and practice of the use of sound-recording and amplifying equipment in theater arts.
- 29. Elementary Theater Laboratory. (1) Yr.** The Staff
Acting exercise under faculty instruction.

UPPER DIVISION COURSES

Theater arts major or minor or departmental consent is prerequisite to all upper division courses, except courses 103, 104, 105, 106, 111A, 112, 116A, 123, 125A-125B, 135A-135B, 148A-148B, 154, 169, 170, 180, 185.

- 102. Main Currents in Theater History. (2) I.** Mr. Melnitz
A one-semester survey of the development of the theater, with emphasis on the contributions of Europe from the Greeks to the twentieth century, based upon the most authoritative critical studies in the field.
- 103. Secondary School Dramatics. (3)** Miss Motter
Sec. 1. Limited to theater arts-English majors. I.
Sec. 2. Limited to majors other than theater arts-English. II.
Techniques of teaching acting. Choosing, mounting, and presenting plays on the secondary school level.
- 104. History of the American Theater. (2) II.** Mr. Freud
The history of the American theater from the Revolutionary War to the present.
- 105. Readings for the Contemporary Theater. (2) I, II.** Mr. Robinson
Study and discussion of modern theories and styles of production, direction, and acting, based on readings in definite works on the modern theater.
- 106. Fundamental Problems of Writing for Theater Arts. (3) I, II.**
Prerequisite: English 1A-1B. Mr. Friedman, Mr. Savage
Analysis of story structure, character, thematic approach, and author's point of view, in the creation of dramatic material meant for production in the mass media. Special problems of story synopsis with constructive critical commentary by instructors and class.
- 107A-107B. Marionettes and Puppetry. (2-2) Yr. Beginning either semester.** Mr. Helstien
Lecture, two hours; laboratory, four hours. Prerequisite: courses 28A-B-C-D, or two from 140, 141, 142, or consent of the instructor.
Study of the history and practice of the art of puppetry. An examination of the materials and methods of construction. Staging of puppet and marionette productions as laboratory practice.

- †107C-D-E. **Playwright's Production Workshop.** (2 units each)
 Prerequisite: departmental consent. Mr. Savage and Staff
 Observation and study of the rehearsal and staging of original dramatic manuscripts, with particular emphasis upon problems of rewriting and the relationship of the playwright to the directional process.
108. **Children's Creative Dramatics.** (2) I, II. Mr. Adams
 Studies in the principles and methods of developing original dramatizations with children.
109. **Children's Theater.** (2) I, II. Mr. Helstien
 Studies in the theory and practice of selection, direction, and production of plays for child audiences.
- 111A-111B. **Acting for the Radio.** (2-2) Yr. Beginning either semester.
 The Staff
 The study of special problems in interpretation, characterization, dialect, and microphone technique, with opportunity for performance activity. 111B may be taken only with consent of the instructor.
112. **Radio Speech.** (2) II. Mr. Hempen
 Lecture, one hour; laboratory, two hours.
 Study and practice of microphone technique for announcing, news commentation, and public service programs.
- 116A. **Problems in Radio Writing.** (2) I. Mr. Friedman
 Theory and practice in script analysis and the writing of various types of radio programs. The course is designed primarily from the producer's and director's point of view as well as from that of the writer.
- 116B. **Dramatic and Documentary Radio Writing.** (3) II. Mr. Gerber
 Prerequisite: course 116A or consent of the instructor.
 Study and practice in the writing of original scripts in which the emphasis is on the use of dramatic and documentary material, combined with special uses of music and sound effects.
123. **Workshop in Educational Radio.** (3) I. Mr. Kingson
 Script and production problems of school broadcasting. The use of radio in the classroom to stimulate student creative self-expression. Transcription demonstrations and production practice under studio conditions.
- 125A. **Theory of Radio Direction.** (2) I, II. Mr. Tumin
 A lecture course devoted to the theories of radio direction, with a comparative study of directional techniques employed in the production of various types of radio programs. Recommended to be taken concurrently with 125B.
- 125B. **Elementary Radio Production.** (3) I, II. Mr. Tumin, Mr. Hempen
 A lecture and laboratory course devoted to the study of the techniques and tools at the disposal of the radio director. Problems of music, sound effects, casting, studio acoustics, transcriptions, and timing. Recommended to be taken concurrently with 125A.
126. **Radio and Television News—Writing and Production Problems.** (3) II.
 Prerequisite: consent of the instructor. Mr. Gerber
 The preparation of news in the mediums of radio and television. The analysis of production problems relating to special events, news features, straight newscasts, etc., in radio and television.

† This course is offered in alternate summer sessions only. The three parts must be taken concurrently and constitute a full academic load for one session. Not to be given summer, 1957.

- 128A. Radio and Television Programming. (2) I.** Mr. Hempen
A study of the factors affecting programming for the standard broadcast station, the educational radio station, and the television station. Organization and theory of programming in relation to the broadcaster's role in the community.
- 128B. Radio and Television Station Operation. (2) II.** _____
Lecture, one hour; laboratory, three hours. Prerequisite: course 128A or consent of the instructor.
A lecture and laboratory course devoted to the administrative elements of radio and television broadcast stations, providing the student with practical experience in broadcast management.
- 129A. Intermediate Radio Workshop. (3) I, II.** Mr. Gerber
Prerequisite: course 125B.
A basic laboratory course offering practice in the preparation of radio programs.
- 129B. Advanced Radio Workshop. (3) I, II.** The Staff
Prerequisite: course 129A or consent of the instructor.
Practice in radio production for broadcast.
- †**129C-D-E. Summer Radio and Television Workshop. (2 units each)**
Prerequisite: departmental consent. The Staff
A creative laboratory course in broadcasting, involving the preparation of programs for actual production and transmission at local radio and television stations.
- 135A-135B. Television Principles and Practices. (2-2) Yr.** _____
A lecture course interrelating television with theater, motion pictures, and radio. The evolution of television here and abroad; social and educational implications; audience-station-advertiser relationships; production problems; observation trips to stations.
- 140. Advanced Technical Practice. (2) I, II.** Mr. Hearn, Mr. Bellman
Lecture, two hours; laboratory, four hours.
Study of materials and tools of stage production. Includes design analysis, rigging, shifting, and construction techniques.
- 141. Theater Lighting. (2) I.** Mr. Hearn, Mr. Bellman
A study of the principles of light, color, control, and lighting theory as applied to the stage.
- 142. Theater and Motion Picture Costume Construction. (2) I, II.** Mrs. Hungerland
Lectures, demonstrations, and practice in the analysis of the costume sketch, in terms of fabric, pattern drafting, fitting, and construction.
- 143. Scenic Painting in the Theater. (1) I.** Mr. Boyle
Prerequisite: upper division standing.
A study of methods and materials in scenic painting in the theater.
- 148A. Scenic Design. (3) I, II.** Mr. Jones
Basic principles of design as applied to stage settings. Study of styles and techniques of stage design, past and present. Execution of designs for modern and period plays.
- 148B. Scenic Design. (2) II.** Mr. Jones
Prerequisite: course 148A or consent of the instructor.
Advanced study of the problems of stage design.

† This course is offered in summer sessions only. The three parts must be taken concurrently and constitute a full academic load for one session.

149A-B-C-D. Training in the Technical Operation of Theater, Motion Picture, or Radio Production. (1-1-1-1) I, II.

Mr. Ripley, Mr. Boyle, Mr. Gerber

Prerequisite: consent of the instructor.

Supervised completion of assignments in scenery, property, and costume construction, lighting, sound recording, scene-changing, and management related to the production programs of the department.

151. Advanced Acting. (3) I, II.

Mr. Freud, Mr. Friedman

Lecture, two hours; laboratory, six hours.

Prerequisite: course 2A and consent of the instructor.

154. Theater Arts Administration. (2) I, II.

Mr. Morrison

Administrative and organizational techniques in the operation of theater, film, radio, and television-producing units.

156A. Dramatic Direction. (3) I, II.

Mr. Robinson

Prerequisite: course 105.

Studies in analysis of dramatic materials and techniques of directional restatement in theatrical terms.

156B. Dramatic Direction. (3) I, II.

Mr. Boyle, Mr. Morrison

Prerequisite: consent of the instructor.

Practice in theater direction.

Section 1—One-act play direction.

*Section 2—Recreational theater direction (limited to recreation majors of the Department of Physical Education).

159A. Intermediate Theater Workshop. (2) I, II.

Mr. Jones

Prerequisite: courses 28A-B-C-D.

Practice in theater production for technical workers, designers, writers, dancers, and musicians.

159B. Advanced Theater Workshop. (3) I, II.

Mr. Adams, Mr. Freud, Mr. Boyle, Mr. Helstein,

Mr. Jones, Mr. Robinson, Mr. Goodman

Prerequisite: consent of the instructor.

Practice in theater production before a paying audience.

†159C-D-E. Summer Theater Workshop. (2 units each)

The Staff

Prerequisite: departmental consent.

Practice in and observation of the complete operation of a summer theater on a semiprofessional level.

162. Acting for the Motion Picture. (2) I, II.

The Staff

Prerequisite: consent of the instructor.

The training and development of acting style for the motion picture.

163. Theater Make-up. (1) I, II.

Miss Gobrecht

The art and use of make-up for the theater and for motion pictures.

164A. Motion Picture Direction. (2) I, II.

Mr. Ripley

Lecture, two hours.

Analysis of the relationship of the motion picture director to the problems of story and dramatic structure.

* Not to be given, 1956-1957.

† This course is offered in alternate summer sessions only. The three parts must be taken concurrently and constitute a full academic load for one session.

- 164B. Motion Picture Direction.** (2) I, II. Mr. Hawkins
Lecture, two hours; laboratory, three hours. Prerequisite: course 164A or consent of instructor.
Study of the theories of motion picture direction emphasizing problems of actor and camera interpretation with demonstration during laboratory hours.
- 164C. Motion Picture Direction.** (2) I, II. Mr. Ripley, Mr. Hawkins
Prerequisite: course 164B or consent of instructor.
Advanced study of the techniques of motion picture direction with practical work during laboratory hours.
- 165A. Motion Picture Editing.** (2) I, II. Mr. Young
Lecture, two hours; laboratory, three hours, with additional hours to be arranged.
The mechanics of film cutting.
- 165B. Motion Picture Editing.** (2) I, II. Mr. Young
Lecture, two hours; laboratory, three hours, with additional hours to be arranged.
Technical and creative aspects of film editing.
- 166A. Writing for the Screen.** (2) I, II. Mr. Gray
Prerequisite: consent of the instructor. Recommended preparation: English 106D-106E or Theater Arts 106, and 180.
Theory and practice in the fundamentals of writing fictional and documentary film scripts.
- 166B. Writing for the Screen.** (3) I, II. Mr. Gray
Prerequisite: course 166A, or consent of the instructor.
Advanced practice and writing of original film scripts under supervision.
- 167A. Production Designing for the Theater Arts** (2) I, II. Mr. Schoppe
Prerequisite: consent of the instructor.
Theory and practice of designing productions for the motion pictures in terms of the relationship of setting, problems in working from motion picture scripts.
- 167B. Production Designing for the Theater Arts.** (3) I, II. Mr. Schoppe
Prerequisite: course 167A or consent of the instructor.
Advanced practice in designing motion picture productions.
- *169. History of Motion Pictures.** (2) I, II. _____
Lecture, two hours; laboratory, three hours.
The history and development of the motion picture until today.
- 170. Motion Picture Animation.** (3) I, II. Mr. Shall
Lecture, three hours; laboratory, three hours.
Theory and practice of graphic film expressions and the use of appropriate equipment.
- 171. Advanced Motion Picture Animation.** (3) I. Mr. Shall
Lecture, three hours; laboratory, three hours. Prerequisite: course 170 and consent of the instructor.
- *172. Motion Picture Animation Workshop.** (3) II. Mr. Shall
Lecture, three hours; laboratory, three hours. Prerequisite: course 170, and consent of the instructor.

* Not to be given, 1956-1957.

* For admission to this course candidates must submit original designs six weeks in advance of the semester opening.

- 179A. Elementary Motion Picture Workshop.** (2) I, II.
Prerequisite: courses 164A, 165A, 181A. Mr. Mahon, Mr. Rose
Laboratory practice in the fundamentals of film-making.
- 179B. Intermediate Motion Picture Workshop.** (3) I, II.
Prerequisite: consent of the staff. Mr. Ripley in charge
Laboratory practice in film-making.
- †179C-D-E. Summer Motion Picture Workshop.** (2 units each) The Staff
Prerequisite: course 179A or departmental consent.
Intensive practice in and observation of the production of motion pictures.
- 180. Educational and Documentary Film Techniques.** (2) II. Mr. Rose
A course of lectures surveying the basic techniques and practices employed in the documentary and educational fields; comparative study and analysis of existent films.
- 181A. Motion Picture Photography.** (2) I, II. Mr. Mahon
Lecture, two hours; laboratory, three hours.
An elementary course in optics, photographic chemistry, sensitometry, lighting, and operation of all major 16mm cameras, with practical work during laboratory hours.
- 181B. Motion Picture Photography.** (2) I, II. Mr. Mahon
Lecture, two hours; laboratory, three hours. Prerequisite: course 181A.
An advanced course in exterior and interior lighting, composition, use of filters, creative camera movement, and special problems of motion picture photography. Practical work during laboratory hours.
- 182A. Color Cinematography Laboratory.** (2) I, II. Mr. Trimble
Lecture, two hours; laboratory, six hours.
Prerequisite: course 181A.
History and theories of color photography, with particular emphasis on present-day methods in motion picture production. A comparative study of additive and subtractive systems as employed by Dufay, Thomas, Gaspar, Ansco, Kodachrome, Technicolor, and others.
- 182B. Color Cinematography.** (2) II. Mr. Mahon
Prerequisite: course 182A or consent of the instructor.
Practice in the application of modern theories of color photography with special emphasis on motion picture production.
- 185. Photographic Aids to Instruction.** (3) I, II. Mr. Mahon
Theory and practice in the preparation of photographic aids to instruction and to research, including still photographs, slides, slidefilms, and 16mm motion pictures, emphasizing application to the student's own field of study.
- 190A-190B. Manuscript Evaluation for Production.** (2-2) Yr.
Prerequisite: course 156A or consent of the instructor. Mr. Savage
The principles and practices of evaluating manuscripts for production.
- 199A-199B. Special Studies in Theater Arts.** (1-4; 1-4) I, II.
Mr. Freud and the Staff
Prerequisite: senior standing, an average grade of B or higher in the department, and consent of the instructor.
Advanced individual work upon specific problems connected with theater, motion pictures, radio, or television.

† This course is offered in alternate summer sessions only. The three parts must be taken concurrently and constitute a full academic load for one session.

GRADUATE COURSES

200. **Bibliography and Methods of Research in Theater Arts.** (2) I, II.
Mr. Melnitz, Mr. Savage, Mr. Gray
201. **The Background of Theatrical Art.** (3) I, II. Mr. Boyle
An analysis of the aesthetic principles and content of the theater.
- 206A-206B. **Advanced Playwriting.** (3-3) Yr. Mr. Macgowan
Guided completion of a full-length play, or study and preparation for the writing of a thesis play.
220. **Policies and Problems of Radio and Television Broadcasting.** (3) II.
Mr. Kingson
Advanced study in comparative radio and television broadcasting, with special emphasis upon British, Canadian, Continental, and Australian systems.
231. **The Teaching of Secondary School Dramatics.** (2) II. Mr. Morrison
Study of current methods and problems of production as related to teaching on the secondary level. Restricted to candidates for teaching certificates and approved theater arts majors.
235. **Advanced Motion Picture Editing.** (2) I, II. Mr. Ripley
Prerequisite: courses 165A, 165B.
Study and analysis of the editor's creative contribution to the structure and final form of the picture. The basis of rhythmic and dynamic montage, and application of all types of special effects.
239. **Film Aesthetics.** (2) II. Mr. Gray
Study and analysis of the film in relation to other art forms.
240. **Technical Methods and Practices in the Theater.** (3) II. Mr. Hearn
Advanced studies in theater production planning and budgeting, theater architecture, stage design and lighting.
270. **Seminar in the Documentary and Educational Film.** (3) II. Mr. Rose
Staff of the Department of Theater Arts and School of Education
Analysis of the nonfiction film in relation to the development of documentary and educational film scripts.
271. **Seminar in the Fiction Film.** (3) I. Mr. Gray
Analysis of the technique employed in the fictional film; exercise in the preparation of story material and the development of fictional scripts.
272. **Seminar in Theater History.** (3) II. Mr. Melnitz, Mr. Freud
Exploration of a selected area of theatrical history. Guided reading in University, Clark, and Huntington libraries. Presentation of fully annotated written report of independent investigation.
290. **Research Projects in Theater Arts.** (1) I, II. The Staff
Section 1. In Theater.
Section 2. In Motion Pictures.
Section 3. In Radio.
291. **Production Planning in Theater Arts.** (1) I, II. The Staff
Section 1. In Theater.
Section 2. In Motion Pictures.
Section 3. In Radio.

292. Advanced Problems in Documentary Radio. (3-5) I, II. Mr. Gerber
A lecture and projects course in the writing and production of documentary programs. The course is designed to explore the field of documentary radio programs from the standpoint of subject matter and develop new techniques in writing and production.

299A-299B. Special Problems in Theater Arts. (2-5; 2-5) I, II. The Staff
Practical creative work in the area of theater arts which the student has designated his area of emphasis. Study may be pursued in the following areas: theatrical production, motion picture production, audio-visual educational production, radio writing and production, and original research in theater arts.

RELATED COURSES IN OTHER DEPARTMENTS

- Education 147. Audio-Visual Education.** (2) I, II. Mr. McClusky
Education 199H. Studies in Audio-Visual Education. (2-4) I, II.
Mr. McClusky
Education 247A-247B. Audio-Visual Education. Advanced Course.
(2-2) Yr. Mr. McClusky
Education 257A-257B. Audio-Visual Education. Seminar. (2-2) Yr.
Mr. McClusky
English 106D-106E. Playwriting. (3-3) Yr. Mr. Savage
English 118. Children's Literature. (3) I, II. Mrs. Sayers
English 262A-262B. Shakespeare. (3-3) Mr. Phillips, Mr. Smith
English 262D. Studies in Elizabethan Drama. (3) Mr. Smith
English 263C. Studies in Drama, 1660-1790. (3) Mr. Smith
Integrated Arts 1A-1B. Man's Creative Experience in the Arts. (3-3) Yr.
Mr. With
Psychology 267. Mass Communications as a Social Force. (2) I.
Mr. Fearing

ZOOLOGY

- Gordon H. Ball, Ph.D., *Professor of Zoology.*
Theodore H. Bullock, Ph.D., *Professor of Zoology.*
Raymond B. Cowles, Ph.D., *Professor of Zoology.*
Frederick Crescitelli, Ph.D., *Professor of Zoology.*
Waldo H. Furgason, Ph.D., *Professor of Zoology (Life Sciences).*
Theodore L. Jahn, Ph.D., *Professor of Zoology (Chairman of the Department).*
Edgar L. Lazier, Ph.D., *Professor of Zoology.*
A. Mandel Schechtman, Ph.D., *Professor of Zoology.*
Bennet M. Allen, Ph.D., *Professor of Zoology, Emeritus.*
Loye Holmes Miller, Ph.D., *Professor of Biology, Emeritus.*
George A. Bartholomew, Ph.D., *Associate Professor of Zoology.*
Taylor Hinton, Ph.D., *Associate Professor of Zoology.*
Clara Szego-Roberts, Ph.D., *Associate Professor of Zoology.*

¹ In residence fall semester only, 1956-1957.

- Boyd W. Walker, Ph.D., *Associate Professor of Zoology.*
 Sarah Rogers Atsatt, Ph.D., *Associate Professor of Zoology, Emeritus.*
 David P. Bloch, Ph.D., *Assistant Professor of Zoology.*
 Reed A. Flickinger, Ph.D., *Assistant Professor of Zoology.*
 Donald Heyneman, Ph.D., *Assistant Professor of Zoology.*
 Thomas R. Howell, Ph.D., *Assistant Professor of Zoology and Curator of the Dickey Ornithological Collection.*
 Thomas W. James, Ph.D., *Assistant Professor of Zoology.*
 Blaine H. Levedahl, Ph.D., *Assistant Professor of Zoology.*
 Frank E. Peabody, Ph.D., *Assistant Professor of Zoology.*
 Richard W. Siegel, Ph.D., *Assistant Professor of Zoology.*
 Harry Thompson, Ph.D., *Assistant Professor of Botany (Life Sciences).*
 ———, *Instructor in Zoology.*
 Gretchen L. Humason, M.A., *Lecturer in Microscopic Technique.*
 Thomas Cade, M.A., *Associate in Zoology.*



- Albert W. Bellamy, Ph.D., *Professor of Biophysics.*
 Jowett C. Chao, Ph.D., *Assistant Research Zoologist.*
 S. J. Glass, M.D., *Assistant Research Zoologist.*
 Jean A. Gross, Ph.D., *Assistant Research Zoologist.*
 Laurence J. Hendricks, Ph.D., *Junior Research Zoologist.*
 Lyle Herbst, M.A., *Lecturer in Life Sciences.*
 John B. Loefer, Ph.D., *Research Associate.*
 Richard R. Whitney, Ph.D., *Junior Research Zoologist.*

Letters and Science List.—All undergraduate courses in this department except 5, 136, 136C, and 370 are included in the Letters and Science List of Courses. For regulations governing this list, see page 6.

Preparation for the Major.—Required: courses 1A, 1B, Chemistry 1A, 1B, Physics 2A, 2B, or 1A, 1B, 1C, 1D. Recommended: German, French, and English 1B, or English 106S.

The Major.—Eighteen units of upper division work in zoology and 6 units of upper division work chosen from zoology or from approved *related* courses in anthropology, bacteriology, botany, chemistry, entomology, home economics, mathematics, paleontology, physics, or psychology. Of the 18 upper division units in zoology, at least 4 units must be taken in each of groups 1, 2, and 3. Group 4 is required of all majors.

Group 1: Courses 101A, 101B, 101C, 103, 103C, 118A–118B–118C, 119, 126, 142.

Group 2: Courses 100A, 106.

Group 3: Courses 110, 112, 133, 133C, 134, 134C, 135, 136, 136C, 141, 159.

Group 4: Course 130A.

Curriculum for Medical Technicians.—For details, see pages 16 and 99.

1A. General Zoology. (4) I.

Mr. Heyneman

Lecture, two hours; laboratory, six hours; field trip. Recommended: Chemistry 1A or 2A.

Principles of animal biology, with emphasis on the invertebrates. Offered primarily for zoology majors and premedical students.

- 1B. General Zoology. (4) II.** Mr. Bartholomew
Lecture, two hours; laboratory, six hours. Prerequisite: course 1A and chemistry.
Principles of animal biology, with emphasis on comparative gross and microscopic anatomy and physiology of the vertebrates.
- 4. Histological Technique. (2) I, II.** Mrs. Humason
Lecture and laboratory, six hours. Prerequisite: course 1B or the equivalent, or consent of the instructor.
- 5. Technique for Tissue Technicians. (1) I.** Mrs. Humason
Lecture and laboratory, three hours. Prerequisite or concurrent: course 4 and consent of the instructor.
Designed to supplement course 4 with additional training necessary for tissue technicians.
- 15. Elementary Zoology and Physiology. (5) I, II.** Mr. Flickinger, Mr. Howell
Lecture, three hours; laboratory, six hours. Not open to premedical or zoology majors.
- 25. General Human Anatomy. (3) I, II.** Mr. Peabody
(Former number, 35.)
Lecture, two hours; laboratory, three hours. Prerequisite: course 15 and sophomore standing.

UPPER DIVISION COURSES

- 100A. Vertebrate Embryology. (4) I.** Mr. Schechtman
(Formerly numbered 100.)
Lecture, two hours; laboratory, six hours. Prerequisite: courses 1A, 1B, or the equivalent.
Study of embryologic development of the main classes of vertebrates, with emphasis in the laboratory on the amphibian, bird, and mammal.
- 100B. Advanced Mammalian Embryology. (3) II.** Mr. Schechtman
Lecture, two hours, laboratory, three hours. Prerequisite: course 100A.
The development of mammals, with emphasis on man and common laboratory mammals; selected topics on the physiology of the fetus and placental function.
- 101A. Introduction to General Physiology. (3) I.** Mr. Crescitelli
Prerequisite: courses 1A, 1B, or the equivalent. Chemistry 1A, 1B, 5A, 8; Physics 2A, 2B, or the equivalent are recommended.
Special emphasis on the physical and chemical properties of protoplasm; osmotic relations and permeability of living cells; physiological action of ions and principles of enzyme action.
- 101B. General Physiology. (3) II.**
Prerequisite: course 101A. Mr. Crescitelli.
Continuation of course 101A with emphasis on oxidation-reduction systems, excitation, inhibition, respiration, and muscle contraction.
- 101C. Laboratory in General Physiology. (3) II.** Mr. Levedahl
Laboratory, six hours; discussion, one hour. Prerequisite: courses 101A, 101B. Course 101B may be taken concurrently.

- 102. Vertebrate Physiology. (3) II.** Mr. James
Prerequisite: upper division standing.
Physiology of those systems which are concerned with the integration of body functions and with determination of behavior, with special emphasis on reflexes, motor coordination, and visceral functions. Designed particularly for majors in psychology and related fields.
- 103. Experimental Embryology. (8) II.** Mr. Flickinger
Prerequisite: courses 1A, 1B, or the equivalent; recommended: course 100.
Principles governing histological and morphological differentiation; an analysis of the factors involved in growth and differentiation of cells and tissues.
- 103C. Experimental Embryology Laboratory. (2) II.** Mr. Flickinger
Prerequisite or concurrent: course 103.
- 104. Advanced Histological Technique. (2) II.** Mrs. Humason
Lecture and laboratory, six hours. Prerequisite: course 4 or the equivalent, and consent of the instructor.
Laboratory training in the special techniques required by major students in their fields of interest.
- 106. Comparative Anatomy of the Vertebrates. (4) II.** Mr. Peabody
Lecture, two hours; laboratory, six hours. Prerequisite: course 1B.
A study of the major concepts of vertebrate morphology, with particulars drawn from embryonic and fossil materials, as well as recent adult forms. Laboratory study mainly of the shark and cat.
- 107. Microanatomy. (4) I.** _____
Lecture, two hours; laboratory, six hours. Prerequisite: course 1B.
The structure and activities of cells and tissues, with emphasis on the mammals. Designed for zoölogy majors.
- 108. Comparative Histology of Vertebrates. (2) II.** _____
Lecture, one hour; laboratory, three hours. Prerequisite: course 107.
Comparative study of microanatomy of organ systems of fishes, amphibians, reptiles, birds with mammals.
- 110. Protozoology. (4) II.** Mr. Ball
Lecture, two hours; laboratory, six hours. Prerequisite: course 1A.
- 111. Parasitology. (2) I.** Mr. Ball
Prerequisite: course 1A.
- 111C. Parasitology Laboratory. (2) I.** Mr. Ball
Prerequisite or concurrent: course 111.
- 111H. Laboratory Aide Training in Parasitology. (2) I.** Mr. Ball
Prerequisite or concurrent: course 111C.
For persons intending to become laboratory technicians.
- 112. Invertebrate Zoology. (4) I.** Mr. Bullock
Lecture, two hours; laboratory and field, six hours. Prerequisite: upper division standing and general zoology.
Morphologic, systematic, and ecologic aspects of invertebrates.

- 115. Helminthology. (4) II.** Mr. Heyneman
Lecture, two hours; laboratory, six hours. Prerequisite: course 111 or consent of the instructor.
A general course in the helminth parasites of animals.
- 118A. Introductory Endocrinology. (3) I.** Mrs. Szego-Roberts
Prerequisite: course 1B or the equivalent. Chemistry 8 recommended.
A survey of the influence of hormonal mechanisms on body structure and function.
- *118B. Advanced Endocrinology. (3) II.** Mrs. Szego-Roberts
Lecture, two hours; discussion and conference, one hour. Prerequisite: course 118A, Chemistry 8.
Continuation of course 118A. Detailed analysis of selected endocrine interrelationships and discussion of current research in the field.
- *118C. Endocrinology Laboratory. (3) II.** Mr. Szego-Roberts
Laboratory, six hours; discussion, one hour. Prerequisite or concurrent: course 118B and consent of the instructor.
- 119. Isotopic Tracers in Biology. (3) I.** Mr. Levedahl
Lecture, two hours; discussion or demonstration, one hour. Prerequisite: one of the following: courses 101A, 118A, and 118B; Botany 160A; Bacteriology 106; or Chemistry 108A.
The use of isotopic tracers in the study of biological processes, including methods, problems investigated, interpretation of data, and possible future developments. For majors in the biological sciences.
- ‡123. Invertebrate Embryology. (3) I.** Mr. Flickinger
Lecture, two hours; laboratory, three hours. Prerequisite: course 1A-1B or the equivalent.
Study of the embryonic development of various invertebrates.
- 125. Heredity and Evolution. (2) II.** Mr. Siegel
Lecture, two hours. Prerequisite: junior standing. Not open to students who have taken course 1A, or to majors in zoology, botany, or bacteriology, or to premedical students.
- †126. Chemical Embryology. (2) I.** Mr. Flickinger
Lecture, two hours. Prerequisite: course 103.
Study of various experiments concerned with biochemical aspects of growth and differentiation.
- 127. Immunobiology. (3) II.** Mr. Schechtman
Lecture, three hours. Prerequisite: one year of biological sciences, or consent of the instructor.
Antibody production in the vertebrates, including the blood groups of man and animals; their use in the study of various problems of biology, including systematics and genetics.
- 129. Application of Optical Instruments to Biological Problems. (2) I.** Mr. James
Lecture and demonstration, two hours. Prerequisite: Physics 1D or 2B.
A course designed for students in the biological sciences to acquaint them with the microscope, its potentialities and its limitations.

* Not to be given, 1956-1957.

† Given in alternate years, beginning 1957-1958.

‡ Given in alternate years, beginning 1956-1957.

- 130A. Introductory Genetics. (2) I.** Mr. Hinton
Lecture and discussion, two hours. Prerequisite: course 1A or the equivalent.
The principles of heredity and their bearings on reproduction and evolution. Intended primarily for majors in zoology and bacteriology, and pre-medical students.
- 130C. Genetics Laboratory. (2) I.** Mr. Hinton
Laboratory, six hours. Prerequisite or concurrent: course 130A.
Breeding experiments to illustrate the principles of genetics.
- 131A. Developmental Genetics. (2) I.** Mr. Siegel
Lecture, two hours. Prerequisite: course 130A or Botany 140.
The roles of genes in embryonic development and cellular differentiation.
- 131B. Physiological Genetics. (2) II.** Mr. Hinton
Lecture, two hours. Prerequisite: course 130A or Botany 140.
The roles of genes in the regulation of physiological processes, particularly at the molecular level.
- 131C. Advanced Genetics Laboratory. (2) II.** Mr. Siegel
Laboratory, six hours. Prerequisite or concurrent: course 130C and either 131A or 131B.
- 132A. General Cytology. (2) I.** Mr. Bloch
Lecture, two hours. Prerequisite: course 1B.
The structure and function of cytoplasm and nucleus of animal cells.
- 132B. Nuclear Cytology. (2) II.** Mr. Bloch
Lecture, two hours. Prerequisite: course 130A.
The morphology, chemical nature, and functions of the nucleus of animal cells, with emphasis on chromosomal structure and relation to genetics.
- 132C. Cytology Laboratory. (2) II.** Mr. Bloch
Laboratory, six hours. Prerequisite or concurrent: course 132A or 132B.
- 133. Biology of the Cold-Blooded Vertebrates. (2) II.** Mr. Cowles
Lecture, two hours. Prerequisite: courses 1A and 1B, and upper division standing.
The systematics, distribution, physiology, and ecology of amphibians and reptiles, with a brief account of the fishes.
- 133C. Laboratory in Cold-Blooded Vertebrates. (2) II.** Mr. Cowles
Laboratory, six hours; field trips. Prerequisite or concurrent: course 133.
- 134. Biology of Birds and Mammals. (3) I.** Mr. Bartholomew
Lecture, three hours. Prerequisite: courses 1A, 1B.
The ecology, physiology, distribution, and behavior of birds and mammals.
- 134C. Laboratory in Birds and Mammals. (2) I.** Mr. Bartholomew
Laboratory, six hours; field trips. Prerequisite or concurrent: course 134.
- 135. Ichthyology. (4) I.** Mr. Walker
Lecture, two hours; laboratory, six hours; field trips. Prerequisite: courses 1A, 1B, and upper division standing.
The evolution, systematics, ecology, and biology of fishes, with special emphasis on local marine forms.
- 136. Fisheries Biology. (2) II.** Mr. Walker
Lecture, two hours. Prerequisite: course 1B.
Review of commercial and sport fisheries; methods of study and management.

- 136C. Laboratory in Fisheries Biology. (2) II.** Mr. Walker
Laboratory, six hours; field trips. Prerequisite: courses 135 and 136, or
136 concurrent and consent of the instructor.
Designed for students planning further work in this field.
- 138. Biology and Human Welfare. (3) I.** Mr. Cowles
Prerequisite: upper division standing, but no prerequisite courses.
History of major contributions of biology to human welfare, health, economics, and philosophy; and a survey of the resulting problems and aspects.
- 139. Biological Effects of Radiation. (3) II.** Mr. Levedahl
Prerequisite: upper division standing.
General biological responses following exposure of plants, animals, and man to ionizing radiations, especially those emanating from products of nuclear reactions.
- 140. Development of Biological Ideas. (3) I.** Mr. Furgason
Prerequisite: upper division standing and at least one year in the biological sciences.
History of the biological sciences.
- 141. Advanced Ornithology. (4) II.** Mr. Howell
Lecture, two hours; laboratory and field trips, six hours. Prerequisite: course 134 or consent of the instructor.
The systematics, distribution, evolution, and field biology of birds.
- 142. Comparative Physiology. (4) II.** Mr. Bullock
Lectures, two hours; laboratory, six hours. Prerequisite: courses 1A, 1B; recommended: courses 101, 112.
A survey of the differences in mechanism among animal groups of the several organ systems, nervous, endocrine, nutritive, respiratory, excretory, reproductive, etc. Experimental work chiefly upon invertebrates.
- 159. Physical Ecology. (2) II.** Mr. Bartholomew, Mr. Walker
Prerequisite: course 1B.
A survey of the physical and chemical factors of the environment as they affect the distribution and mode of life of animals.
- 195A-195B. Reading in Zoology. (2-2) Yr.** The Staff
Prerequisite: senior standing.
Library problems.
- 199A-199B. Problems in Zoology. (2-2) Yr.** The Staff
Prerequisite: senior standing with such special preparation as the problem may demand.

GRADUATE COURSES

- 201. Advanced Cellular Physiology. (3) II.** Mr. Jahn
Prerequisite or concurrent: course 101B.
Permeability, salt accumulation, bioelectric phenomena, oxidation-reduction potentials, effect of temperature and cell metabolism.
- †202A-†202B-†202C. **Advanced General Physiology. (2) I.** Mr. Crescitelli
Prerequisite: courses 101A, 101B.
Among topics discussed are respiration, enzymes, nerve physiology, vitamins, tracer techniques, and physiology of growth.

† Each course given every third year, 202B to be given, 1956-1957.

- 204. Kinetics of Biological Systems. (1) I.** Mr. Levedahl
Prerequisite: courses 101A-101B or Biochemistry 108A-108B. Recommended: calculus and physical chemistry.
A consideration of the basis and practice of modern enzyme kinetics.
- 205. Comparative Cellular Physiology. (2) I.** Mr. Levedahl, Mr. James
Prerequisite: courses 101A-101B, 201. Recommended: course 204, calculus, and physical chemistry
Designed for senior graduate majors in general physiology. Subjects covered will be phosphate metabolism, energy metabolism, adaptive enzymes, and physiological evolution.
- 206. Advanced Vertebrate Morphology. (3) I.** Mr. Peabody
Lecture, two hours; laboratory, three hours. Prerequisite: course 106.
Problems in vertebrate morphology with emphasis on evolution of the skeleton and muscles. Lectures, assigned reading and laboratory study of fossil and living vertebrates. Designed for students in vertebrate zoology.
- 209. Physiology of the Peripheral Nervous System. (2) II.**
Lecture, two hours. Mr. Crescitelli
Excitation and conduction in peripheral nerves, transmission in ganglia, and properties of neurone chains and reflexes.
- 210. Physiology of Protozoa. (2) I.** Mr. Jahn
Lecture, two hours. Recommended: course 110.
Protoplasmic structure, locomotion, motor responses, respiration, excretion, metabolism, growth and nutrition of protozoa, especially as compared with other groups of organisms.
- 210C. Physiology of Protozoa Laboratory. (2) I.** Mr. James
Prerequisite or concurrent: course 210.
The use of phase, polarizing and darkfield microscopes, microdissecting apparatus, microrespirometers, and bacteria-free culture techniques applied to study of the protozoa.
- 211. The Physiology of Animal Parasites. (2) II.** Mr. Heyneman
Prerequisite: courses 101A, 111.
Lectures on nutrition, metabolism, physiological ecology, and protoplasmic evolution of parasitic protozoa, helminths, and arthropods.
- 230. Advanced Genetics. (2) II.** Mr. Hinton
Prerequisite or concurrent: course 130A or Botany 140.
Elucidation of genetics through the study of experimental animal cytogenetics, chromosomal alteration, position effect, irradiation effects, and mutations.
- 231. Human Familial Genetics. (2) I.** Mr. Hinton
Lecture, two hours. Prerequisite: course 130A.
A survey of human genetics with emphasis on methodology.
- 232. Analytical Cytology. (2) I.** Mr. Bloch
Prerequisite: course 132A or 132B.
Application of physical and chemical methods to the determination of cell structure and function.
- 242. Comparative Neurology. (2) I.** Mr. Bullock
Lecture, two hours.
Evolution of structure and function of nervous systems in invertebrates and vertebrates, with special reference to the central nervous system.

† To be given in alternate years, beginning fall, 1957-1958.

250. **Survey of Animal Biology. (2) II.** Mr. Furgason
Prerequisite: course 140 and consent of the instructor.
A review of the basic concepts and theories of biological sciences as viewed with historical perspective and as related to contemporary viewpoints.
- 251A-251B. **Seminar in Ecology of Amphibia and Reptiles. (2-2) Yr.** Mr. Cowles
- 251C-251D. **Seminar in Ecology of Birds and Mammals. (2-2) Yr.** Mr. Bartholomew, Mr. Howell
- 252A-252B. **Seminar in Endocrinology. (2-2) Yr.** Mr. Szego-Roberts
- 253A-253B. **Seminar in Genetics. (2-2) Yr.** Mr. Bloch, Mr. Hinton
Prerequisite: course 131A or 131B.
- 254A-254B. **Seminar in Physiology of Development. (2-2) Yr.** Mr. Flickinger, Mr. Schechtman
- 255A-255B. **Seminar in Protozoology and Parasitology. (2-2) Yr.** Mr. Ball, Mr. Heyneman
256. **Seminar in Genetics of Protozoa. (2) II.** Mr. Siegel
Prerequisite: course 131A or 131B.
257. **Seminar in Comparative Physiology. (2) II.** Mr. Bullock
258. **Seminar in Physiology of Sense Organs. (2) I.** Mr. Jahn
- 260A. **Seminar in Ichthyology. (2) I.** Mr. Walker
- 260B. **Seminar in Fisheries Biology. (2) II.** Mr. Walker
263. **Seminar in Physiology of Microorganisms. (2) II.** Mr. Jahn, Mr. James
- †264A-264B. **Seminar in Kinetics of Biological Systems. (2) Yr.** Mr. Levedahl
Prerequisite: course 204.
266. **Seminar in Vertebrate Paleontology. (2) II.** Mr. Peabody
- 267A-267B. **Seminar in Animal Cytology. (2-2) Yr.** Mr. Bloch
Prerequisite: any of the following: course 132A, 132B, 230, Botany 111 or 141.
- 290A-290B. **Research in Zoology. (2-6; 2-6) Yr.** The Staff

PALEONTOLOGY

Courses in general and invertebrate paleontology are offered by the Department of Geology (see page 208).

LIFE SCIENCES

- 1A-1B. **Fundamentals of the Life Sciences. (3-3) Yr.** Mr. Furgason, Mr. Thompson

Lecture, demonstration, discussion, three hours.

In order to obtain biological science credit, students must complete year course. Both semesters must be satisfactorily completed to fulfill the College of Letters and Science requirement of at least 5 units in biological science.

* Not to be given, 1956-1957.

† Given in alternate years beginning spring 1956-1957.

370. Methods and Materials for Teaching Life Science. (3) II.

Mr. Cowles, Mr. Herbst

Lecture, demonstration, field trips. Prerequisite: major in biological sciences, senior or graduate status, and one of the following courses: Botany 3, Zoology 112, 133, or 134. Required of all prospective life science teachers who wish to secure the general secondary or junior college credential. It must be taken prior to practice teaching courses, Education G377, G378, and G379.

BIOLOGY‡**12. Natural History. (3) 1.**

Mr. Cowles

Lecture, three hours; demonstration, one hour; one required field trip in the semester. Prerequisite: high school biological science or the equivalent, or consent of the instructor.

The biology of our environment, the common animals and some plants of southern California; their interrelationships, and their relationship to climate.

‡ The attention of nonscience majors is called to Zoology 138, Biology and Human Welfare (see page 362). This course is designed for students not majoring in zoology.

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