

BULLETIN

1958-1959



UNIVERSITY OF CALIFORNIA

GENERAL CATALOGUE

DEPARTMENTS AT
LOS ANGELES

Fall and Spring Semesters
1958-1959

AUGUST 10, 1958

Price Twenty-five Cents

LOS ANGELES, CALIFORNIA

BULLETIN

PUBLISHED AT BERKELEY, CALIFORNIA

Volume 52-A • August 10, 1958 • Number 6

(Volume 52-A will contain twelve issues dated from July 1 through September 20, 1958.)

A series in the administrative bulletins of the University of California Entered July 1, 1911, at the Post Office at Berkeley, California, as second-class matter under the Act of Congress of August 24, 1912 (which supersedes the Act of July 16, 1894). Thirty-four issues a year—three times a month, January and February, and four times a month, March through September.

All announcements herein are subject to revision. Changes in the list of Officers of Administration and Instruction may be made subsequent to the date of publication, August 10, 1958.

GENERAL INFORMATION

Letters of inquiry concerning the University of California, Los Angeles, should be addressed to the Registrar, University of California, 405 Hilgard Avenue, Los Angeles 24, California.

Letters of inquiry concerning the University in general should be addressed to the Registrar, University of California, Berkeley 4, California.

For the list of bulletins of information concerning the several colleges and departments, see page 3 of the cover of this bulletin.

In writing for information please mention the college, department, or study in which you are chiefly interested.



The registered cable address of the University of California, Los Angeles, is UCLA.

UNIVERSITY OF CALIFORNIA • LOS ANGELES

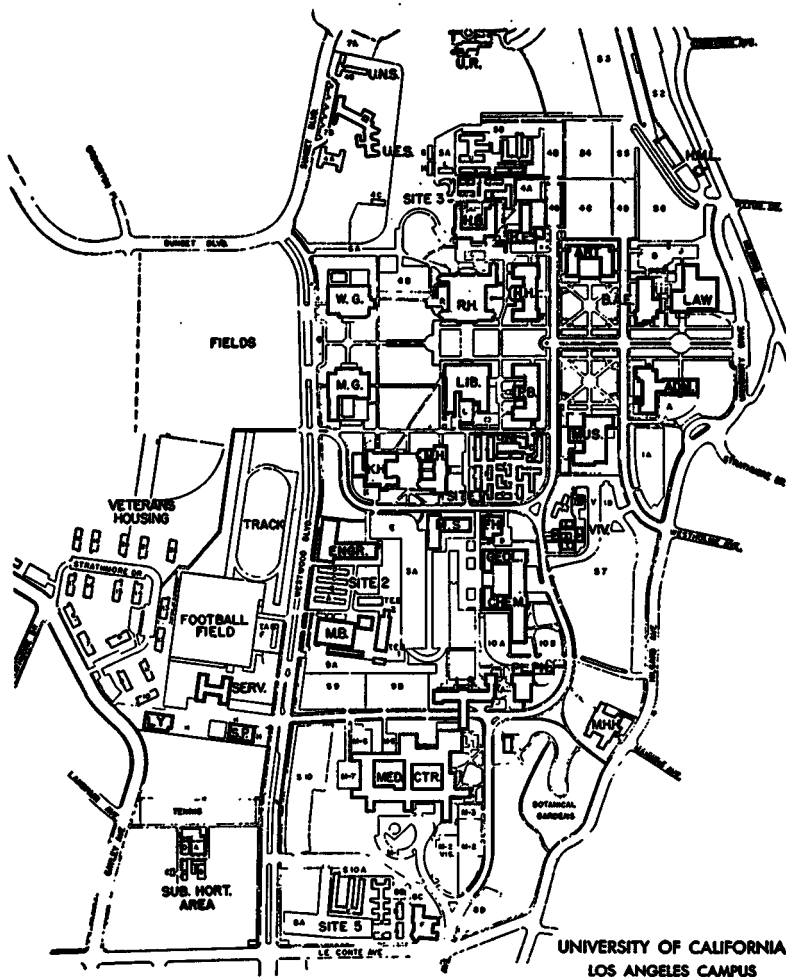
General Catalogue

DEPARTMENTS AT LOS ANGELES

Fall and Spring Semesters

1958-1959

AUGUST 10, 1958



Adm Administration Building
Art Dickson Art Center
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
PB Physics-Biology Building
PI Ph Plant Physiology Building
RH Royce Hall
TEB 1 } Temporary Engineering
TEB 2 } Buildings
UES University Elementary School
UNS University Nursery School
Viv Vivarium
WG Women's Gymnasium
5A, 5B, } University Extension
5C

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CALENDAR, 1958-1959

1958

FALL SEMESTER

Aug. 1, Friday	Applications for admission to graduate standing in the fall semester, with complete credentials, must be filed on or before this date (April 15 for Social Welfare and July 15 for Engineering and Nursing).
Aug. 1, Friday	Last day to file application for readmission in graduate standing by students returning after an absence (July 15 for Engineering).
*Aug. 15, Friday	Applications for admission to undergraduate standing in the fall semester, with complete credentials, must be filed on or before this date (April 12 for the College of Engineering, and July 15 for the registered nurses' program in the School of Nursing).
Aug. 27, Wednesday	Last day to file applications for readmission in undergraduate standing by students returning after an absence.
Sept. 8, Monday Sept. 13, Saturday	} Counseling of students.
Sept. 10, Wednesday	Examination in Subject A.
Sept. 10, Wednesday	Examination in English for foreign students.
Sept. 15, Monday	Fall semester begins.
Sept. 15, Monday Sept. 17, Wednesday	} Registration of all students who did not register by mail, for details, see REGISTRATION CIRCULAR and official bulletin boards.
Sept. 19, Friday	Special examination in Subject A.
Sept. 22, Monday	Instruction begins.
Oct. 3, Friday	Last day to file registration packets or to change study lists <i>without fee</i> .
Oct. 6, Monday	Last day to file applications for advancement to candidacy for the master's degree to be conferred in January, 1959.
Oct. 7, Tuesday	Last day to add courses to study lists.
Oct. 7, Tuesday	Last day to file registration packets without penalty of lapse in status as a student in the University.
Oct. 16, Thursday	Last day to file applications for foreign language screening tests to be given October 25.
Oct. 25, Saturday	Foreign language screening tests.
Oct. 25, Saturday	Last day to file <i>without fee</i> notice of candidacy for the bachelor's degree to be conferred in January, 1959.
Oct. 27, Monday 8:00 p.m.	} Last day to drop courses from study lists without penalty of grade F (failure).
Nov. 15, Saturday	End of mid-term period.
Nov. 27, Thursday Nov. 28, Friday	} Thanksgiving holiday—academic and administrative holiday.
Nov. 27, Thursday Nov. 29, Saturday	} Fall recess.
Dec. 1, Monday	Last day to file in final form with the committee in charge theses for the doctor's degree to be conferred in January, 1959.
Dec. 13, Saturday	Last day to file notice of candidacy for the bachelor's degree to be conferred in January, 1959.

* April 12, Saturday, qualifying examination for admission to the College of Engineering in the fall semester, 1958. March 20, 1959, last day to file application for admission or readmission to the College of Engineering in the fall semester, 1959. March 7, Saturday, qualifying examinations, lower and upper division, for admission to the College of Engineering in the fall semester, 1959.

Dec. 20, Saturday	} Christmas recess.
Jan. 8, Saturday	
Dec. 25 and 26, Thursday and Friday	} Christmas holiday—academic and administrative holiday.

1959

Jan. 1 and 2, Thursday and Friday	} New Year's holiday—academic and administrative holiday.
Jan. 5, Monday	Classes resume.
Jan. 5, Monday	Last day to file in final form with the committee in charge theses for the master's degree to be conferred in January, 1959.
Jan. 17, Saturday	Instruction ends.
Jan. 19, Monday	Last day to file with the Dean of the Graduate Division completed copies of theses for the master's and doctor's degree to be conferred in January, 1959.
Jan. 19, Monday Jan. 28, Wednesday	} Final examinations, fall semester.
Jan. 29, Thursday	Fall semester ends.

1958

SPRING SEMESTER

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

1959

Jan. 10, Saturday	Last day for resident students to file application for undergraduate scholarships for the academic year 1959-1960.
*Jan. 15, Thursday	Applications for admission to undergraduate standing in the spring semester, with complete credentials, must be filed on or before this date (November 26 for the College of Engineering, and January 2 for the registered nurses' program in the School of Nursing).
Jan. 15, Thursday	Last day to file applications for readmission in undergraduate standing by students returning after an absence, (November 26, for the College of Engineering).
Jan. 26, Monday Jan. 31, Saturday	} Counseling of students.
Jan. 26, Wednesday	✓ Examination in English for foreign students.
Feb. 2, Monday	Examination in Subject A.
Feb. 2, Monday	Spring semester begins.
Feb. 3, Tuesday Feb. 4, Wednesday	} Registration of all students who did not register by mail. For details, see REGISTRATION CIRCULAR and official bulletin boards.
Feb. 6, Friday	Special examination in Subject A.
Feb. 6, Friday	Last day to file applications for fellowship and graduate scholarships tenable at Los Angeles for 1959-1960.
Feb. 9, Monday	Instruction begins.
Feb. 16, Monday	Last day to file applications for advancement to candidacy for the master's degree to be conferred in June or in August, 1959.
Feb. 20, Friday	Last day to file registration packets or to change study lists <i>without fee</i> .
Feb. 23, Monday	Washington's Birthday—academic and administrative holiday.

* December 6, 1958, Saturday, qualifying examinations, lower and upper division, for admission to the College of Engineering in the spring semester, 1959.

Feb. 25, Wednesday	Last day to add courses to study lists.
Feb. 25, Wednesday	Last day to file registration packets without penalty of lapse in status as a student in the University.
Feb. 26, Thursday	Last day to file applications for foreign language screening tests to be given March 7.
Mar. 2, Monday	Last day for entering students to file application for undergraduate scholarships or for Alumni Association scholarships for the academic year 1959-1960.
Mar. 7, Saturday	Foreign language screen tests.
Mar. 16, Monday 8:00 p.m.	} Last day to drop courses from study lists without penalty of grade F (failure).
Mar. 21, Saturday		Last day to file without fee notice of candidacy for the bachelor's degree to be conferred in June, 1959.
Mar. 30, Monday Apr. 4, Saturday	} Spring recess.
Apr. 10, Friday		Last day to file in final form with the committee in charge theses for the doctor's degree to be conferred in June, 1959.
Apr. 11, Saturday	End of mid-term period.
Apr. 27, Monday	Last day to file with the committee in charge theses for the master's degree to be conferred in June, 1959.
May 9, Saturday	Last day to file notice of candidacy for the bachelor's degree to be conferred in June, 1959.
May 29, Friday	Last day to file with the Dean of the Graduate Division completed copies of theses for the master's and doctor's degrees to be conferred in June, 1959.
May 29, Friday	Instruction ends.
May 30, Saturday	Memorial Day—academic and administrative holiday.
June 1, Monday June 10, Wednesday	} Final examinations, spring semester.
June 11, Thursday	

THE REGENTS OF THE UNIVERSITY

REGENTS EX OFFICIO

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of the Regents
State Capitol, Sacramento 14

HAROLD J. POWERS
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

ARTHUR J. MCFADDEN, B.S., LL.B.
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902 River lane, Santa Ana

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804 Mechanics' Institute bldg,
San Francisco 4

JOHN V. VAUGHAN, A.B.
President of the Alumni Association of
the University of California
3825 S Garfield av, Los Angeles 22

CLARK KERR, Ph.D., LL.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 38

VICTOR R. HANSEN, LL.B. (1962)
8517 Woodhaven blvd,
Bethesda 14, Maryland

CORNELIUS J. HAGGERTY (1966)
995 Market st, Room 810,
San Francisco 3

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

DONALD H. MCLAUGHLIN, 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)
58 Sutter st, Room 417, San Francisco 4

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 53

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

MRS. CATHERINE HEARST (1974)
701 N Canon dr, Beverly Hills

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

PHILIP L. BOYD, A.B. (1972)
3900 Market st, Riverside

JERD F. SULLIVAN, JR. (1964)
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1 Montgomery st, San Francisco 4

JOHN E. CANADAY, A.B. (1974)
Lockheed Aircraft Corporation,
2555 N Hollywood way, Burbank

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State Capitol, Sacramento 14

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240 Administration bldg, Berkeley 4

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Business Affairs
250 Administration bldg, Berkeley 4

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250 Administration bldg, Berkeley 4

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128 Administration bldg, Berkeley 4

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UNIVERSITY OF CALIFORNIA

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———, *Chancellor at Berkeley.*
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Llewellyn M. K. Boelter, M.S., *Dean of the College of Engineering.*

- Fred E. Case, M.B.A., D.C.S., *Assistant Dean of the School of Business Administration and Assistant Dean of the Graduate School of Business Administration.*
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- , *Associate Dean of the School of Medicine.*
- Thomas H. Sternberg, M.D., *Assistant Dean for Postgraduate Medical Education, School of Medicine.*
- Stafford L. Warren, M.D., *Dean of the School of Medicine.*
- Howard E. Wilson, Ph.D., *Dean of the School of Education.*

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

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

M. Theodore Kearney Foundation of Soil Science

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

* 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 3 of the cover of this bulletin.

The Institute of Geophysics (in part)
 The Institute of Industrial Relations (in part)
 The Institute of International Studies
 The Institute of Personality Assessment and Research
 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 Virus 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
 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

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

IV. AT DAVIS

The College of Agriculture
 The College of Letters and Science
 The School of Veterinary Medicine
 The Agricultural Experiment Station (in part)

V. AT RIVERSIDE

The College of Letters and Science
The Citrus Experiment Station

VI. AT MOUNT HAMILTON

The 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. A 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 Transit Authority bus via Wilshire Boulevard, and Metropolitan Transit Authority 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 Transit Authority bus via Hollywood and Sunset boulevards. From *Santa Monica*, Metropolitan Transit Authority bus 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 degrees of Associate in Arts, Bachelor of Arts, and Bachelor of Science; also, the following preprofessional curricula: prebusiness, precriminology, pre dental, pre dental hygiene, premedical, prepharmacy, and presocial welfare; (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 a curriculum 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 School of Business Administration, with curricula leading to the degree of Bachelor of Science; (f) the School of Public Health, with curricula leading to the degree of Bachelor of Science; (g) the School of Nursing, with curricula leading to the degree of Bachelor of Science; (h) the School of Law, with a curriculum leading to the degree of Bachelor of Laws; and (i) 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 1,300,000 accessioned volumes and regularly receives about 18,000 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 receives selected publications of the other states and territories and of foreign governments.

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 67,000 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 makes available the resources of the University to those who cannot take up residence at one of the campuses or who prefer a part-time special program. Its program includes classes, correspondence courses, conferences, and special activities in a wide variety of subjects. These include art, business administration, economics, geography, history, industrial relations, languages, literature, mathematics and physical sciences, music, philosophy, political science, psychology, real estate, sociology, speech, and many others.

During the past few years, an increasing number of programs have been made available to professional people and others with advanced training. Study at the professional level is offered in engineering, law, medicine, dentistry, education, and other fields. However, many University Extension offerings are in the more general subjects and are open to all adults who can pursue the work with profit.

Veterans may use the educational benefits available to them under Federal

* This library is not on the University campus but is situated at 2205 West Adams Boulevard (Telephone RE 8-5925). From the Los Angeles campus, it may be reached by Metropolitan Transit Authority bus to Western Avenue transferring to the "84" bus; from downtown, by the "11" bus. The library is open Mondays through Saturdays from 8 A.M. to 5 P.M.

and State laws to enroll in University Extension courses, provided the classes are part of their prescribed and recognized objectives approved by the Veterans Administration.

The educational services of University Extension are directed toward three primary goals: to help men and women advance professionally, to aid them in meeting their responsibilities as citizens, and to assist them in the pursuit of intellectual and cultural interests.

Six principal services are provided:

1. Classes may be organized in any community of the State where a sufficient number of persons wish to study a particular subject. Discussion groups in world politics and the liberal arts may also be arranged.

2. Correspondence courses, prepared by members of the University faculty and covering a wide variety of subjects, are given by mail.

3. Conferences, workshops, and institutes, for periods ranging from one day to several weeks, provide intensive instruction for groups interested in specialized knowledge.

4. Educational motion pictures, from the large library of 16-millimeter films maintained by University Extension, are available for loan to all persons in the State, both individuals and groups. Educational and documentary films produced under the supervision of the Department of Theater Arts may be purchased.

5. Lectures, singly or in series, may be arranged for clubs and organizations.

6. Vocational counseling is now available to the general public through University Extension's Counseling and Testing Services.

For detailed information, write or telephone to University Extension offices at the following locations: 405 Hilgard Avenue, Los Angeles 24 (BRadshaw 2-6161 or GR 3-0971, extension 721); 813 South Hill Street, Los Angeles 14 (TUcker 6123); University of California, Berkeley 4; University Extension Building, University of California, Riverside; 129 East Carrillo Street, Santa Barbara.

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 three groups: the regular students, the special students, and the limited 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 conditions for admission as special or limited student are given on page 16 C. Special and limited are not probationary statuses and students are not admitted for the purpose of making up deficiencies for admission to regular undergraduate status.

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 REGULAR 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. This fee is not refundable. 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

* Applicants who have not prepared themselves with the required certificate may, upon request, be vaccinated by Student Health Service at the time of their physical examination.

his entrance. These principles apply to admission in either freshman or advanced standing.

EXAMINATION

Beginning with September, ~~1959~~¹⁹⁶⁰, all applicants for undergraduate status must present a satisfactory record in the College Entrance Examination Board Scholastic Aptitude Test: arrangements to take this test must be made with Educational Testing Service, Box 27896, Los Angeles 27, California or Box 592, Princeton, New Jersey.

Test Dates

December 6, 1958
January 10, 1959
February 14, 1959
March 14, 1959
May 16, 1959
August 12, 1959

Test Application Deadlines

November 15, 1958
December 13, 1958
January 24, 1959
February 14, 1959
April 18, 1959
July 22, 1959

ADMISSION IN FRESHMAN STANDING

(Nonresidents see "Limitation of Enrollment of Out-of-State Applicants," page 16 C.)

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 Office of Admissions 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 Office of Admissions complete transcripts of record of all studies undertaken in such schools. Transcripts will not be considered official unless sent directly by the issuing school to the Office of Admissions. The transcripts must show that the applicant has been graduated from an accredited high school.* The Office of Admissions 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 and the School of Business Administration. See page 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.

* 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.

- (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 an integrated two-year course covering the same material. Advanced algebra and trigonometry may be substituted for algebra, and trigonometry and solid geometry for plane geometry.
- (d) Laboratory science 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.
- (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. Science, 1 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, with a grade of D may not be counted either in reckoning the required scholarship or in satisfaction of a subject requirement. An A grade may not be used to compensate for D, E, or F grades. 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 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 scholarship ranks in the highest tenth of his graduating class and present a record that, while not including the exact pattern of subjects (a) to (f) listed above, does show substantial academic preparation, that is, not

less than 10 units in courses designated by the high school principal as college preparatory in nature and chosen from the fields of English, mathematics, science, foreign language, and social sciences.

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 2 units of subject deficiencies in the required list (a) to (f), and in addition must receive in the (a) to (f) subjects attempted no grades lower than C and an average of at least B. (Grades earned in courses such as physical education, study period, work experience, military science, R.O.T.C., and religion are *not* to be counted under this method.)

Method IV

1. In any of the subjects (a) to (f) listed above that were completed in the tenth, eleventh, or twelfth years, achieve a scholarship standing:

(a) With no grade lower than C.

(b) With no more than $\frac{1}{2}$ unit of scholarship deficiency, i.e., not more than $\frac{1}{2}$ unit below the B average, and

2. Complete 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.

Method V

Experimental Plans of Admission:

(a) Agricultural Experimental Plan.—Applicants for admission to freshman standing in the College of Agriculture may meet the minimum subject requirements in Method I by substituting for the (e) foreign language requirement either (1) two years of agriculture or home economics, or (2) one year of mathematics or laboratory science in addition to that required under (f). Such substitute courses must be passed with grades not lower than C. Under this plan the grades received in the additional mathematics or science will be used in meeting the B average minimum scholarship requirement, but grades received in agriculture or home economics will not be so used.

The same substitution for the foreign language requirement may be made by applicants for advanced standing in the College of Agriculture.

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 one of the regular methods of admission.

(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 for waiving minor deficiencies when justification is evident in the form of unusual academic record or recommendations.

For the Scholastic Aptitude Test requirement effective fall, 1959, see page 9 C.

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 9 C), 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, PREREQUISITES AND RECOMMENDED SUBJECTS, which may be obtained from the Director of Relations with Schools, University of California, Los Angeles 24.

A statement of the requirements for the bachelor's degree is contained in the announcement of each college and school of the University. A copy of the desired announcement may be obtained from the Registrar or the Office of Admissions on the campus on which the college or school is located.

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 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 27896, Los Angeles 27, California, or P.O. Box 592, Princeton, New Jersey.* Definite arrangements to take the tests must be made at least four weeks prior 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 admissions requirements by satisfactory scores on the Scholastic Aptitude Test and on three achievement tests in subject fields included in the (a) to (f) list of subjects on page 9 C. If the (a) to (f) list of subjects has not been completed with grades of C or better, the applicant should consult the Office of Admissions 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 Office of Admissions regarding the tests he should take.

Removal of Admission Deficiencies

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

* See also page 9 C. The achievement examinations are not offered in the January and February test programs.

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

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. A satisfactory scholarship average must be maintained in other studies pursued in the meantime.

The applicant whose deficiency is caused by a low scholarship average 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 any other approved colleges. The applicant must include in his program courses acceptable for removing his subject shortages caused by omission or by grades of D or lower, and present either:

(a) a minimum of 30 units of transfer courses with a grade-point average of 2.4 (see explanation of grade points under 1. (b) on page 14 C), plus a satisfactory score on the College Entrance Examination Board Scholastic Aptitude Test. Arrangements to take this test may be made through the Educational Testing Service, P.O. Box 27896, Los Angeles 27, California, or P.O. Box 592, Princeton, New Jersey.

or

(b) sixty units or more of transfer courses with a grade-point average of 2.4.

Ordinarily, it is recommended that graduates of California high schools who are not eligible for admission to the University, attend one of the California junior colleges and complete there the lower division requirements of the college in which they wish to register. (See 2 below and the section on Admission in Advanced Standing.)

2. As an alternative to making up high school subject deficiencies, an applicant may be admitted on the basis of a record showing completion of at least 60 units with a grade-point average of 2.4, in which are included all of the subjects required for junior standing in a school or college of the University.

3. By satisfactory completion of specified courses in the Combination Program of the College of Agriculture at Davis. Admission to the Combination Program is based on high school record and aptitude test scores. The program will clear the applicant for admission to the College of Agriculture only.

4. By College Entrance Examination Board Examinations (refer to section on Admission by Examination)

5. 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 for waiving minor deficiencies when justification is evident in the form of unusual academic record or recommendations.

ADMISSION IN ADVANCED STANDING

(Nonresidents see "Limitations of Enrollment of Out-of-State Applicants," page 16 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:

† 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.

(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—in no case lower than a C average, and at least a C average in the last institution attended. "Scholarship standard" is expressed by a system of grade points and grade-point averages. One unit of A counts 4 grade points, one unit of B counts 3 grade points, one unit of C counts 2 grade points, one unit of D counts 1 grade point, and F yields no grade points. The grade-point average is determined by dividing the total number of grade points earned by the total number of units undertaken. Courses completed with a grade lower than C may be repeated but the units and grade points count each time the course is taken.

(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.

Credit for Courses Taken in Other Colleges

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. Transcripts will not be considered official unless sent directly by the issuing school to the Office of Admissions.

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 Ad-

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

missions, 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 23 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 of 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 by correspondence courses in University Extension.

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 lower division or upper division level. The examination is to be taken the semester previous to that in which the applicant desires to register. *The formal application for admission to the University as well as the application to take the test must be filed before the date scheduled for the examination.* Application to take the test is made to the Dean of the College of Engineering. The dates of the tests will be found in the Calendar, pages viii and ix. Students not taking the test on the date scheduled will not be considered for admission to the College of Engineering in the semester immediately following.

The *Engineering Examination Lower Division* 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. The *Engineering Examination Upper Division* is based on the subject matter of the required courses given in the first two years and presumes the completion of mathematics through integral calculus, general college chemistry, general college physics, English, and freshman and sophomore engineering studies in measurement, materials, graphics and statics.

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

Enrollment in the College of Engineering is limited and applicants are accepted only at the freshman, the junior, and the senior level.

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. 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 enrollment of applicants who are not residents of California, and only those of exceptional promise will be eligible for admission. In addition to the regular admission requirements described in detail in the sections on "Admission on the Basis of the High School Record" and "Admission in Advanced Standing," the special regulations below apply to nonresident applicants who are applying as freshman or who have less than 60 units of advanced standing credit; after September, 1959, the nonresident regulations will apply to all out-of-state applicants for undergraduate standing. Children of alumni of the University of California are not subject to the special nonresident requirements for admission, nor are applicants who at the time of application have become bona-fide residents of California.

The regulations below are designed to admit approximately the upper half of candidates eligible for admission under regular rules, as measured by scholastic record and aptitude tests.

FOR ADMISSION TO FRESHMAN STANDING, a grade-point average of 3.4* must be maintained in the required high school subjects (see page 9 C), plus a standing above 500 on the College Entrance Examination Board Scholastic Aptitude Test.

FOR ADMISSION WITH ADVANCED STANDING, a grade-point average of 2.8* must be maintained in college subjects acceptable for transfer credit, plus a standing above 500 on the College Entrance Examination Board Scholastic Aptitude Test. An advance-standing applicant who presents less than 30 units of acceptable transfer courses must also meet the high school requirements listed in the preceding paragraph.

Arrangements to take the College Entrance Examination Board test must be made through the Educational Testing Service, Box 592, Princeton, New Jersey, or Box 27896, Los Angeles 27, California.

ADMISSION OF RETURNING MEMBERS OF THE ARMED FORCES

Some exceptions in the subject requirements for admission will be made for men and women whose schooling has been appreciably delayed by service in the armed forces. 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 and 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. A veteran with a good scholarship record but with subject deficiencies, may if he is over 21 years of age, be classified as a special student until deficiencies are removed, or until all of the requirements for junior standing in the college of his choice have been completed.

ADMISSION OF SPECIAL AND LIMITED STUDENTS

Occasionally it is possible to admit to *special* or *limited* status an applicant who does not desire a degree but has some definite and limited objective

* One unit of A counts four grade points; one unit of B counts three grade points; one unit of C counts two grade points; one unit of D counts one grade point; one unit of E or F counts no grade points.

that could be met by completing university courses. Such applicants may or may not have college degrees. The conditions for admission of each applicant under these classifications are assigned by the officer in charge of admissions. Ordinarily, a personal interview is required before final action can be taken. The consent of the Dean of the college or school concerned is also necessary.

Prospective students who believe that special or limited status might meet their needs are urged to communicate with the Office of Admissions before filing application, explaining their plans and objectives so they may be advised as to how to proceed. *The following restrictions should be noted:* neither special nor limited status may be used as probationary status for either undergraduate or graduate admission. Students may not be admitted to either status for the purpose of taking elementary courses in art, music, theater arts, or foreign language. Admission is rarely granted for more than one semester and program and grade requirements are set in advance and must be strictly adhered to. Transcripts of record of all work beyond the eighth grade will ordinarily be required. The applicant may be required to take aptitude tests and the examination in Subject A. Students will not be admitted if their needs can be met by University Extension.

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 (undergraduates) or to the Dean of the Graduate Division (graduates) 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, advanced 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 Engineering, 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, 1958, for the fall semester, and not later than December 1, 1958, 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 2.5 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 12 for the fall semester, 1958, and March 20, 1959, for the fall semester, 1959, in 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 (November 26 for the College of Engineering, and January 2 for the registered nurses' program in the School of Nursing). For new graduate students, these dates are August 1 (April 15 for Social Welfare, and 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 27 (March 20, 1959, for the fall semester, 1959, in the College of Engineering) for the fall semester and not later than January 15 (November 26 for the College of Engineering) 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 student registering in the fall and continuing through the spring semester, and each student registering in the spring semester may, at need, have such medical care as the campus health service is staffed and equipped to provide, from the first day of the semester in which the student first registers during the academic year to the last day of the spring semester of the same academic year, or to the date of official withdrawal from the University. Additional service may be provided for seven days after the last day of the semester, at the discretion of the Director of the Student Health Service. Any prospective registrant who receives health service and who does not register for the next following semester shall be required to pay toward the cost of the service rendered him up to the amount of the incidental fee.

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.

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 University requirements in physical education referred to in this section cover Physical Education I, a 1-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.

the directions in the REGISTRATION CIRCULAR or the announcements which may be posted on the bulletin boards. The student must list the course 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 physical education, including a statement of the grounds upon which a student may be excused from this work, may be obtained from the Registrar.

RESERVE OFFICERS' TRAINING CORPS

Upon admission, 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 Science, Naval Science, or Air Science. The student must list the R.O.T.C. courses in which he has enrolled on his study card with other University courses.

Information concerning the requirements in R.O.T.C., 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, or Air Science 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 purpose of the Army R.O.T.C. is to qualify male students as leaders in their chosen fields, as far as the requirements of the service permit: engineering, communications, administration, logistics, personnel management, intelligence, and many others. The R.O.T.C. program qualifies graduates for commissions as officers in the United States Army Reserve, and selected graduates for commissions in the Regular Army.

The courses in general military science are prescribed by the Department of the Army and are designed to 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. The A.F.R.O.T.C. program is divided into two parts; (1) a two-year basic course of Air Age Citizenship indoctrination and (2) a two-year Advanced Course, that prepares selected cadets for Air Force Officer duty.

Entrance into the Advanced Course is based on academic standing, aptitude and physical qualifications. To qualify physically, a basic cadet applicant must have a visual acuity of not less than 20/20 bilaterally (uncorrected) for pilot training, and 20/50 bilaterally, correctable with eyeglasses to a vision of not less than 20/20 bilaterally for observer training. A number of outstanding engineering and basic science majors may also be enrolled in the Advanced Course from the basic course to train for nonflying officer positions.

The A.F.R.O.T.C. Program is coeducational. Women may pursue the basic and/or Advanced Course for credit. Junior students, who desire to train for a commission as a W.A.F. Officer, may apply for formal enrollment into the W.A.F. R.O.T.C. Program. Selected cadette applicants will be enrolled directly into the Advanced Course.

More detailed information is available elsewhere in this bulletin or in the ANNOUNCEMENT OF COURSES AND CURRICULA, DEPARTMENTS AT LOS ANGELES.

R.O.T.C. DRAFT DEFERMENT

Students who qualify and are accepted for the Advanced Course R.O.T.C. (junior and senior years) may be deferred from induction into the service under the authority contained in the Universal Military Training and Service Act (65 Stat. 75; 50 U.S.C. app. 451-467) as amended, and as further amended by the Reserve Forces Act of 1955 (P.L. 305, 84th Congress; DA Bull. 12, 1955).

For military deferment, see the department concerned. Students securing R.O.T.C. draft deferments need not request deferment through the Office of Special Services described on page 38 C of this bulletin.

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, immediately 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 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 6A, 6B, 7A, 7B, 8A, 8B, 101, 171A, 171B, 172, 173A, 173H, 174A, 174B, 175, 176, 177, 178A, 178B, 179, 180, 181; Political Science 1, 101, 113, 125, 141, 142, 145, 146, 166, 167A, 167B, 171, 186; History XL 17AB (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 a two-unit course on the principles and provisions of the Constitution of the United States.

Further information regarding the requirement and the optional examinations may be obtained from the Committee on American History and Institutions. For room number and officer 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

† 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, DEPARTMENTS AT LOS ANGELES.

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 officers 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 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, DEPARTMENTS AT LOS ANGELES.

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 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.

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

* 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.

† The assignment of grade points indicated in this section is the four-point system which became effective July 1, 1957.

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 4 points; B, 3 points; C, 2 points; D, 1 point; 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 twice as many grade points as there are units in the total credit value of all courses undertaken 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 below a C average; or

(2) If at the close of any subsequent semester, his grade-point average is less than 2.0 (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 2.0 (a C average); or

(3) If after two semesters of probationary status he has not obtained a grade-point average of 2.0 (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

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

† 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.

(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, 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 Office of Admissions 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 petition 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 and graduate students is \$60. 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. A Student Union fee of \$2 each semester is required of all undergraduate and graduate students. Membership in the Associated Students (fee \$8 for all rights and privileges) is required of all undergraduate students; see page 40 C. Membership in the Graduate Students Association (fee, \$2 for all rights and privileges) is required of all graduate students; 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 these fees will be refunded.

Nonresident Tuition Fee.—Tuition in the academic colleges is free to every student who has been a legal resident of the State of California for a period of one year immediately preceding the opening of the semester during which he proposes 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 \$200‡ 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 3 p.m. daily, and from 9 a.m. to 12 m. on Saturdays.

‡ Graduate students pay the full amount of \$200 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 \$17 a unit or fraction of a unit.

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

A student entering the University for the first time should read carefully the rules governing the determination of residence (see page 32 C), so that he may be prepared, in the event of his classification as a nonresident of California, to pay the required tuition fee. This fee must be paid at the time of registration.

If a student is in doubt about his residence status, he should communicate with the Attorney in Residence Matters, Room 124 Administration Building, University of California, Berkeley 4, California. During registration the Attorney may be consulted upon the campus at a place that may be ascertained by inquiry at the Information Window, Administration Building. *Students are cautioned that the eligibility of a student to register as a resident of California for tuition fee purposes may be determined only by the Attorney 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 in Residence Matters soon after registration. Continuing students are advised that application for reclassification to status as a resident student should be filed as a part of the preregistration procedure, but in no event later than three weeks before regular registration. Application for a change of classification with respect to a preceding semester will not be received under any circumstances.

On approval of the Dean of the Graduate Division, 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. For further information, consult the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

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.

Special commutation of the nonresident tuition fee: exemption from payment of the nonresident fee may be granted to an unmarried minor whose parent is in the active military service of the United States and is stationed in California on the opening day of the semester during which the unmarried minor proposes to attend the University. A student who believes he qualifies under this measure should request further information from the Attorney in Residence Matters at the address given above.

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, \$4.

Late filing of registration packet, \$10.

Late examination in Subject A, \$1.

For courses added or dropped after date set for filing registration packet, \$2 for each petition.

For removal of Grade E, \$4 for one or more courses covered by a single petition.

For reinstatement of lapsed status, \$10.

For late application for teaching assignment, \$1.

For late notice of candidacy for the bachelor's degree, \$3.

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, \$5.

Returned check collection, \$5.

For duplicate registration card or student name card, \$2.

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 a person 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.

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 Sections 20005 and 20007 of the Education Code of California.

The attention of the prospective student who has not attained the age of twenty-two 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 student for tuition purposes.

Every alien student who has not been lawfully admitted to the United

* 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.

States for permanent residence in accordance with all applicable provisions of the laws of the United States is classified as a nonresident student for tuition purposes.

A veteran who was not a legal resident of the State of California at the time of his entrance into the Armed Forces is cautioned that presence in California under military orders does not of itself entitle him to classification as a resident student for tuition purposes.

Every person who has been, or who shall hereafter be classified as a nonresident 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 is classified as a resident student, but who becomes a nonresident at any time by virtue of a change of domicile by his own action or by the person controlling his domicile, is obliged to notify the Attorney in Residence Matters at once.

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

Suitable living accommodations for out-of-town students are extremely limited in comparison to the total student enrollment with the problem of providing adequate housing facilities becoming increasingly difficult. Prospective students should give considerable thought and planning to their housing needs.

Living accommodations for students who do not live with friends or relatives are provided in a number of ways—in Mira Hershey Hall for undergraduate women, the only University-operated residence hall; in private homes which accept paying guests; in one of the University-inspected and approved privately owned residence halls or cooperatives; in neighboring rented apartments; in sororities or fraternities; or in the Veterans Housing Project for married students. 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.

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 \$75 to \$90 per month for room and board, and from \$30 to \$50 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 \$370 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 four privately owned and operated residence halls in the vicinity of the University, three being for women and one being for men. One accommodates 56 women students, providing room and 15 meals per week for \$350 per person per semester. Two have apartments for 91 women students at rates ranging from \$28 to \$33 per month per person depending on the number of women sharing the apartment. The one hall for men accommodates 77 students, providing room and 16 meals per week at \$85 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 \$40 to \$58 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 \$85 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, \$70 to \$100; furnished and unfurnished one-bedroom apartments, \$80 to \$135; and furnished and unfurnished two-bedroom apartments, \$100 to \$175. 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 to Veterans of the United States Army, Air Force, Navy, Marine Corps, or Coast Guard who are married or heads of families, 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 Office of Admissions. 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.

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.

Hotels and Trailer Courts

Good hotels 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.....	\$ 60	\$ 60	\$ 60	\$ 60	\$ 60	\$ 60
Student Union Fee.....	2	2	2	2	2	2
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.....	\$ 650	\$ 650	\$ 815	\$ 815	\$1085	\$1085

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 \$200 per semester.

¹ Membership required of undergraduates; optional for graduate students, however, \$2 Graduate Students Association membership fee is required.

* 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.

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 forewarn 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 Temporary Building 1G.

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.

Students may obtain board, room, and \$20 salary per month in exchange for three hours work daily in a private home. Local boarding houses and restaurants often offer employment for board for men only.

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 of Teacher Placement 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 educational 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 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 this 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, 38 Administration Building, or by contacting the regular Vocational Rehabilitation Office at 312 West Fifth Street, Los Angeles; telephone MAdison 5-2781, Ext. 55. 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 certain veterans and veterans' dependents, 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. Offices of the United States Veterans Administration are located as follows: Los Angeles Regional Office, 1380 Sepulveda Boulevard, Los Angeles 25, California; San Francisco Regional Office, 49 Fourth Street, San Francisco, California.

Information regarding educational benefits available from the State of California (CVEI) may be obtained from State the Department of Veterans Affairs, P. O. Box 1559, Sacramento 7, California; or by writing either to 1102 South Grand Avenue, Los Angeles 15, California, or 515 Van Ness Avenue, San Francisco 2, California.

Veterans wishing to enroll under the provisions of Public Law 550 (Korean G.I. Bill) and students wishing to enroll under the provisions of Public Law 634 (War Orphans Education Act) 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 possible. 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 and the first monthly payments 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 October 1 to January 10 for resident students, and during the period October 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, in conjunction with the University, 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 October 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 Committee on Undergraduate Scholarships and Prizes, 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. In addition, the Speakers' Bureau of University Extension provides clubs and organizations with speakers from the University faculty.

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 Club, 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

The undergraduate student self-government is organized and administered by the Associated Students. All undergraduates hold membership by virtue of paying the required A.S.U.C.L.A. membership fee at registration. The organization has a legislative council composed of a President, Vice-President, fifteen elected student representatives, and four adult members. The council administers the general business of the association and coordinates the various cocurricular activities such as publications, athletics, and recreation.

Members are entitled to participate in the affairs of the Associated Students, to subscriptions to the U.C.L.A. *Daily Bruin*, and certain other publications, to free admissions to many athletic contests and reduced rates to others, as well as to dramatic, social, and similar events which are part of the program of the Associated Students. In addition to the *Daily Bruin* the Associated Students publish the *Southern Campus*, the yearbook of the University.

All graduate students belong to a parallel organization, the Graduate Students Association. The Graduate Students Association is part of the A.S.U.C.L.A. but maintains its own separate program geared to the interests and needs of graduate students.

Both the undergraduate and graduate associations have offices in Kerckhoff Hall, given to the University by Mrs. William G. Kerckhoff of Los Angeles. Also in Kerckhoff Hall are the cafeteria and student store which are owned and operated by the A.S.U.C.L.A. The crowded quarters of Kerckhoff Hall will soon be supplemented by one of the finest student union buildings in the United States.

OFFICE OF STUDENT ACTIVITIES

The Student Activities Office, located in Room 246, Administration Building, provides student groups 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. The Assistant Dean of Students, the Student Activities Adviser, the Panhellenic Administrator and the Interfraternity Council Adviser, who supervise sorority and fraternity affairs, 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 denominations 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 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

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 2.00 (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 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 23 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 foreign student 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 1, 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 120 units required for the bachelor's degree; but credit is not allowed toward the required 16 units in foreign languages for both the high school and college work thus duplicated.

Mathematics, one course (not more than 3 units) 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 lower division year course in history, chosen from the following:
History 1A-1B or 5A-5B or 6A-6B 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

Classics 113

English 30A, 30B, 46A, 46B, 115, 117J, 125C, 125D, 130, 133, 135, 136, 151M, 153, 190A, 190B

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

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

Greek 102, 103, 180A, 180B

Hebrew 182A, 182B

Humanities 1A, 1B

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

Latin 4, 106, 180

Oriental Languages 112, 132

Scandinavian 141A, 141B

Slavic Languages 130, 132, 143A, 143B

Spanish 102A, 102B, 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, 5, 108A, 108B, 118A, 118B

Integrated Arts 1A-1B

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

Theater Arts 24, 102

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

Authorized Exemptions

The following exemptions have been authorized in the fields of concentration listed below. Exemptions granted in one of these fields become requirements for the bachelor's degree if the student changes his field of concentration after attaining upper division standing. 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:

1. Requirement (F-2)

Curriculum in Biological Illustration

Exemptions:

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

Curriculum in Biophysics

Exemptions:

1. Either (F-1), or (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).*

Curriculum in Physical Sciences-Mathematics

Exemption:

One of the two groups required under (G).

Premedical Curriculum

Exemptions:

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

Major in Zoology

Exemptions:

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

* 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.

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 2.00 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 page 4).

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 and Early Childhood Education Curricula are spe-

ifically 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, 1958-1959.

Agriculture:

Agricultural Economics. 120, 130, 177.

Botany. All undergraduate courses.

Entomology. 100, 106, 112A, 126, 134, 144.

Floriculture and Ornamental Horticulture. 146A-146B.

Horticultural Science. 111.

Irrigation and Soil Science. 101A-101B, 108, 110A.

Plant Pathology. 120.

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, 5, 10, 45, 100A, 100B, 102A, 102B, 103A, 103B, 104A, 104B, 104C, 104D, 108A, 108B, 114A, 114B, 115, 118A, 118B, 119A, 119B, 119C, 120, 121A, 121B, 121C, 121D, 123, 124, 139A, 139B, 139C, 139D, 190, 199.

Astronomy. All undergraduate courses.

Bacteriology. All undergraduate courses.

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

Chemistry. All undergraduate courses.

Classics:

Classics. All undergraduate courses.

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, 2, 4A, 15A-15B, 102B, 150, 155A.

English:

English. All undergraduate courses except 370.

Speech. All undergraduate courses except 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.

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. All undergraduate courses.

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, 44, 130, 139, 146, 147, 150A-150B, 151, 155.

Physics. All undergraduate courses except 370.

Political Science. All undergraduate courses.

Psychology. All undergraduate courses.

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

Slavic Languages. All undergraduate courses.

Spanish and Portuguese:

Spanish. All undergraduate courses except 370.

Portuguese. All undergraduate courses.

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

Zoology:

Zoology. All undergraduate courses except 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 3.5:

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 3.5, 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 demonstrating 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 College 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.

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

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 3.5, 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 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 PROGRAM each year, and students whose names appear upon these lists shall be issued certificates of honors in addition to University diplomas reflecting the highest order of honors awarded.

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 Early Childhood Education 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.
- (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 3.00, 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 2.00 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 (2 grade points for each unit undertaken) in all courses offered as part of the field of concentration.

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

(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
 Biological Illustration
 Biophysics
 Early Childhood Education
 Earth Physics and Exploration Geophysics
 General Elementary Teaching
 International Relations
 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), F. C. Leonard, R. H. Sorgenfrey.

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.

† Leading to degree of Bachelor of Science.

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: G. O. Abell (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 BIOLOGICAL ILLUSTRATION

Committee in Charge of the Curriculum: W. H. Furgason (chairman), C. F. Bridgman, A. J. Salle.

The curriculum in biological illustration offers a minimum four-year program balanced between illustrative drawing techniques and the biological sciences. Although as here outlined it prepares a student to illustrate primarily in the biological sciences, special consideration may be made for those students whose interest is illustrating in the physical sciences. Some degree of flexibility and program modification is provided through conferences with the Committee.

The curriculum is designed to prepare a student for illustrating in a specific field, e.g., botany, zoology, or general biology, or for further study in the highly specialized field of medical illustration.

Lower Division

Required: Art 2A, 3, 6A, 7A, 16, 44, 45, Zoology 1A-1B, Chemistry 2A.

Upper Division

Required: 36 units of upper division courses, including Art 139A-B-C-D, 137A, 140A, and at least 20 units from zoology, botany, and allied fields. Recommended: Art 141A, 170A; English 106S; Public Health 131, 134, 162; Theater Arts 170; Zoology 140. The student must have his selection of courses approved by his curricular adviser each semester.

CURRICULUM IN BIOPHYSICS

Committee in Charge of the Curriculum: J. B. Ramsey (chairman), G. A. Bartholomew, L. P. Delsasso.

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 de-

side 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 1-3A, 3B, 4A, 4B, (14), or 5A, 5B, 6A, 6B, or their equivalents; Physics 1A-1B-1C-1D (12), or, with the consent of the Committee in charge of the curriculum, 2A-1C-1D (10) or 2A-2B (8); Zoology 1A-1B (8).

Field of Concentration.—Required: Chemistry 5A, 8 or 112A, 110A-110B (12-14); Mathematics 110AB (4) or 110C (3) or 119A (3); Physics 107, 107C, 108B, 116A-116C, 121, 124A, 124C or 108C (19); Zoology 101A-101B-101C, 130A (11). Recommended: Physics 114A (3); Statistics 131A (3); Zoology 102 (3), 119 (3).

CURRICULUM IN EARTH PHYSICS AND EXPLORATION GEOPHYSICS

Committee in Charge of the Curriculum: L. B. Slichter (chairman), J. C. Crowell, J. Kaplan.

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), 8 (4), 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 110AB (4), Physics 107 (2), 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 115A (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 EARLY CHILDHOOD EDUCATION CURRICULA

Committee in Charge of the Curricula: A. E. Longneil (chairman), J. A. Hockett, H. L. Kostanick, Miss A. B. Nisbet, F. H. Sherwood, Miss Richard (secretary).

Lower Division Adviser: Mrs. Margaret Dodge, 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 Edu-

cation. 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 3; 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 147 (high sophomore); 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, 128A, 147, 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
	27	Phys. Ed. or Poli. Sci. or	
		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		27
6 units from one of the follow-		(d) Same as (c) except that His-	
ing: Anthro., Phys. Ed.,		tory may be substituted for	
Poli. Sci. or Soc.....	6	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. Early Childhood Education

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, 147, EC335A-EC335B (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 (4), 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. G. Neumann (chairman), W. R. Goldschmidt, K. E. Harper, J. E. Spencer, G. E. von Grunebaum.

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).

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), 141H (3), 142A-142B (3-3), 178A-178B (3-3); Economics 107 (3), 108 (3), 137 (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), 158 (3), 159 (3); History 191A-191B (3-3), 192A-192B (2-2), 193 (3), 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 148 (3), 160 (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), 155A (3), 157 (3); History 141D (3), 141F (3), 141G (3), 141H (3) [if not offered under I, above], 142A-142B (3-3) [if not offered under I, above], 143D (3), 146A-146B (3-3); Geography 123A-123B (3-3), 173 (3).
- (d) *British Empire Affairs*: Political Science 120 (3), 152 (3), 153 (2); History 130 (3), 151A-151B (3-3), 156 (3), 157 (3), 158A-158B (3-3), 159 (3), 196B (3); Geography 125 (3).

The following courses may be applied to any area requirement other than that in Latin-American Affairs: Political Science 151 (3); History 134A-134B (3-3), 135 (2), 138A-138B (2-2).

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: H. J. Bruman (chairman), R. L. Beals, R. D. Hussey, M. A. Zeitlin.

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 199, 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), 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*, 162A-162B*, 163*, 166A-166B*, 169*, 178A-178B, 188, 199* (Section 9); Linguistics and Philology 170, 171; Music 136A-136B; Political Science 125, 126*, 127, 150A-150B*, 199*; 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: G. E. von Grunebaum (chairman), L. Binder, J. C. Greenfield, I. A. Kawar, W. Leslau, E. Shevky, B. E. Thomas, A. Tietze.

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 the 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: 14 units of upper division courses in Arabic and/or 12 units of upper division courses in Hebrew language; 10 units of Near Eastern history, 6 of which are to be taken in course 134A-134B; 3 units of Sociology 166 or 167 or Anthropology 123; 8 units of literature (in English) of which 4 are in Hebrew literature, 182A-182B, and 4 in Arabic literature (Oriental Languages 142A-142B); 6 units from the following courses: Hebrew 199 (Special Studies in Semitic Languages); Oriental Languages 199 (Special Studies in Arabic); Oriental Languages 120A-120B (Arabic Literary Texts); History 199 (Special Studies in Near Eastern History). Recommended courses: Anthropology 103, 124, 125; Art 121D; Education 197B; Classics 170A-170B; Folklore 101; Geography 127; History 111A, 114; Linguistics 170; Philosophy 112, 152, 153; Political Science 134, 151.

CURRICULUM IN PHYSICAL SCIENCES-MATHEMATICS

Committee in Charge of the Curriculum: R. L. Pecsok (chairman), C. Bell, J. A. Bond, F. C. Leonard, N. A. Watson.

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). Physics 1C may be deferred to upper division.

Note: To satisfy the College requirement in biological science, students seeking the credential should choose 5 units from Biology 12; Life Science 1A-1B; Zoology 1A, 1B, 15.

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 (3).

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, 109; Physics 105, 107.

CURRICULUM IN PRELIBRARIANSHIP

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

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 pre-librarianship 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 1	Economics 1A
Bacteriology 6	English 1B, 31, 46A-46B
Life Sciences 1A	Speech 1
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 (3-3), 118A-118B (2-2), 119A-119B (2-2), 121A-121B (3-3), 173A-173B (2-2); Music 121* (2), 136A-136B (3-3), 170 (3).

II. Education and Philosophy

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

III. English and American Literature

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

IV. Foreign Language and Literature

French 109M-109N (3-3); German 121A-121B (2-2); Greek 180A-180B (2-2); Italian 152* (3); Latin 180 (3); Oriental Languages 112

(2), 132 (2); Slavic Languages 130 (3), 132 (3); Spanish 102A-102B* (3-3); 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* (3-3), 146A-146B* (3-3), 151A-151B* (3-3), 162A-162B* (3-3), 177* (3), 179* (3), 188* (3), 191A-191B* (3-3), 198* (3); Economics 100A* (3), 103* (3), 107* (3), 108* (3), 131A-131B* (3-3); Political Science 103* (2), 110 (3), 127 (3), 143* (3), 146 (2), 148* (2), 155A* (3), 155B* (3), 181* (3), 184* (3), 185* (3).

VI. *Psychology, Anthropology, and Sociology*

Psychology 110* (3), 120* (3), 126* (2), 143* (2), 145A-145B* (2-2), 147* (3); Anthropology 102* (3), 103* (3), 124 (3), 125 (3); Sociology 143* (3), 144* (3), 145* (3), 161* (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, D. Heyneman, M. J. Pickett, Mrs. C. S. Roberts.

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 2.5 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 2.5 or higher.

Preparation: English 1A-1B (6), Chemistry 1A-1B, 5A, 8, 9 (19); Zoology 1A-1B, 100A (12); 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: D. R. Cressey (chairman), G. H. Hildebrand, D. S. Howard.

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. Specialisation: 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, 156; History 174A-174B, 175, 176, 188; Philosophy 104, 105, 114, 147; Political Science 113, 166, 186; Psychology 148, 168; Sociology 120, 126, 142, 143, 144, 145, 161, 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: D. Marvick (chairman), J. M. Gillies, H. J. Nelson.

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 positions. 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 1 (3). In certain fields, other courses are prerequisites to upper division courses included in the curriculum:

Public Personnel—Psychology 1A-1B.

Planning—Geography 1A-1B or Geography 5A-5B; Geography 4.

Upper Division

The curriculum itself consists of 36 units of upper division courses selected from one of five possible fields of concentration: Public Personnel Administration, Public Management, Public Relations, Financial Administration, and Planning. Less than two-thirds of the total units in the field are to be taken in one department. 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 118 (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 (3-3), 150 (3), 170 (3); Psychology 185 (2); Sociology 118 (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 118 (3), 128 (3), 131 (3), 143 (3); not more than 6 units from History 171A (3), 171B (3), 172 (3), 173A (3), 173H (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 (3-3), 133 (3), 135 (3); Sociology 118 (3).

V. Planning

Agricultural Economics 120 (3); Art 118A (2); Business Administration 180 (3), 181 (3), 182 (3), 183 (3); Economics 107 (3), 131A-131B (3-3), 170 (3), 171 (3), 173 (3); Engineering 174 (3); Geography 101 (3), 105 (3), 141 (3), 142 (3), 155 (3), 161 (3), 165 (3); Political Science 143 (3), 146 (2), 147 (3), 166 (3), 167A-167B (3-3), 168 (3), 171 (3), 172 (3), 183 (3), 184 (3), 186 (3), 187 (3); Sociology 122 (3), 128 (3), 131 (3), 143 (3), 144 (3), 145 (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: A. B. Nisbet (chairman), E. L. Griggs, W. Leslau, R. H. Turner.

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 (3-3); Philosophy: 6 units from 104 (3), 105 (3), 112 (3), 121 (3), 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); 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 141C (3), 141H (3), 176 (3), 178A-178B (3-3), 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).

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: W. F. Brown (chairman), R. P. Barthol, D. F. Pegrum.

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 49).

The prebusiness curriculum differs from the requirements for upper division standing 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. Students 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:	

* Completion of course 2 in a foreign language or 3 years of one language in high school is required for the prebusiness curriculum.

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 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 pre-requisite 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 1 and 2. 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.

PRIDENTAL 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

* The School 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 School 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 SCHOOL OF DENTISTRY.

be taken at Los Angeles; the last four years must be taken in the School of Dentistry in San Francisco.

The student will find himself more adequately prepared for the pre dental 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 School 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 School of Dentistry, it is preferable that it be completed in the pre dental program.)

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

(3) Science 32 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.

PRE DENTAL 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 School 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 School 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):

† The School 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 SCHOOL OF DENTISTRY.

(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 School of Dentistry, but it is preferable to satisfy the requirement in the pre dental program).

- (2) English 1A-1B or Speech 1, 2..... 6 units
- ‡(3) Chemistry 1A, 8..... 8 units
- (4) Zoology 1A-1B 8 units
- (5) Either the completion of lower division requirements in 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,
 - 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 language. 18-20 units
 - (b) Six additional units selected from any of the three groups listed under (a)..... 6 units
 - (c) Electives 12-16 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. 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, ½ unit, trigonometry, ½ 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

* This section applies both to the School of Medicine at San Francisco and to the School of Medicine at Los Angeles. Chemistry 1B is prerequisite to Chemistry 8.

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.†

Prepharmacy Curriculum

Adviser: Mr. J. S. Heard

First Year

	<i>Units</i>
(1) General University Requirements	
Subject A	0
Military, air or naval science (minimum)	3
Physical education	1
(2) English 1A-1B or Speech 1, 2	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 lower division 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 requirement 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

† 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. For further information see the ANNOUNCEMENT OF THE SCHOOL OF PHARMACY which may be obtained from the Dean, School of Pharmacy, University of California Medical Center, San Francisco 22.

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, 31, 106A, 130, 131; Economics 1A-1B, 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 2.5 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 3.0 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 following curricula:

Plant Science—majors in botany, floriculture and ornamental horticulture, general horticulture, and subtropical horticulture. These majors are not available in the other sections (Berkeley and Davis) of the state-wide College of Agriculture.

Agricultural Production—a new general curriculum recently extended to the Los Angeles campus, available also at Davis.

Agricultural Management—a new curriculum combining work in agriculture, business administration, and economics. Also available at Davis and Berkeley.

These curricula all lead to the degree of Bachelor of Science. 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 medicine. 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 BULLETIN 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, also offers a 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 this major 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

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 twice as many 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 one of the following curricula:

PLANT SCIENCE CURRICULUM

Students must complete the following:

(a) General	<i>Units</i>
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, zoology, 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 requirements of which consist 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.—Botany 1, 107; Chemistry 1A, 1B, 8; Floriculture and Ornamental Horticulture 131A or 131B, and 136A or 136B; Irrigation and Soil Science 101A. Recommended: Agricultural Economics 130; Botany 151; Entomology 144; Irrigation and Soil Science 101B, 102, 110A; Plant Pathology 140; Horticultural Science 110.

Subtropical Horticulture.—Chemistry 1A, 1B, 8; Botany 1, 107. Recommended: Agricultural Economics 130; Entomology 134; Irrigation and Soil Science 101A; Horticultural Science 101, 102. A student who intends to undertake graduate study is advised to elect additional courses in botany, chemistry, physics, mathematics, and statistics.

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

Botany.—Chemistry 1A, 1B, 8; Botany 1, 2, 3, 6, 107. Recommended: Bacteriology 1; Floriculture and Ornamental Horticulture 136A, 136B; Geology 101; Irrigation and Soil Science 108; Physics 2B; Horticultural Science 2, 110; Zoology 1A, 1B.

Freshman and Sophomore Years

During the freshman and sophomore years the following schedule will normally be followed:

† 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 1A-1B or Speech 1, 2.....	3	3
Botany 1, 6	5	..
Chemistry 1A-1B	5	5
History 7A or Political Science 1.....	..	3
Economics 1A .....	..	3
	15	16
<i>Sophomore Year</i>		
*Military or air science (for men).....	1½	1½
Physical education	½	½
Physics 2A-2B	4	4
Chemistry 8 or 5A.....	3	..
Bacteriology 1 .....	..	4
Horticultural Science 110.....	..	2
Botany 6	4	..
Elective	3	2 or 3
	16	14 or 15

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 Soil Science 101A-101B, 110A; Plant Pathology 120—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.

AGRICULTURAL PRODUCTION CURRICULUM

Students must complete the following:

(a) General	Units
Botany	5
Chemistry	8
Economics	3
English and/or speech.....	6
Genetics	3
Physics	3
Zoology	3
Additional units from:	
Group I	9
(Animal physiology, bacteriology, botany or plant physiology,	

* Or Naval science (3 units per semester).

chemistry, genetics, geology, mathematics†, physics, or zoology)	
Group II	6
(Anthropology, art, economics, English, foreign languages, geography, history or political science‡, philosophy, psychology, music, sociology, or speech)	
	—
	46

(b) In addition, students must complete a minimum of 45 units in agriculture, selected with the approval of the student's adviser, including at least 12 units from one department or closely related field, and at least 9 units from another department or closely related field.

Freshman and Sophomore Years

During the freshman and sophomore years the following schedule will normally be followed:

Example of Minimum Program—Agricultural Production Curriculum

<i>Freshman Year</i>	Units First Semester	Units Second Semester
Botany 1 and 6 or 3	5	4
Chemistry 1A or 2A, 8	5	3
English 1A-1B or Speech 1, 2	3	3
History 7A .....	..	3
* Military science	1½	1½
Physical education	½	½
	—	—
	15	15
<i>Sophomore Year</i>	Units First Semester	Units Second Semester
Bacteriology 1 .....	..	4
Economics 1A-1B	3	3
Irrigation and Soil Science 108	3	..
Physics 2A, or 10 and 21 .....	..	4
Horticultural Science 2, 110	3	2
Zoology 1A or Biology 12	4 or 3	..
* Military science	1½	1½
Physical education	½	½
	—	—
	15 or 14	15

AGRICULTURAL MANAGEMENT CURRICULUM

Students must complete the following:

	<i>Units</i>
(a) Accounting	3
Agriculture (other than agricultural economics and botany) ..	12
Anthropology, geography, history, philosophy, political science, psychology, or sociology and social institutions	12
Bacteriology, botany, geology, physics, physiology or zoology or additional chemistry or mathematics	7
Business law	3
Chemistry	5

* Or Naval science (8 units per semester).

† Not including Mathematics C and D.

‡ In addition to University requirements.

English and/or speech.....	6
Mathematics	3
Principles of economics.....	6
Statistics	3
	60

(b) In addition, students must take at least 24 units of upper division work in agricultural economics, economics or business administration.

Certain courses or their equivalents are required for the curriculum and where applicable may be used toward satisfaction of (a) and (b) requirements above: Agricultural Engineering 1, Botany (4 units), Psychology 1A, Agricultural Economics 117-117C, 130, Business Administration 140, 190, Economics 100A and one of the following 100B, 185, 150, 170, 195.

In addition, the student, with the guidance and approval of his adviser, shall select a field of interest consisting of a course program of at least 30 units. This must include 12 units of courses in agriculture as listed under (a) above and 12 units of upper division courses chosen from agricultural economics, business administration and economics in addition to those listed as required above.

Freshman and Sophomore Years

During the freshman and sophomore years the following schedule will normally be followed:

Example of Minimum Program—Agricultural Management Curriculum

<i>Freshman Year</i>	Units First Semester	Units Second Semester
Botany 1	5	..
Business Administration 3 (accounting).....	4	..
Chemistry 1A or 2A.....	..	5
English 1A-1B or Speech 1, 2.....	3	3
Psychology 1A .....	..	3
*Military science	1½	1½
Physical education	½	½
†Electives	2 or 3	3 or 4
	16 or 17	16 or 17

Sophomore Year

Agricultural Engineering 1.....	..	2
Chemistry 8 (elective).....	3	..
Economics 1A-1B	3	3
Mathematics 32A	3	..
†Political science, history, etc.	3	6
*Military science	1½	1½
Physical education	½	½
†Electives	2 or 3	2 or 3
	16 or 17	16 or 17

* Air or naval science (units differ).

† Selected from science, mathematics, and agriculture to meet curricular requirements and field of interest.

‡ Selected to meet both curricular and American History and Institutions requirements.

OTHER CURRICULA

The requirements in the other curricula offered by the College of Agriculture will be found in the **BULLETIN OF THE COLLEGE OF AGRICULTURE** (obtainable from the Office of the Dean). Programs suitable for the conditions at Los Angeles are given in this bulletin 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 also available 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).

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 three 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 three 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**, and honors are designated on the University diplomas of students whose names appear on these lists.

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, Master of Engineering, 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 social studies.

The elective courses not only provide for specialization in the last one and one-half years in conventional engineering branches, but also permit the student to make a selection of courses with emphasis on an engineering field or engineering function of his own choosing, subject to College approval. This curriculum serves as a base curriculum for the later achievement of professional competence in whatever field of engineering the graduate may enter.

The engineering curriculum has been accredited by the Engineers' Council for Professional Development, 25-33 West 39 Street, New York 18.

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. Honors are conferred exclusively on the basis of outstanding intellectual achievement which is measured primarily by grades, although faculty recommendations based on eminent performance in special studies, research, or other work may be considered as an infrequent alternative criterion. The normal basis for selection of honors candidates is a grade-point average, based on upper division work only, of 3.25 for Honors and 3.75 for Highest Honors. Students must have completed at least 50 units of upper division work at the University of California to qualify. Eminent performance in special studies, research, or other work is also recognized by the Engineering Achievement Award upon recommendation of the faculty and approval of the Committee on Student Relations.

Students who plan to seek advanced degrees are referred to the ANNOUNCEMENTS OF THE GRADUATE DIVISION, 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 12, 1958, for fall, 1958, admissions; to November 26, 1958, for spring, 1959, admissions; and to March 20, 1959, for fall, 1959, 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 freshmen 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 some units in each of the following subject areas: graphics, properties of materials, surveying or engineering measurements and statics).....	10
Humanities and social studies.....	6
Unspecified subjects (3 units may be humanities and social studies; the remainder to be in engineering 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 style="width: 10%; margin: 0 auto;"/> 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, comprising a minimum of 30 units, in all cases must be completed at the University of California.

Students who wish to transfer to the College of Engineering from a technical institute or junior college technical education program will be expected to meet existing University requirements for admission to the freshman year. In consultation with a faculty counselor, placement in engineering courses will be determined by the student's previous scholarship record and his performance on an appropriate aptitude or achievement test. After he has demonstrated ability to do the work required in the College of Engineering with a satisfactory grade-point average, the College of Engineering will evaluate his noncertificate terminal courses and recommend transfer credit for them to the extent that they are found to have served the student as preparation for his advanced work in engineering.

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
Freshman Year*		
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‡
Sophomore Year*		
†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‡
Junior Year‡		
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‡
Senior Year‡		
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 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.

* See pages 35-36 for freshman and sophomore subject requirements for transfer students.

† 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.

§ Admission to junior status in the College of Engineering is determined on the basis of lower division grades and the score on the *Engineering Examination, Upper Division*. Applicants for junior status from all sources, including applicant's from the University's lower division, will be required to meet the same standard.

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 nonmajor field electives. Subjects such as psychology, physiology, bacteriology, etc., are acceptable, as are the applied life science courses, Engineering 130A, 130B.

2. The Humanistic Electives: A minimum of 21 units must be devoted to humanistic social subjects such as literature, philosophy, the arts, and the social studies. 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 24 C of this bulletin).

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

Credit for Military, Air, or Naval Science

Lower division: six units are acceptable toward the baccalaureate.

Upper division: six units of nonmajor field electives and the 3 units of optional electives, a total of 9 units, may be applied.

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 agricultural engineering, ceramic engineering, civil engineering, electrical engineering, engineering science (engineering physics), geological engineering, industrial engineering, mechanical engineering, metallurgy, 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 30 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 and professional character, to organize certain scientific and scholarly studies into suitable curricula which may be applied in the fields of 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 and apparel merchandising.

Nondegree curricula are offered in prenursing, preoccupational therapy, proptometry, 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

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:

(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 upper division standing or the bachelor's degree, high school work with

† 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 23 C of this bulletin.

° Courses offered in satisfaction of the language or natural science requirement may not be used on the year-course requirement.

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 1, 2*.

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).

Mathematics C, D, 1, 3A, 3B, 4A, 4B, 5A, 5B, 6A, 6B, 37, and Statistics 1.

Meteorology 3 (or Geography 3), 4.

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 upper division standing 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. 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.

§ 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 upper division standing 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.

° Courses offered in satisfaction of the language or natural science requirement may not be used on the year-course requirement.

(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 1, 2, 3, 4.

English 1A and Speech 1 or 3.

2. Foreign language: 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, 4.

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

Scandinavian 1, 2 or 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, 3A, 3B, 4A, 4B, 5A, 5B, 37; Statistics 1.

4. Social Sciences:

Anthropology 1, 2.

Economics 1A-1B.

Geography 1A-1B, 5A-5B.

History 1A-1B, 5A-5B, 6A-6B, 7A-7B, 8A-8B.

Political Science 1, 2.

Sociology 1, and either 2 or 12.

5. Psychology:

Psychology 1A, and either 1B or 33.

6. Philosophy:

Philosophy 6A-6B, 20A-20B, 30 and 31.

7. Music, Art. (A student majoring in art or music may not present a year course in his major department.):

Art 1A-1B, 2A-2B, 6A-6B.

Integrated Arts 1A-1B.

Music 1A-1B, 3A-3B, 5A-5B, 20A-20B, 30A-30B.

* Courses offered in satisfaction of the language or natural science requirement may not be used on the year-course requirement.

University Extension.—Courses in University of California Extension (either class or correspondence) may be offered in satisfaction of the above requirements 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.

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 upper division standing (60) or for the bachelor's degree (120).

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.

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 39).

American History and Institutions.—This requirement may be met by passing an examination or two courses accepted as satisfactory for this purpose. (See page 24 C of this bulletin or the **HANDBOOK OF RULES AND REGULATIONS FOR STUDENTS** 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 43.)

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.

* See page 39 for lower division requirements to be satisfied before taking upper division courses.

† With the approval of the department chairman, not to exceed 6 units of "800" courses may be used on both the major and the teaching credential.

Any department offering a major in the College of Applied Arts may require 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

Honor Students in the Upper Division.—The honors list includes the names of:

- A. Upper division students who have an average of at least three grade points for each unit undertaken in all undergraduate work in the University of California.
- B. 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, and honors are designated on the University diplomas of students whose names appear on these lists.

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. All courses in a given department are considered closely related. A minor may consist of courses chosen entirely from one department, or it may be a group minor including 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.

Possible group minors are listed below. Students planning other combinations must secure advance approval from the Dean's Office *before* taking the courses.

* 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.

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.

Note: The minor may not include:

- a. Any course in the student's major department.
- b. Any course from another department applied on a student's major or specifically listed by number as applicable on the student's upper division major.
- c. Any Education courses applied on a teaching credential.
- d. Foreign language or other courses completed in high school.
- e. Lower division courses in the mother tongue of a foreign student.

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

MAJOR IN HOME ECONOMICS

General
 Teacher Education
 Foods and Nutrition
 Food Technology
 Clothing, Textiles, and Related Arts

MAJOR IN MUSIC

General
 Teaching
 Opera (5 years)
 Performance (5 years)

MAJOR IN PHYSICAL EDUCATION

Physical Education
 School Health Education
 Physical Therapy
 Recreation
 Dance

MAJOR IN THEATER ARTS

Theater
 Motion Pictures
 Television and Radio
 Language Arts (Teaching)

Special *curricula*, each involving work in several departments, are offered as follows:

Curriculum in Apparel Design
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, XR, or XSB taken in University of California Extension.

The student must attain an average grade of C (two grade points 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, originality, and technical skills essential to the successful creative designer.

Preparation for the Major. Art 6A-6B, 7A-7B, 16, 21A, 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 161, 166, 175A-175B, 176A. Home Economics 162, 171B. 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 executive and managerial positions related to the retailing of apparel.

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 161, 163B, 175A, Business Administration 165, 168, Home Economics 143, 162, 171A, 171B, 176A, Psychology 180. Recommended: at least one summer of practical experience in a factory or retail store.

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 Col-

lege of Applied Arts to satisfy the requirements for upper division standing*. English 1A and either English 1B or Speech 1, Psychology 1A and either 1B or 33, Sociology 1 and 12 or Sociology 1 and Anthropology 2, and 12 units of natural science including one laboratory course. 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:

	Units First Semester	Units Second Semester
<i>First Year</i>		
Subject A (if required).....	..	..
§Physical Education 1.....	‡	‡
Chemistry 2A	5	..
Zoology 15 .....	..	5
English 1A, and either English 1B or Speech 1.....	3	3
History 7A-7B	3	3
Psychology 1A, 1B or 33.....	3	3
Home Economics 11.....	..	3
	14‡	17‡
<i>Second Year</i>		
§Physical Education 1.....	‡	‡
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
	16‡	15‡

PREOCCUPATIONAL THERAPY CURRICULUM

The University does not offer a complete course in occupational therapy. The following two-year program meets the requirements for upper division standing 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.

* 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 prenursing 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 89) to be taken in the second year.

	Units First Semester	Units Second Semester
<i>First Year</i>		
Subject A (if required).....	..	..
Physical Education 1.....	‡	‡
Chemistry 2	3	..
Zoology 15 .....	..	5
English 1A-1B	3	3
Art 27A-27B	2	2
Speech 1 .....	..	3
American History and Institutions.....	3	3
Elective	3	..
	14‡	16‡
<i>Second Year</i>		
Physical Education 1.....	‡	‡
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
	15‡	16‡

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 two years of a foreign language.

During the first two years, the following curriculum outline should be followed as closely as possible. For further information see the ANNOUNCEMENT OF THE SCHOOL OF OPTOMETRY.

	Units First Semester	Units Second Semester
<i>First Year</i>		
Subject A (if required).....	..	..
Military, air, or naval science.....	1‡-3	1‡-3
Physical Education 1.....	‡	‡
Chemistry 1A	5	..
Speech 1, 2 or English 1A-1B.....	3	3
Foreign language	4	4
Mathematics D or 1, 3A.....	3	3
†Zoology 15 .....	..	5
	‡	‡

* Enrollment in the School of Optometry is limited. 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. Applications for admission for any year should be filed with the Director of Admissions by May 1 of that year.

‡ See dagger (†) footnote on next page.

‡ See double dagger (§) footnote on next page.

	Units First Semester	Units Second Semester
<i>Second Year</i>		
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
†Zoology 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 1, 2; 6 units

6 units, including a year sequence, from foreign language, art, music, or philosophy.

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)

† 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.

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, and real estate and urban land economics.

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.

Lower Division Requirements

An organized program of study in preparation for a professional curriculum in the School must satisfy the following requirements:

- (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 upper division standing in the College of Letters and Science (Berkeley or Los Angeles), the prebusiness curriculum in the College of Letters and Science (Los Angeles), or upper division standing 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, including work in progress, 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 August 15 for the fall semester and not later than January 15 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 twice 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, a minimum of 24 units composed of at least 18 units of upper division Business Administration courses, including at least 6 units in their chosen field of concentration.

The faculty of the School of Business Administration expects its graduates to be well-rounded individuals who possess not only an understanding of the fundamentals of business, but also, a sound foundation in the sciences and humanities. Students who come to the School with highly specialized backgrounds will be required, therefore, to take appropriate courses in other areas of knowledge. The Department of Business Administration also regards proficiency in the use of written and spoken English as one of the requirements for the satisfactory completion of every course.

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 108. Legal Analysis for Business Managers.

Students who transfer to the School of Business Administration with 3 units credit for law must take Business Administration 105B to meet their business law requirement.

Business Administration 115. Business Statistics.

Business Administration 120. Intermediate Accounting or Business Administration 120M. Managerial 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 meet their business law requirement in the 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 eight 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

With the approval of the Dean, a student may change his field of concentration. At least two courses must be taken after the field has been specified.

Students who wish to elect a different field of concentration may propose an area comprised of four or more courses selected either inside or outside the department, or partially inside and partially outside the department. It is expected that the proposed group of courses be appropriately integrated with the general program which the student wishes to follow. This privilege is extended to students who demonstrate academic ability and a particular interest in a special area. Selection of a special field and the specific courses therein must have the written approval of the Assistant Dean for Student Affairs before the work is undertaken.

Students who are interested in agricultural management should consult page 31 of this bulletin for particulars concerning a specialization in this area.

Students who are interested in office management should consult the ANNOUNCEMENT OF THE SCHOOL OF APPLIED ARTS for particulars concerning a specialization in this area.

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.

TYPICAL PROGRAM

The typical program for a student entering the School of Business Administration might be as follows:

JUNIOR YEAR			
<i>First Semester</i>	<i>Units</i>	<i>Second Semester</i>	<i>Units</i>
Business Administration 100.....	3	Business Administration 101.....	3
Business Administration 115.....	3	Business Administration 140.....	3
Business Administration 108.....	4	Field of Concentration course.....	3
Business Administration 120 or 120M	3	Electives	8
Economics 185	3		17
	16		

SENIOR YEAR			
<i>First Semester</i>	<i>Units</i>	<i>Second Semester</i>	<i>Units</i>
Business Administration 150.....	3	Business Administration 190.....	3
Business Administration 160.....	3	Field of Concentration course.....	3
Field of Concentration course.....	3	Field of Concentration course.....	3
Electives	9	Electives	8
	18		17

There may be minor adjustments in this program to permit the early completion of the first course in the student's field of concentration.

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 syste-

matic 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 August 1 for the fall semester, and not later than December 1 for the spring semester. The Graduate Division 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, as judged primarily by (1) the candidate's previous college record and (2) his performance on the Admission Test for Graduate Study in Business.

1. The minimum requirement for admission in *regular* graduate status is an undergraduate scholarship record equivalent to at least a 2.5 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 in business administration and economics.

2. All applicants are required to take the Admission Test for Graduate Study in Business. The test is given four times a year in various locations in the United States. Students must write to the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey for information regarding application and the time and place of the examination, and they should request the service to forward the test results to the Graduate School of Business Administration. If an applicant does not take the examination before filing applications for admission he must explain this failure when filing; and if otherwise eligible, he will be admitted and will be required to take the examination at the next scheduled date.

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 intellectual 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. A renewal of application is required 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.

Program of Study.—The program of study leading to the Ph.D. degree in business administration embraces five fields of study. Two of these fields, 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, marketing, insurance, real estate, transportation, and statistics and operation's analysis. With the approval of the guidance committee, a candidate may elect two of the above fields in the Department of Business Administration, and a third 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.

In addition to the work outlined above, effective July 1, 1958, all students must satisfy the following course requirements, or their equivalent.

Business Administration 120 or 120M or 120G, plus one other course (graduate or undergraduate) in accounting.

Business Administration 115, plus one other course (graduate or undergraduate) in statistics.

Business Administration 118.

Business Administration 299R (must be completed by the second year of graduate work).

Students should consult the Assistant Dean concerning the appropriate amount of formal educational preparation necessary for the successful completion of the program of study.

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 and to conduct the written qualifying examination.

Qualifying Examinations.—Students must pass written qualifying examinations on the five fields of concentration. Examinations in each field are scheduled once every semester. No student may sit for a qualifying examination until the language requirement is satisfied. On the completion of the five written examinations, students must pass an oral examination embracing the entire field of business administration. The oral examination supplements the written examinations by permitting the faculty to examine the students' general knowledge of business administration as well as permitting further exploration of his knowledge in any individual field on which he has already written an examination.

Effective July 1, 1958, students must complete the written and oral qualifying examinations within a period of eighteen months. The time will be measured from the date on which the first examination is written.

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.

Advancement to Candidacy.—At least two semesters 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 (100 and 101, or 102G).
2. Business Law (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 (131 or 133).
3. Insurance (135).
4. Production Management (140).
5. Personnel Management (150).
6. Marketing (160 or 160G).
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.)

First-year graduate students in regular status may satisfy parts of this requirement by independent study and examination with special permission of the Assistant Dean for Student Affairs.

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 and Operations Analysis
- 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 3.0 or better in all work taken in graduate standing, including undergraduate courses taken in unclassified status.

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 upper division standing 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 assessment 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 application 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 student teaching and teaching credentials and possible referral to the Speech Clinic for special speech checks. *All steps in the selection procedure should 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. To Teach Exceptional Children, with Specializations in:
Speech Correction and Lipreading
Mentally Retarded
 - b. General Pupil Personnel Services, with Specializations in:
Pupil Counseling

* Courses for the vocational type of credentials in trade and industrial education are provided primarily in Summer Sessions.

Child Welfare and Attendance
 School Social Work
 School Psychometry
 School Psychology

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†
15. Supervision†

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. For information concerning courses leading to the various credentials and special programs, such as those for *Child Care Center Permits*, consult the Credentials Counselor in the School of Education, 200 Moore Hall.

Students planning to prepare for kindergarten-primary or general elementary credentials are advised to choose the recommended curricula which are 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 the college in which it is offered. Students desiring to qualify for the general secondary credential are likewise advised 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 325, 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 July 15 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

† Effective September 15, 1957, a new supervision credential will replace the present (1) elementary school supervision credential, (2) the secondary school supervision credential, (3) the special subject supervision credential, and (4) the credential for supervising school budgets. All candidates who are currently working toward any of the six credentials which will be absorbed by the one new credential must complete requirements and obtain their credentials prior to September 14, 1958, or they will be held for the requirements of the new supervision credential.

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 for the class entering in September, 1959, together with all transcripts of record and other necessary documents, must be filed between April 1, 1958, and November 30, 1958, 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 should have been taken preferably in May and in any case 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 of the applicant by a member or members of 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, two semesters of inorganic chemistry and one semester each of organic chemistry and quantitative analysis.
5. An additional semester of chemistry (e.g., organic or physical), or mathematics at the level of calculus, or physics. Elementary biochemistry will not satisfy this requirement.
6. Zoology, including vertebrate embryology, 12 units.
7. A classical or modern foreign language, 12 units of college work, or its high school equivalent,* or attainment of facility in reading a foreign language achieved by other means. If work has been done in two languages, 8 units of each will be acceptable.

Under exceptional circumstances consideration will 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.

* In a single language, the first two years of high school work are credited with 4 units, and the third and fourth years are credited with 4 units each.

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 46) with at least a grade of C in all clinical 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 2.5 or above in the pre-nursing 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 centers.

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.

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 2.5 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.

* 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.

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, recommendations, 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 pre-nursing 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.
5. The candidate shall have completed all required nursing courses in the School of Nursing and must have maintained a grade of at least a C in all clinical nursing courses.

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 and must have maintained a grade of at least C in all clinical nursing courses.
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 70.)
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, San Francisco, and Los Angeles.

The Los Angeles department, established in 1946, offers a major in public health leading to the degree of Bachelor of Science (with options in the respective fields of sanitary science, biostatistics, public health education and health administration).

The Los Angeles department also offers, in cooperation with the Department of Preventive Medicine and Public Health (School of Medicine), a Master of Science degree in Public Health and Preventive Medicine, with specialization in the fields of epidemiology, biostatistics, sanitary science, health administration and public health education. For administrative purposes, postgraduate doctors of medicine will be under the jurisdiction of the School of Medicine's Department of Preventive Medicine and Public Health, and other qualified graduate students will be assigned to the School of Public Health's Department of Public Health.

The undergraduate curriculum emphasizes a broad educational approach and at the same time includes basic consideration of subject matter to prepare the student for employment requirements. The option in sanitary science prepares the student to qualify for admission to the Registered Sanitarians Examination given by the State of California. The option in biostatistics provides professional training in the theory and application of statistics to the biological sciences as well as to public health. Students selecting the public health education or the health administration option are usually advised to plan for an advanced degree for maximum employment opportunity.

The Master of Science program is designed for those students who are interested in developing competence in some specific field of public health

through intensive study and research. This graduate program is based upon the baccalaureate program in public health; consequently students who have not received academic training in public health will be required to remove deficiencies before admission to regular graduate status. Ordinarily, a student with a basic science background would require an additional semester to qualify for the program.

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 48). It is suggested that interested students follow this program.

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 twice 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 1, 2
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.

* If required.

† For other methods of satisfying the "Requirement in American History and Institution," see page 24 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.

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
- Zoology 15 and 25 or Zoology 1A-1B
- Life Science 1A-1B
- Mathematics 3A-3B (required for biostatistics option)

The Major

MAJOR REQUIREMENTS FOR ALL OPTIONS

Public Health 100, 106, 110, 134, 145, 147, 170.

ADDITIONAL MAJOR REQUIREMENTS FOR THE OPTIONS AS FOLLOWS:

Biostatistics

- Mathematics 3A, 3B
- Public Health 160A, 160B, 161A, 161B, 199
- Electives to yield a total program of 128 units

Health Administration

- Business Administration 3, 105A, 150 (or Political Science 185), 152, 190
- Economics 152 (or Business Administration 135)
- Public Health 101G, 161A or 162
- Electives to yield a total program of 128 units

Health Education

- Business Administration 152, or Sociology 161, or Psychology 149
- Home Economics 111
- Sociology 117
- Public Health 125, 131, 161A, or 162
- 16 units from the following:
 - Anthropology 102, 103, 110, 125, 126
 - Education 106, 147
 - Home Economics 113, 116
 - Psychology 110, 131, 134, 135, 137, 138, 139, 142, 143, 144, 145A-145B, 146, 147, 148, 180, 267
 - Sociology 120, 122, 124, 128, 129, 131, 142, 143, 144, 145
- Electives to yield a total program of 128 units

Sanitary Science

- Chemistry 8, 9
- Engineering 172
- Entomology 126
- Public Health 112, 113, 114, 160A
- Electives (Bacteriology 103 strongly recommended) to yield a total program of 128 units

MASTER OF SCIENCE DEGREE

Admission.—Each student seeking admission to graduate status in public health, or in preventive medicine and public health, must file with the Graduate Division, University of California, Los Angeles 24, a formal application and an official transcript of his record in duplicate from each college and university he has attended, not later than August 1 for the fall semester and December 1 for the spring semester. The application must be accompanied by a check, draft or money order for \$5 in payment of the application fee. Make checks payable to The Regents of the University of California. See the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION, for further information.

To qualify for regular graduate status in the Department of Public Health, the student must have completed a major in public health, or he must have satisfactorily completed the following courses: Public Health 100, 110, 145, 162 and 170. Permission may be granted to qualify in these areas by examination.

For admission to regular graduate status in the Department of Preventive Medicine and Public Health, the student must have completed the requirements for the doctorate of medicine in addition to the requirements of the Graduate Division. To qualify for regular graduate status with the Department of Preventive Medicine and Public Health, the student must have completed the following courses or he must have successfully passed examinations in the areas represented by these courses: Preventive Medicine and Public Health 101, 201 and 220.

Courses taken in public health, or in preventive medicine and public health, to meet the requirements of qualifying for regular graduate status in either department cannot be counted toward meeting the minimum units taken for the degree.

Requirements.—For general requirements, see ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

The departments of Public Health (School of Public Health) and Preventive Medicine and Public Health (School of Medicine) follow Plan I. Exceptions to Plan I may be made in unusual cases by permission from the Dean of the Graduate Division and the Chairman of the appropriate department.

A student is required to specialize in one of the following areas: epidemiology, biostatistics, sanitary science, health administration, public health education, occupational health (to be developed).

At least 20 units, plus a thesis, are required for the degree. Of these 20 units, a minimum of 8 graduate units, including 2 to 4 units of Public Health 299, must be selected from graduate courses in public health or in preventive medicine and public health; 12 additional units will be selected by the student with the approval of the department adviser from the list of courses provided below for each specialization; students graduated in medicine or public health will be required to select courses from other departments of the University.

Elective Courses for Specialisation.—Twelve units to be selected from the area of specialization (with approval of the adviser, comparable courses may be included):

Biostatistics.—Anthropology 150, 151; Mathematics 119A, 120, 122A-122B, 135, 139, 140, 253; Statistics 131A-131B, 231, 232, 233, 260; Psychology 105B, 106A, 106B, 146; Sociology 117; Zoology 130A, 131A, 131B, 131C, 159, 230 or 231.

Epidemiology.—Anthropology 102; Bacteriology 103; Entomology 126; Geography 100; Infectious Diseases 251A-251B; Psychology 109, 144; Sociology 101, 117, 122, 186; Zoology 125, 140, 159.

Health Administration.—Business Administration 105B or 108, 135, 150, 152, 190; Economics 131A-131B, 152; Political Science 166, 172, 181, 185, 214, 218, 228.

Public Health Education.—Anthropology 102, 110, 125, 276; Business Administration 292; Sociology 117, 124, 145, 161, 216, 217, 218, 229; Art 140A, 148; Education 106, 147; Home Economics 111, 113; Journalism 152, 251; Nursing 144, 109, 225; Philosophy 181, 184A-184B, 187A-187B, 240, 241; Political Science 146, 148; Psychology 131, 134, 139, 142, 145A-145B, 180, 267; Speech 106; Theater Arts 185, 270.

Sanitary Science.—Bacteriology 103, 107; Botany 119, 126; Chemistry

108A-108B, 109, 112A; Engineering 130A, 131A, 172; Entomology 100, 126, 126C; Geography 165; Geology 101; Home Economics 113; Physics 121, 124A, 124B; Psychology 187; Zoology 101A, 101B, 111, 111C, 115, 125, 139, 159.

DOCTOR OF PUBLIC HEALTH DEGREE

The doctorate in public health is offered primarily as an advanced study and research degree, in the attainment of which students who are already well advanced in a related fundamental field will carry on intensive work in the advancement of this knowledge as related to public health. The areas of specialization follow the pattern of the master's program in the School of Public Health.

General Requirements for the Degree

- A. The candidate must have completed, with a grade B average or better, basic courses equivalent to those required for the degree of Master of Public Health at the University of California and such additional courses as may be prescribed by an examining board appointed by the Dean of the School of Public Health to appraise the candidate's academic and professional background.
- B. The candidate must have passed a qualifying examination conducted by a committee appointed by the Graduate Council.
- C. In addition to requirements A and B above, the candidate must have completed, in residence at the University of California, at least one academic year of work involving advanced specialization in the particular field of public health for which he is preparing.
- D. The candidate must have indicated his capacity to make a substantial contribution to the advancement of the science and art of public health by submitting a dissertation on a subject chosen by himself and bearing on his principal subject of study, and of such character as to show power to prosecute independent investigation. (In general, the program of research and dissertation is the same as that for the degree of Doctor of Philosophy as given in the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.)
- E. The candidate must have demonstrated ability either: (1) by leadership in his field as evidenced by successful professional experience in a post evolving the exercise of substantial initiative and responsibility, or (2) by such other means as the faculty of the School of Public Health may prescribe.

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 2.75 average in undergraduate work except that an applicant with a grade-point average between 2.50 and 2.75 (a B minus) 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 and have a grade-point average of at least 3.0 (B average), 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 Engineering, Master of Public Administration, Master of Science, Master of Social Welfare, Doctor of Philosophy, Doctor of Education, Doctor of Public Health, 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 course (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, marine biology, nursing, oceanography, pharmacology, physical education, public health and preventive medicine, physiological chemistry, physiology, psychiatry, 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, in the College of Engineering leading to the degree of Master of Engineering, 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	Health Education	Pharmacology
Anthropology	History	Philosophy
Anthropology-Sociology	Home Economics	Physical Education (including Recreation)
Applied Physics	Horticultural Science	Physics
Art	Infectious Diseases	Physiological Chemistry
Astronomy	International Relations	Physiology
Biological Chemistry	Italian	Political Science
Biophysics	Journalism	Psychiatry
Botanical Science	Latin	Psychology
Business Administration	Latin-American Studies	Public Administration
Chemistry	Mathematics	Public Health and Preventive Medicine
Classics	*Marine Biology	Radiology
Economics	Meteorology	Slavic Languages
Education	Microbiology	Social Welfare
Engineering	Music	Sociology
English	Near Eastern Studies	Spanish
French	Near Eastern Languages and Literatures	Speech
Geography	Nursing	Theater Arts
Geology	*Oceanography	Zoology
German	Oriental Languages	
Greek		

* At Scripps Institution of Oceanography, La Jolla.

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 three 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. Four grade points for each unit of credit are given to grade A, three points to grade B, two points to grade C, one point to grade D, none to grades 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 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	Pharmacology
Anthropology-Sociology	Germanic Languages	Philosophy
Art History	Hispanic Languages	Physics
Biological Chemistry	and Literature	Physiological Chemistry
Biophysics	History	Physiology
Botanical Science	Horticultural Science	Political Science
Business Administration	Infectious Diseases	Psychology
Chemistry	Marine Biology	Romance Languages
Economics	Mathematics	and Literature
Engineering	Meteorology	Sociology
English	Microbiology	Speech
French	Music	Zoology

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), 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. Three members of the committee may be designated to supervise and pass upon the student's dissertation, but all members of the committee shall have the opportunity to read the dissertation and shall participate in the final oral examination.

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 of 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 the Dean of the

Graduate Division will determine 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 and the student is registered for 4 or more units.

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 instruction 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 filed.

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 and oceanography are required to submit the original on vellum and three Ozalid copies.

COURSES OF INSTRUCTION OFFERED AT LOS ANGELES, FALL AND SPRING SEMESTERS, 1958-1959

The course offering 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 1-99, 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; Floriculture and Ornamental Horticulture, 146A–146B; Irrigation and Soil Science 101A–101B, 108, 110A; Plant Pathology 120; and Horticultural Science 111. For regulations governing this list, see page 5.

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.

Curricula Offered.—Three curricula are offered on the Los Angeles campus—Agricultural Production, Agricultural Management, and four majors in the Plant Science curriculum; namely, botany, floriculture and ornamental horticulture, general horticulture, and subtropical horticulture (for requirements see sections under the College of Agriculture and the departments of Botany, Subtropical Horticulture, and Floriculture and Ornamental Horticulture). For requirements of the major in botany in the College of Letters and Science see sections under the College of Letters and Science and the Department of Botany.

Preparation for Other Majors in the Plant Science Science Curriculum and for Other Curricula in the College of Agriculture.—See the BULLETIN 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). Agricultural Engineering (see page 77). Botany (see page 111). Entomology (see page 208). Floriculture and Ornamental Horticulture (see page 209). Horticultural Science (see page 254). Irrigation and Soil Science (see page 256). Plant Pathology (see page 346).

AGRICULTURAL ECONOMICS

(Department Office, 346 Physics-Biology Building)

Daniel B. DeLoach, Ph.D., *Professor of Agricultural Economics (Vice-Chairman of the Department)*.

George L. Mehren, Ph.D., *Professor of Agricultural Economics (Chairman of the Department), Berkeley*.

Roy J. Smith, Ph.D., *Professor of Agricultural Economics*.

Jerome W. Milliman, Ph.D., *Assistant Professor of Agricultural Economics*.

Completion of the curriculum in Agricultural Economics requires final two years of residence on the Berkeley or Davis campus. See the BULLETIN OF THE COLLEGE OF AGRICULTURE and consult the appropriate adviser.

Agricultural Management.—With the assistance of an advisory committee, the department administers the new curriculum in Agricultural Management (for details see pages 31–32).

UPPER DIVISION COURSES

- 117. Elements of Agricultural Management. (3) I.** Mr. Smith
Lecture and discussion, three hours. Prerequisite: junior standing.
Organization of production units including relationships with supply, service and marketing agencies. Economics of enterprise selection, size, intensity, and mechanization. Introduction to agricultural credit, labor management, and cost analysis. Agricultural applications of motion and time study. Individual student planning project.
- 117C. Elements of Agricultural Management, Laboratory. (1) I.** Mr. Smith
Laboratory, three hours. Prerequisite: course 117 (may be taken concurrently).
Intensive planning study of one or two enterprises to be selected on the basis of class interest and of availability of necessary information.
- 120. Agricultural Policy. (3) I.** Mr. DeLoach
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.** Mr. DeLoach
Lecture and discussion, three hours. Prerequisite: Economics 1A. Three field trips to be arranged.
Survey of determinants of agricultural markets and trade. Organization and operation of agricultural markets. Cooperative marketing. Costs of marketing. Government in marketing. Changes in agricultural marketing and markets.
- 177. Water and Land Economics. (3) II.** Mr. Milliman
Lectures and discussions, three hours. One field trip required. Prerequisite: Economics 1A-1B.
Economic principles in utilization of water and resources. Legal and institutional factors governing use. Problems in development, reclamation, conservation, and allocation. Project area studies.
- 198. Special Courses. (1-3) I, II.** The Staff
Prerequisite: advanced standing and consent of the instructor.
- 199. Special Studies. (2-4) I, II.** The Staff
Prerequisite: senior standing and consent of the instructor.

AGRICULTURAL ENGINEERING

(Department Office, 2066 Engineering Building)

Russell L. Perry, M.E., *Professor of Agricultural Engineering (Vice-Chairman of the Department)*.

The Major.—The major is offered by the Colleges of Engineering, Los Angeles and Berkeley, with the senior year given only on the Davis campus. See the ANNOUNCEMENT OF THE COLLEGES OF ENGINEERING and the BULLETIN OF THE COLLEGE OF AGRICULTURE.

LOWER DIVISION COURSE

- 1. Introduction to Agricultural Machinery, Structures and Processing.**
(2) II. Mr. Perry
Lecture, two hours. Field trips may be scheduled.

Development of mechanization of farming. Principles of operation of farm machinery and power equipment. Functional and structural requirements of farm buildings. Unit operations of processing farm products.

AIR SCIENCE

(Department Office, 141 Building 1M)

Vincent J. Donahue, M.A., Colonel, U. S. Air Force, *Professor of Air Science (Chairman of the Department)*.

James D. Deatherage, Ed.D., Major, U. S. Air Force, *Associate Professor of Air Science*.

Boyd H. Stewart, B.S., 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*.

Edwin R. Bayer, B.S., Captain, U. S. Air Force, *Assistant Professor of Air Science*.

Judith S. Bates, D.S.C., 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 5.

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. 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. 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 of a junior officer of the Air Force.
4. To arouse in students the desire to become pilots, navigators, or engineers 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. 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 loans a formally enrolled basic student, 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. Foundations of Air Power. (1½) I.** The Staff
Air vehicles and principles of flight; elements and potentials of air power. Leadership laboratory.
- 1B. Foundations of Air Power. (1½) II.** The Staff
Military instruments of national security. Leadership laboratory.
- 21A. Careers, Targets, and Weapons. (1½) I.** The Staff
Prerequisite: courses 1A and 1B.
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) II.** The Staff
Prerequisite: course 21A.
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 for becoming an Air Force officer are selected within quota limitations for the advanced courses. First priority for acceptance in the advanced course is given to students who are physically and aptitudinally qualified for flying and who desire to enter pilot or navigator training 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 subjects 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 an 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 managing the cadet activities. The advanced course of Air Force R.O.T.C. includes a summer camp of four or six weeks' duration, normally held following the Air Science III academic year.

A student, to qualify for formal enrollment in the advanced course, must:

1. 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. Have completed satisfactorily 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 training, and to accept a commission as an Air Force officer, if offered.

Advanced 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.

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 navigators 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 20-200 or better bilaterally, correctible to 20-20 in one eye and 20-30 in the other.

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 government commutation of ration allowance amounting to \$81 per quarter during the two advanced academic years, in addition to a major portion of the required Air Science texts and training equipment. Students attending summer training are paid at the rate of \$78 a month, in addition to rations, quarters, and travel expenses.

131A. Problem Solving and Communication. (4)

The Staff

Prerequisite: successful completion of basic course.

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)

The Staff

Prerequisite: successful completion of basic course.

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 a 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.

Prerequisite: course 131A and 131B. Summer Training Unit Staff

Processing in and out; physical training; individual weapons; familiarization flying; field exercises; United States Air Force Base experience.

This course is held at selected Air Force Bases.

141A. Principles of Leadership. (4)

The Staff

Prerequisite: courses 131A and 131B.

Seminars on principles of leadership and management; career guidance. Leadership laboratory.

141B. Aviation, Geography, and War. (4)

The Staff

Prerequisite: courses 131A and 131B.

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**

(Department Office, 13-276 Medical Center)

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 SOCIOLOGY

(Department Office, 360 Haines Hall)

- *Ralph 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.*
 Walter R. Goldschmidt, Ph.D., *Professor of Anthropology and Sociology.*
 Harry Hoijer, Ph.D., *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.*
 †Wendell Bell, Ph.D., *Associate Professor of Sociology and Anthropology.*
 Donald R. Cressey, Ph.D., *Associate Professor of Sociology (Chairman of the Department).*
 Melville Dalton, Ph.D., *Associate Professor of Sociology.*
 William A. Lessa, Ph.D., *Associate Professor of Anthropology.*
 †Clement W. Meighan, Ph.D., *Associate Professor of Anthropology.*
 William S. Robinson, Ph.D., *Associate Professor of Sociology and Anthropology.*
 Ralph H. Turner, Ph.D., *Associate Professor of Sociology and Anthropology.*
 Pedro Carrasco, Ph.D., *Assistant Professor of Anthropology.*
 Oscar Grusky, Ph.D., *Assistant Professor of Sociology.*
 Joel M. Halpern, Ph.D., *Assistant Professor of Anthropology.*
 Richard J. Hill, Ph.D., *Assistant Professor of Sociology.*
 John T. Hitchcock, Ph.D., *Assistant Professor of Anthropology.*
 Richard T. Morris, Ph.D., *Assistant Professor of Sociology.*
 Raymond J. Murphy, Ph.D., *Assistant Professor of Sociology.*
 Henry B. Nicholson, Ph.D., *Assistant Professor of Anthropology.*
 Councill S. Taylor, Ph.D., *Assistant Professor of Anthropology.*
 Charles R. Wright, Ph.D., *Assistant Professor of Sociology.*
 Donald P. Hayes, M.A., *Acting Instructor in Sociology.*
 Mary Jean Huntington, M.A., *Acting Instructor in Sociology.*

* Absent on leave, 1958-1959.

† In residence fall semester only, 1958-1959.

‡ In residence spring semester only, 1958-1959.

Wendell Oswalt, M.A., *Acting Instructor in Anthropology.*

Jack H. Prost, M.A., *Acting Instructor in Anthropology.*

Yuzuru Takeshita, M.A., *Acting Instructor in Sociology.*

Ernest M. Willis, M.A., *Acting Instructor in Sociology.*



Ruth Riemer Ellersieck, Ph.D., *Research Associate in Sociology.*

Harold Garfinkel, Ph.D., *Assistant Professor of Sociology in the Department of Psychiatry.*

C. Wayne Gordon, Ph.D., *Associate Professor of Sociology in the School of Education.*

Marshall B. McKusick, M.A., *Graduate Research Archaeologist II and Lecturer in Anthropology.*

Eleanor Bernert Sheldon, Ph.D., *Research Associate in Sociology.*

Roy T. Simmons, M.A., *Research Associate in Anthropology.*

Claude Warren, M.A., *Graduate Research Archaeologist I.*

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 5.

FIELD OF CONCENTRATION IN ANTHROPOLOGY

Preparation.—Required: Anthropology 1, 2, Sociology 1 or 101, 12, Sociology 18 or an equivalent approved by the Department; any 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 25, 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, 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; 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.

Upper division courses in sociology will apply toward the requirement that at least 12 upper division units shall be outside a single department.

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, 12 and 18, Anthropology 1 and 2, Psychology 1A or 101, 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 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 advance written 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.

Upper division courses in anthropology will apply toward the requirement that at least 12 upper division units shall be outside a single department.

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 with the approval of the adviser may be substituted for one of the lower division year courses in history and may 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 also be arranged. 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 67).

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. Introduction to Archaeology: Prehistory and Culture Growth. (3) I. Mr. McKusick, 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 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. Carrasco, Mr. Hitchcock, 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
The birth of civilization as revealed by archaeology, with concentration on developments in the Near East and Asia since the Neolithic period; theories of cultural development based on these discoveries.

*104. **Old World Archaeology.** (3) II. Mr. Meighan
Early archaeological cultures of the Old World: Asia, Africa, and Europe. Primarily concentrated on the period from the Upper Paleolithic to the Neolithic.

105. **American Indians North of Mexico.** (3) I. Mr. Oswalt
An introductory survey of the Indians of North America, north of Mexico; origins, languages, civilizations, and history.

106. **Archaeology of North America.** (3) I, II. Mr. Meighan, Mr. Nicholson
Prehistory of North American Indians; prehistoric culture areas; relations with historic Indians.

107. **Indians of South America.** (3) I, II. Mr. Oswalt
An introductory survey of the Indians of South America; origins, languages, civilizations and history.

110. **Language and Culture.** (3) II. 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) I. 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.

* Not to be given, 1958-1959.

127. **Primitive Art.** (3) II. 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.
128. **Kinship and Social Organization.** (3) I, II. Mr. Carrasco
Kinship systems in primitive society and their significance in the organization of social life. Theories of kinship, marriage regulations, and kinship role patterns.
137. **Indians of California.** (3) II. Mr. Oswalt
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 Middle America.** (3) I. Mr. Nicholson
Pre-Spanish culture history of Middle America as revealed by archaeology and early Spanish writings: Aztecs, Toltecs, Maya and their predecessors, with emphasis on social and political systems, economic patterns, art, architecture, and intellectual achievements.
141. **Indians of Modern Mexico.** (3) II. Mr. Carrasco
The contemporary Indian groups in Mexico; the present cultures and their derivations; the problem of the mixed culture; Indian influences on modern Mexican culture.
142. **Ancient Civilizations of Andean South America.** (3) II. Mr. Nicholson
Pre-Spanish culture history of Andean South America as revealed by archaeology and early Spanish writings, with special emphasis on the Inca and their predecessors in Peru: social and political systems, economic patterns, religion, art, architecture, and intellectual achievements.
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) II. Mr. Prost
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) I. 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.
- *155. **Fossil Man and His Culture.** (3) I. Mr. Prost
The comparative anatomy of fossil man as examined against a framework of the available cultural remains and the ethnological aspects of the environment. The Paleolithic cultures of the Old World are reviewed as a part of the content.

162. History of Anthropology. (3) I, II. Mr. Beals, Mr. Hitchcock
Prerequisite: Anthropology 1 and 2, and senior standing. Prerequisite to graduate work in the theory and method of anthropology.

A systematic survey of the development of anthropology as a scientific field, especially designed for majors in anthropology and sociology.

165. Acculturation and Applied Anthropology. (3) I. Mr. Halpern
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.

194A-194B. 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.

195. Methods and Techniques of Field Archaeology. (2) II.
Mr. McKusick, Mr. Meighan

Lecture, one hour; laboratory, three hours. Prerequisite: consent of the instructor. During part of the semester Saturday field work is substituted.

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.

199. Special Studies in Anthropology. (1-4) I, II. Mr. Birdsall in charge
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

250. Theory and Method of Anthropology. (2) I, II. Mr. Lessa

256A-256B. Social Anthropology. (2-2) Yr. Mr. Goldschmidt

257A-257B. Problems in Cultural Anthropology. (2-2) Yr. Mr. Halpern

***260A-260B. Characteristics of American Culture.** (2-2) Yr.
Mr. Goldschmidt

265A-265B. Cultures of Latin America. (2-2) Yr. Mr. Carrasco

***266A-266B. African Cultures.** (2-2) Yr. Mr. Taylor

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. Birdsall

* Not to be given, 1958-1959.

- *276. **Man and His Ecological Relations.** (2) I. Mr. Birdsell in charge
299. **Research in Anthropology.** (1-6) I, II. Mr. Goldschmidt in charge
400. **Museum Methods.** (2) II. Mr. Meighan in charge
Lecture, one hour; laboratory, two hours. Prerequisite: consent of the instructor. Not counted toward the major in anthropology.
Care and recording of museum specimens; design and installation of museum exhibits; use of photographs, dioramas, and similar displays. Field trips to local museums and experience in processing and installation of museum exhibits.

RELATED COURSES IN ANOTHER DEPARTMENT (See page 264)

- 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
Survey of the characteristics of social life, the processes of social interaction, and the tools of sociological investigation.
2. **American Social Problems.** (3) I, II. The Staff
Identification and analysis of contemporary social problems in the United States; an attempt to establish criteria by which the educated layman can judge the probable effectiveness of various schemes for social betterment.
12. **Sociological Analysis.** (3) I, II. The Staff
Prerequisite: course 1 or 101. Required of majors.
Development and application of the basic tools and concepts of course 1 by means of an examination of selected monographic works.
18. **Interpretation of Quantitative Data.** (3) I, II. Mr. Hill, Mr. Willis
Prerequisite: course 1 or 101, or may be taken concurrently. Satisfies the statistics requirement for the major in sociology and anthropology.
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, II.
Mr. Robinson
A systematic treatment of the logic of qualitative and semiquantitative

* Not to be given, 1958-1959.

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) II.

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) I.

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. Grusky

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, II.

Mr. Murphy

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, II.

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, Mr. Grusky

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.

129. Mass Communications. (3) I.

Mr. Wright

Formal organization, functions, and development of the mass media; communications as a social process; cultural patterns; audience characteristics; communications and bureaucracy. Aspects of the American media are compared with other systems, e.g., Soviet, British, Arabic.

131. Industry and Society. (3) I, II.

Mr. Dalton

Prerequisite: upper division standing.

A social and cultural analysis of industry. Attention given to occupational roles, status and social participation of workers.

135. Social Class in America. (3) I.

Mr. Murphy

An analysis of American social structure in term of evaluational differentiation. Topics to be considered include criteria for differentiation, bases for evaluation, types of stratification, the composition of strata and status systems, mobility, consequences of stratification and problems of methodology.

- 142. Marriage and the Family.** (3) I, II. Mr. Riemer, Mr. Turner
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, II. Mr. Riemer, Mr. Wright
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. Bell
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) II. 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. Hill
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.

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 1 or 101 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. Grusky

Prerequisite: course 1 or 101 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 1 or 101 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 Problems. (3) I.

Mr. Takeshita

Implications for social organization and social policy of population size and composition, birth and death rates. Consideration of social problems related to population increase, population redistribution, and other trends.

189. Ethnic and Status Groups. (3) I, II.

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) I.

Mr. Willis

Prerequisite: course 1 or 101, and upper division 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.

192. Studies in the Family. (2) I.

Mr. Riemer

Prerequisite: course 1 or 101 and 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.

199. Special Studies in Sociology. (1-4) I, II.

Mr. Cressey in charge

Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 214. The Measurement of Sociological Variables.** (2) II. Mr. Hill
 Prerequisite: courses 117 and 118.
 Theory and technique of measurement in sociology. Construction, application, and interpretation of measurement techniques, especially the forms of scaling.
- 216. Questionnaire and Schedule Construction.** (2) I. Mr. Wright
 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) I. 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) I.
 Prerequisite: courses 117 and 118. Mr. Robinson
 Principles and procedures of the sample survey from design through administration and analysis; relation of the survey to other methods of data collection; sampling procedures, practice in punch-card processing of actual surveys.
- 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.
- 229. Selected Problems in Communications.** (2) II. Mr. Wright
- 236. Social Change in the Middle East.** (2) I. Mr. Shevky
- 237. Social Stratification in the Middle East.** (2) II. Mr. Shevky
- 250. Methodological Problems.** (2) I. Mr. Broom
- 251. Social Maladjustment.** (2) II. Mr. Garfinkel
- 252. Criminology.** (2) I. Mr. Cressey
- 253. Quantitative Methods in Sociology.** (2) II. Mr. Robinson
- 254. Penology.** (2) II. Mr. Cressey
- *256A-256B. Demography.** (2-2) Yr. _____
- 258. Marriage and the Family.** (2) II. Mr. Biemer
- *259. Social Institutions.** (2) II. _____
- 260. Industry and Society.** (2) II. Mr. Dalton
- *261A-261B. Ethnic Minorities.** (2-2) Yr. Mr. Broom

* Not to be given, 1958-1959.

262. Selected Problems in Urban Sociology. (2) I.	Mr. Bell
263. Social Stratification. (2) II.	Mr. Morris
264. Professions in the American Society. (2) II.	Mr. Murphy
*268. Historical and Interpretive Sociology. (2) I.	—
269. Social Action. (2) II.	Mr. Turner
270. Selected Problems in Socialization. (2) I.	Mr. Turner
299A. Research in Sociology for M.A. Degree Candidates. (1-3) I, II.	Mr. Broom in charge
299B. Research in Sociology for Ph.D. Candidates. (1-6) I, II.	Mr. Cressey 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

(Department Office, 1118 Dickson Art Center)

- Laura F. Andreson, M.A., *Professor of Art.*
 Annita Delano, *Professor of Art.*
 Henry Dreyfuss, *Visiting Professor of Art.*
 Robert S. Hilpert, M.A., *Professor of Art Education.*
 Lester D. Longman, Ph.D., *Professor of Art (Chairman of the Department).*
 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.*
 Karl M. Birkmeyer, Ph.D., *Associate Professor of Art.*
 †William J. Brice, *Associate Professor of Art.*
 Dorothy Brown, A.B., *Associate Professor of Art.*
 Warren G. Carter, A.B., *Associate Professor of Art.*
 Archine Fetty, M.A., *Associate Professor of Art.*
 Thomas Jennings, M.A., *Associate Professor of Art.*
 Gordon Nunes, M.A., *Associate Professor of Art.*
 Josephine P. Reps, M.A., *Associate Professor of Art.*
 Carl D. Sheppard, Jr., Ph.D., *Associate Professor of Art.*
 Jan Stussy, M.F.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.*
 Samuel Amato, B.F.A., *Assistant Professor of Art.*
 E. Maurice Bloch, Ph.D., *Assistant Professor of Art.*

* Not to be given, 1958-1959.

† Absent on leave, 1958-1959.

Naomi G. Dietz, M.A., *Assistant Professor of Art.*
 Alice M. Everett, M.A., *Assistant Professor of Art.*
 John Paul Jones, M.F.A., *Assistant Professor of Art.*
 J. Bernard Kester, M.A., *Assistant Professor of Art.*
 John Maguire, B.S., *Assistant Professor of Art.*
 John Roscnfield, M.A., *Assistant Professor of Art.*
 Jack D. Stoops, Ed.D., *Assistant Professor of Art.*
 †Madeline Boyce Sunkees, B.E., *Assistant Professor of Art.*
 Phyllis M. Beacom, M.A., *Instructor in Art.*
 Donald W. Chipperfield, A.B., *Instructor in Art.*
 Oliver Wolcott Andrews, A.B., *Instructor in Art.*
 Jerrold Ziff, M.A., *Instructor in Art.*
 Margaret T. Lecky, *Lecturer in Art.*
 Annie C. B. McPhail, M.S., *Lecturer in Art.*
 Jack B. Carter, M.A., *Associate in Art.*
 Elizabeth Hayes, M.A., *Associate in Art.*
 Gretchen B. Larimer, M.A., *Associate in Art.*
 Maurice Nemoy, *Associate in Art.*
 William M. Reithard, *Associate in Art.*
 Simon D. Steiner, M.S., *Associate in Art.*



Charles F. Bridgman, A.B., *Senior Medical Illustrator, Department of Anatomy.*

John Jones, M.A., *Assistant Professor of Theater Arts.*

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, 3, 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 courses 100A, 100B, 102A, 102B (or Classics 170A-170B), 103A, 103B, 104A, 104B, 108A, 108B, 119A, 119B, 120, 121A, 121B, 121C, 121D; 4 units from 114A, 114B, 115, 124, Philosophy 136; 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 total 36 units.

Art 125A-125B is 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.

† Absent on leave, 1958-1959.

3. Advertising Art.

The Major.—Courses 108A, 108B, 125A, 128A-128B, 130A, 134A, 140A, 140B, 145A, 145B, 146A, 147, 148, and electives from upper division art courses and Theater Arts 170 to bring total to 36 units.

4. Interior Design.

The Major.—14 units from Group IV including 152A-152B, 158A-158B; 6 units from each of the following Groups: I, II, and VI; and electives from upper division art courses to total 36 units.

5. Costume Design.

The Major.—Courses 160, 161, 163A, 163B, 166, 167, 169A-169B, 175A-175B, 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, 170A, 173A, 175A, 176A, 177A, 180; 8 units from Group I; 6 units from 170B, 171, 173B, 175B, 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.—24 units of lower division art courses, including 1A-1B, 2A-2B, 3, 6A-6B, 7A, and 16, Chemistry 2, English 1A, Mathematics 1, 3A, Physics 2A-2B, and Speech 1.

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 (20 units) must be in Engineering-Business, and should include Engineering 2, 6, 18, 130B; Business Administration 140, 160; Business Education 110.

All electives must be 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; 4 units from Group I; and electives from any other one 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 5. 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, 120, 121A, 121B, 121C, 121D, 123, 124, 199 (not more than 4 units), Anthropology 127, Oriental Languages 170, and Philosophy 136.

Letters and Science List.—Courses 1A, 1B, 5, 10, 45, 100A, 100B, 102A, 102B, 103A, 103B, 104A, 104B, 104C, 104D, 108A, 108B, 114A, 114B, 115,

118A, 118B, 119A, 119B, 119C, 120, 121A, 121B, 121C, 121D, 123, 124, 139A, 139B, 139C, 139D, 190, 199 are included in the Letters and Science List of Courses. For regulations governing this list, see page 5.

Graduate Division

Admission to Regular Graduate Status.—In addition to meeting the requirements of the Graduate Division, the student must have a bachelor's degree or its equivalent in art, with a minimum of 24 upper division units in art in his field of specialization. Students lacking in this requirement will be admitted only in unclassified status until such deficiencies are made up.

When applying for admission, it is advisable to designate a major field of specialization, thus—*Art: Art History*. See below.

Requirements for the Master's Degree.—For the general requirements, see page 70. 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. The department of Art offers graduate study in seven fields of specialization; detailed requirements may be obtained from the departmental advisers. *Whenever possible*, the field adviser should see examples of previous work in the field.

Master of Arts Degree in Art History.—The program for the Master of Arts degree in art history follows Plan I, a minimum of 20 semester units and a thesis. Knowledge of at least one foreign language is required. This requirement must be fulfilled by the end of the second semester. Before the thesis is submitted, a comprehensive examination must be passed, consisting of two three-hour examinations. This examination covers six of 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 72), 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. The requirement for the first language must be fulfilled at the end of the first semester; the requirement for the second language at the end of the third semester.

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. Birkmeyer
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. Sheppard
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. Beginning Drawing and Painting. (2) I, II.** Mr. Stussy
Three dimensional drawing based on light, perspective, observation and composition. Media: pencil, charcoal, ink and pastel.
- 2B. Beginning Drawing and Painting. (2) I, II.** Mr. Amato
Prerequisite: course 2A.
Continuation of 2A and an introduction to the use of painting materials.
- 3. Intermediate Drawing and Painting. (2) I, II.** Miss Delano
Prerequisite: course 2B.
Study based on building of form in reference to contemporary painting; of color and light and their structural and expressive values.
- 5. Fundamentals of Art. (2) I.** Mr. Ziff
Definitions of art, terminology, types of approach, design and meaning, color theory, appreciation of art.
- 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.** Mrs. Sunkees
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
Introduction to orthographic drawing and perspective; structural sketching; accurate subject representation in selected media.
- 21A. Apparel Analysis. (2) I, II.** Mrs. Larimer
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. Beacom
Lecture, one hour; studio, two hours.
Appreciative study of the modern shelter.
- 44. Life Drawing.** (2) I, II. Mr. Brice
Prerequisite: course 2B.
Problems in anatomy, draftsmanship and pictorial organization, using the figure as subject; training in observation and techniques with pencil, charcoal, ink, and pastel.
- 45. Introduction to Scientific Illustration.** (2) I, II. Mr. Bridgman
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.

RELATED COURSE IN ANOTHER DEPARTMENT

- Integrated Arts 1A-1B. Man's Creative Experience in the Arts.** (3-3) Yr. Mr. With

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. Altman
Art, architecture, and industrial arts in prehistoric and primitive civilizations.

- 100B. The Art of Early Historical Cultures.** (2) II. Mr. Altman
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. Mr. Sheppard
From the Early Christian to the Romanesque period.

- 103B. Medieval Art.** (3) II. Mr. Sheppard
From the Gothic to the Flamboyant style.

- 104A. Southern Renaissance Art.** (2) I. Mr. Birkmeyer
Art and architecture of the Renaissance in Italy and Spain.

- 104B. Northern Renaissance Art.** (2) II. Mr. Birkmeyer
Art and architecture of the Renaissance in the Netherlands, Austria, Germany, France, and England.

- 104C. Southern Baroque Art.** (2) I. Mr. Bloch
Art and architecture in Italy and Spain during the Baroque period.

* Not to be given, 1958-1959. See Classics 170A, 170B.

104D. Northern Baroque Art. (2) I. Mr. Birkmeyer
Art and architecture in Flanders, Holland, Austria, Germany, France, and England during the Baroque period.

108A. Modern Art. (3) I. Mr. Ziff
Art and architecture from the late eighteenth century to the latter part of the nineteenth century, including the early phases of Industrialization.

108B. Modern Art. (3) II. Mr. Wight
Post-Impressionism and the contemporary movement in art, architecture, and the fields of domestic, industrial, and commercial art.

***114A. Art Analysis, Theory and Criticism. (2) I.** _____
Critical study of art theories and methods of approach.

***114B. Art Analysis, Theory and Criticism. (2) II.** _____
Criteria of art analysis as a means to an objective evaluation of works of art.

***115 Utilitarian and Domestic Art. (2) I.** _____
A study of basic forms as determined by human needs, physical functions, esthetic appeal, and symbolic significance.

118A. History of Architecture and Sculpture. (2) I. Mr. Sheppard
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. Mr. Bloch
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) II. Mr. Altman
Pre-Columbian and Amerindian art.

119B. Art of the Americas. (2) I. Mr. Bloch
Painting, sculpture, and architecture from the Colonial period to 1900.

119C. Art of the Americas: Twentieth Century. (2) II. Mr. Bloch
Development of architecture, sculpture, painting, and design from about 1910 to the present.

120. Arts of the Orient, a Survey. (2) I. Mr. Rosenfield
A study of selected works from the history of the arts of India, Iran, China, and Japan.

121A. Art of China. (3) I. Mr. Rosenfield
Survey of the architecture, sculpture, and painting of China from pre-historic to modern times.

121B. Art of Japan. (3) II. Mr. Rosenfield
Survey of the architecture, sculpture, and painting of Japan.

* Not to be given, 1958-1959.

121C. Art of India and Indonesia. (3) I. Mr. Rosenfield
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.

121D. Islamic Art. (3) II. Mr. Rosenfield
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. Mr. Bloch
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) I. Mr. Sheppard

II. Painting, Sculpture and Graphic Arts

Courses 2A, 2B, and 3 are prerequisite to all courses in Group II.

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. Stussy
Experimentation with traditional and newer painting materials including intensive experience in the use of one medium.

127A-127B. Advanced Drawing. (2-2) Yr. Beginning either semester.
Prerequisite: course 128A. Mr. Amato
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.
Recommended: course 44. 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.
Prerequisite for 130B: 128A. Mr. Nunes, Miss Delano
Still-life and the human figure as subjects; major concepts of pictorial structure; medium—oil.

134A-134B. Landscape Painting. (2-2) Yr. Beginning either semester.
Mrs. Brown
Selection of subject themes and their transformation in landscape painting.

135. Advanced Painting. (2) I, II. Mr. Brice
Prerequisite: courses 130A, 134A or 134B, 128A.
Individual development in concept, technical competence, control of pictorial order.

137A-137B. Sculpture. (2-2) Yr. Beginning either semester. Mr. Andrews
Prerequisite: course 128A or the consent of the instructor.
The basic sculptural methods explored for their creative possibilities; projects in clay, plaster, concrete, wood, and stone.

139A-B-C-D. Biological Illustration. (1-1-1-1) I, II. Mr. Bridgman

Prerequisite: courses 16 and 45, or consent of the instructor.

Studies in the development of an ability to draw those forms relevant to the biological sciences. Emphasis upon accurate observation, interpretation, and rendition of biological subject matter expressed through the medium of illustration as used in biological teaching and research.

III. Advertising Art

Courses 6A, 6B, and 7A are prerequisite to all courses in Group III.

140A. Advertising Art. (2) I, II. Mr. Nemoy

Development of concepts of design in visual advertising; lettering and typography for layout.

140B. Advertising Art. (2) I, II. Mr. Chipperfield

Basic media of visual communication: newspaper, magazine, brochure.

141A-141B. Lettering, Calligraphy, and Typography. (2-2) Yr.

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: courses 140A, 140B, 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 production art.

146A-146B. Illustration. (2-2) Yr. Mr. Chipperfield

Prerequisite: courses 140A, 140B.

Development of techniques and skills applicable to the fields of editorial, decorative, book, magazine, and advertising illustration.

147. Fashion Illustration. (2) I. _____

Prerequisite: courses 140A, 140B.

The development of individual expression for the presentation of fashion in advertising; historical and traditional considerations.

148. Graphic Communication. (2) I, II. Mr. Jennings

Prerequisite: senior standing.

Intensive and specialized projects of graphic design.

149. Advanced Graphic Communication. (2) I, II. Mr. Jennings

Prerequisite: 140A, 140B, 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.

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. Sunkees
No prerequisite.
Furniture: its changing forms as an expression of cultures from ancient to modern times.
- 152A. Interior Design. (2) I, II.** Mrs. Fetty, Mrs. Beacom
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 interiors in variations of character to express the individuality of the occupants.
- 153A-153B. Furniture Design. (2-2) I, II.** _____
Design of custom furniture and fixtures for commercial and residential interiors.
- 155A-155B. Introduction to Theory and Design of Architecture. (2-2) I, II.** _____
Prerequisite: senior standing.
An introduction to architectural design.
155A: Design and Theory.
155B: Materials and Methods in Application.
- 158A. Advanced Interior Design. (2) I.** Mrs. Fetty
Prerequisite: courses 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.
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.** Mrs. Beacom
Prerequisite: senior standing, a B average in the major, and consent of the instructor.
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.

* Not to be given, 1958-1959.

- 163A. Modern Costume Design.** (2) I, II. Miss Everett
Problems in 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 industry: problems of production, processes of manufacture, buying, and publicity.
- 169A-169B. Advanced Costume Design.** (2-2) Yr. Mrs. Reps
Prerequisite: course 163A-163B.
Advanced creative work in apparel design.

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.

Miss Andreson, 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.

Miss Andreson

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.

175A-175B. Studies in Surface Design. (2-2) Yr.

Mrs. Sunkees

Prerequisite: course 152A-152B or 163A-163B, and 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.

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. Design for Metal. (2-2) I, II.

Mr. Carter

Principles and methods for creative design in 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. W. Carter
Experimental work in three dimensions; theories of design; exploration of abstract principles of space and form.

181A-181B. Design for Industry. (4-4) Mr. Steiner

Open to industrial design majors only.

The integration of abstract design fundamentals with simplified products, approaches to design solutions in form and structure; the use of two- and three-dimensional methods for design study.

181C-181D. Design for Industry. (4-4) Mr. Maguire

Prerequisite: course 181A-181B.

The design of more complex products emphasizing suitability for production, creative resourcefulness, market research; design experience in transportation and mass-produced structures.

181E. Design for Industry. (4) II. The Staff

Prerequisite: courses 181A-181B, 181C-181D.

Individual and team projects involving comprehensive planning and relating of all aspects of a product that have a bearing on the market; anticipation of future needs. Emphasis on individual incentive and judgment and professional level.

182A-182B. Advanced Rendering. (2-2) Mr. Maguire

Prerequisite: course 16.

Delineation in various media for professional presentation; advanced methods of perspective; quick sketching for visual communication and drawing techniques that aid the design process.

184. Display and Exhibit Design. (2) I, II. _____

Design, planning and installation of three-dimensional displays and 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

199. Special Studies in Art. (1-4) I, II. The Staff

Prerequisite: senior standing and consent of the instructor.

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.
- 275. Advanced Ceramic Design. (2) I, II.** Miss Andreson
Prerequisites: courses 170A-170B, 171 and Engineering 108D.
Research in ceramic technology; practice in the development of ceramic design in relation to architectural and industrial needs and applications.
- 276. Visual Arts in Architecture. (2) I, II.** The Staff
Exploration and execution of projects in painting, sculpture, and other graphic media as they relate to an architectural setting.
- 277. Advanced Printmaking. (2) I, II.** Mr. Jones
Prerequisite: courses 125A-125B, 128A-128B, and consent of the instructor.
Advanced use of traditional and experimental media. Intensive and specialized problems of drypoint, engraving, etching, woodcut and color prints; with emphasis on experimentation and research into pictorial form and content in fine printmaking.
- 278. Analytical and Creative Research in Painting and Sculpture. (2) I, II.** The Staff
Prerequisite: courses 127A-127B, 130A-130B or the consent of the instructor.
Creative research into the historical and symbolic evolution of the human image as it may be developed in painting, sculpture, and graphics.
- 290A-290B. Research Projects in the Arts. (2-2) Yr.** The Staff
Beginning either semester.
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 Graphic Arts.
Section 3. Advertising Art.
Section 4. Interior Design.
Section 5. Costume Design.
Section 6. Applied Design.
Section 7. Teaching of Art.

† Students desiring seminar work in this field should take Classics 272.

299A-299B. **Special Studies for Graduate Students.** (1-4; 1-4) Yr.
Beginning either semester. The Staff

PROFESSIONAL COURSES IN METHOD

330. **Art in Elementary Education.** (3) I, II. Miss Dietz
Lecture, one hour; studio, six hours.
A study of objectives and methods related to early childhood education and to the general elementary art program, with correlated studio activities and creative experiences exploring media, and techniques appropriate to the elementary school.
- 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.
- 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.

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 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

(Department Office, 8105 Mathematical Sciences Building)

Samuel Herrick, Ph.D., *Professor of Astronomy.*
Frederick C. Leonard, Ph.D., *Professor of Astronomy (Chairman of the Department).*
Daniel M. Popper, Ph.D., *Professor of Astronomy.*
George O. Abell, Ph.D., *Assistant Professor of 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 5.

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 French, German, or Russian.

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 pages 10 and 11 of this bulletin.

The Master's Degree.—The requirements for the master's degree in astronomy may be met by either Plan I (Thesis Plan) or Plan II (Comprehensive-Examination Plan). See page 70.

LOWER DIVISION COURSES

- 1. Elementary Astronomy.** (3) I, II. The Staff
 Not open to students who have taken or are taking Astronomy 100 or 101.
 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.
- 2. Practice in Observing.** (2) I. Mr. Abell
 Prerequisite: course 1 or 100 and plane trigonometry; or credit or registration in course 4 or 101. Required of students preparing to major in astronomy.
 Practical work for beginners, including constellation studies, telescopic observations of celestial objects, and laboratory exercises cognate to the material of course 4 or 101.
- 3. Spherical Trigonometry with Applications.** (2) I. Mr. Leonard
 Prerequisite: plane trigonometry (Mathematics C or its equivalent). Students who have taken or are taking Astronomy 4 will receive only 1 unit of credit for course 3.
 Spherical trigonometry, with applications to astronomy, meteoritics, navigation, crystallography, and other subjects.
- 4. Spherical Astronomy.** (3) I. Mr. Leonard
 Prerequisite: plane trigonometry. Required of students preparing to major in astronomy. Course 2 may be elected for observatory and laboratory work in connection with this course. Students who have taken course 3 will receive only 2 units of credit for course 4. Students who take both courses concurrently will receive 1 unit of credit for course 3, and 3 units of credit for course 4.
 The celestial sphere and its coordinate systems; time; spherical trigonometry and its astronomical applications.
- *10. Celestial Navigation.** (3) I. Mr. Abell
 Prerequisite: Mathematics C or its equivalent.
 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 course 1 or 101.
 A survey of astronomy, the historical development of its methods and ideas, and its relation to other fields of thought.

* Not to be given, 1958-1959.

- 101. General Astronomy.** (3) I, II. Mr. Leonard, Mr. Popper
Prerequisite: plane analytic geometry. Open to properly qualified sophomore students as well as upper division students. Course 2 may be elected for observatory and laboratory work in connection with this course.
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.
- 102. Stellar Astronomy.** (3) I. Mr. Leonard, Mr. Abell
Prerequisite: course 101 or its equivalent, or course 100 and consent of the instructor. Not open to students who have taken or are taking Astronomy 117B.
A review of stellar astronomy, with special emphasis on the results of modern researches.
- 104. Practical Astronomy.** (3) I. Mr. Popper
Lecture, two hours; observing period, three hours. Prerequisite: course 4 and Mathematics 3B.
Fundamental and differential stellar coordinates; time and latitude; star catalogs. Use of the astronomical transit-instrument and the equatorial telescope.
- 105. Practical Astronomy.** (2) II. Mr. Popper
Lecture, one hour; observing period, three hours. Prerequisite: Physics 1D; or Physics 2B and Mathematics 4A.
Astronomical optics, photography, spectroscopy, and photometry. Use of the equatorial telescope.
- 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. Astrodynamics and 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: course 112 or consent of the instructor.
The theory and calculation of preliminary orbits and ephemerides of comets, minor planets, satellites, and rockets.
- 117A-117B. Astrophysics.** (3-3) Yr. Mr. Popper, Mr. Abell
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 preparation.
The science of meteorites and meteors.
- 199. Special Studies.** (1 to 5) I, II. The Staff
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 215. Advanced Orbit Theory.** (3) I. Mr. Herrick
Prerequisite: course 115.

217A-217B. Advanced Astrophysics and Stellar Astronomy. (3-3) Yr.

Prerequisite: consent of the instructor. Mr. Popper, Mr. Abell

A treatment of areas of modern astronomy in accordance with the needs of the students enrolled: stellar atmospheres, stellar interiors, binary stars, the structure of our Galaxy, other galaxies, and cosmology.

218. Advanced Meteoritics. (3) II.

Prerequisite: course 118.

Mr. Leonard

***225A-225B. Celestial Mechanics. (3-3) Yr.**

Prerequisite: course 112.

Mr. Herrick

299A-B-C. Advanced Study and Research. (1 to 6) I, II.**299A. Celestial Mechanics.**

Mr. Herrick

299B. Astrophysics and Stellar Astronomy.

Mr. Popper, Mr. Abell

299C. Meteoritics.

Mr. Leonard

BACTERIOLOGY

(Department Office, 5205 Life Sciences Building)

M. J. Pickett, Ph.D., Professor of Bacteriology (Acting Chairman of the Department).**Anthony J. Salle, Ph.D., Professor of Bacteriology.**_____, *Professor of Bacteriology.***Meridian Ruth Ball, Sc.D., Associate Professor of Bacteriology.****Gregory J. Jann, Ph.D., Associate Professor of Bacteriology.**_____, *Assistant Professor of Bacteriology.***William R. Romig, Ph.D., Instructor in Bacteriology.****Benjamin G. Fishkin, M.D., Lecturer in Bacteriology.**_____, *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 5.**Preparation for the Major.**—Bacteriology 1; Chemistry 1A, 1B, 5A, 8, 9; Physics 2A, 2B; Zoology 1A, 1B; a modern foreign language. Recommended: Bacteriology 11, Zoology 4.**The Major.**—Bacteriology 103, 105, 106, 120; Chemistry 108A and 108B, or 135; also 7 units of upper division work in related subjects, these to be selected from the following lists: Bacteriology 106C, 107, 108, 109, 112, 114, 120C, 125, 130; Biophysics 191A, 191B; Botany 119, 126; Chemistry 106, 107, 109, 136; Entomology 126; Public Health 145, 162; Zoology 101A, 101B, 111, 111C, 111H, 119. Courses are to be chosen with the approval of the department.**Curriculum for Medical Technologists.**—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.

* Not to be given, 1958-1959.

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, two hours; laboratory, six hours. Prerequisite: Chemistry 1A or 2A. Designed for students majoring in bacteriology and related fields. Students who have credit for course 6 will receive only 3 units for course 1.
A general introduction to microbiology.

6. General Bacteriology. (2) I, II. Mr. Pickett, Mr. Salle
Lecture, two hours. Not open to students who have had course 1. No prerequisites.
A cultural course for nontechnical students, with emphasis on the significance of bacteria in our daily environment and as agents of disease.

11. History of Microbiology. (2) I. Mr. Romig
Lecture and discussion, two hours. Recommended as an introductory course for all microbiology majors, and as a cultural course for other majors. Does not satisfy Letters and Science requirement E2.
Early concepts dealing with the origin of life and the etiology of infectious diseases in relation to prevailing scientific thought, and the development of modern microbiological methods and theories.

UPPER DIVISION COURSES

103. Advanced Bacteriology. (5) I. Mr. Pickett
Lecture and discussion, three hours; laboratory, six hours. Prerequisite: course 1; recommended: course 106.
The more advanced principles of the life activities, growth, and morphology of bacteria. The etiology of disease.

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 activities of microorganisms.

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.

109. General Virology. (2) II.

Lecture, two hours. Prerequisite: course 103.

An introduction to the plant and animal viruses including the bacteriophages and the rickettsiae. Considerations of techniques, inclusion bodies, pathogenesis, immunity, and virus-host relationships.

112. Advanced Microbiology. (1) II.

Mr. Pickett

Prerequisite: courses 106 and 107.

Lectures and discussions covering advanced topics in infectious diseases.

114. Industrial Microbiology. (4) II.

Mr. Jann

Lecture and laboratory. Prerequisite: course 106.

The study of microorganisms of industrial importance, including methods of growth, isolation, identification, and conditions affecting their efficiencies.

120. Bacterial Genetics. (2) II.

Mr. Romig

Lecture, two hours. Prerequisite: course 106, Chemistry 108A and 108B, or consent of the instructor.

A study of the occurrence, induction, and modification of mutations; the cytological basis of bacterial genetics; nature and action of the genetic material; and the modes for transfer of hereditary traits in microorganisms.

120C. Bacterial Genetics Laboratory. (2) II.

Mr. Romig

Concurrent or prerequisite: course 120.

125. Determinative Bacteriology. (3) I.

Mr. Romig

Lecture, one hour; laboratory, six hours. Prerequisite: course 103.

The basic biological characteristics and taxonomic relationships of the Schizomycetes.

130. Immunochemistry. (4) II.

Lecture, two hours; laboratory, six hours. Prerequisite: course 103; recommended: Chemistry 108A and 108B.

Advanced studies in microbial parasitism, including factors affecting host resistance.

195. Proseminar. (2) I, II.

Mr. Jann, Mr. Pickett

Prerequisite: course 103. Course 195, or equivalent, is a prerequisite for graduate research in microbiology (Microbiology 293).

Oral and written reports on current research in microbiology.

199. Special Studies in Bacteriology. (2-5) I, II.

The Staff

Prerequisite: senior standing and 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

* Not to be given, 1958-1959.

*255. Seminar in General Virology. (1) II.

299. Research on Thesis or Dissertation. (2-6) I, II.

The Staff

RELATED COURSE (See page 398)

Life Sciences 370. Methods and Materials for Teaching Life Science.

(3) II.

Mr. Cowles, Mr. Herbst

BIOPHYSICS

A Department of the School of Medicine

(Department Office, B1-153 Medical Center)

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. For the undergraduate Curriculum in Biophysics, see page 11 of this bulletin.

BOTANY

(Department Office, 302 Physics-Biology Building)

Frederick 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.*

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 (Chairman of the Department).*

Samuel G. Wildman, Ph.D., *Professor of Botany.*

Anton Lang, Ph.D., *Associate Professor of Botany.*

Mildred E. Mathias (Mildred Mathias Hassler), Ph.D., *Associate Professor of Botany and Director of the Botanical Garden (Vice-Chairman of the Department).*

Bernard O. Phinney, Ph.D., *Associate Professor of Botany.*

Henry J. Thompson, Ph.D., *Assistant Professor of Botany (Life Sciences).*



David Appleman, Ph.D., *Professor of Plant Nutrition.*

Jacob B. Biale, Ph.D., *Professor of Subtropical Horticulture.*

College of Agriculture

Preparation for the Major.—The lower division course requirements of the plant science curriculum (see pages 29-30).

The Major.—Twelve units of approved upper division courses in botany.

Required and Recommended Courses.—Required: Chemistry 1A, 1B and 8; Botany 1, 2, 3, 6 and 107. Recommended: Bacteriology 1; Floriculture and Ornamental Horticulture 136A, 136B; Geology 101; Irrigation and Soil Science 108; Physics 2B; Horticultural Science 2, 110; Zoology 1A and 1B.

* Not to be given, 1958-1959.

College of Letters and Science

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 field of interest of the candidate, one or more of the following courses may be required: Bacteriology 1; Chemistry 5A, 9, 108A-108B, 109; Floriculture 146, 148; Geography 118; Geology 2 and 3, or 5; Mathematics C, D. 1-3A, 5A; Horticultural Science 111; Zoology 1A-1B, 101A, 101C.

LOWER DIVISION COURSES

1. **General Botany.** (5) I. Miss Mathias, Mr. Hamner
Lecture, three hours; laboratory, six hours.
An introduction to the various fields of plant science, including anatomy, morphology, physiology, and genetics.
2. **The Plant Kingdom.** (4) II. Mr. Haupt
Lecture, two hours; laboratory, six hours.
An introductory course dealing with the structure, development, and life history of representative members of all the major plant groups, with emphasis on their relationships and evolution.
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) I. Miss Scott
Lecture, two hours; laboratory, six hours. Prerequisite: course 1 or Life Sciences 1A-1B or equivalent.
The microscopic study of the structure and development of higher plants in relation to the functions of the tissues.

UPPER DIVISION COURSES

103. **Botany of Economic Plants.** (2) II. Mr. Addieott
Designed for students of economics, geography, agriculture, and botany. Life Sciences 1A-1B 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: course 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: course 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 or Life Sciences 1A-1B 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 6, 107.

Structure and physiology of the cell.

***113. Physiological Plant Anatomy. (3) I.**

Miss Scott

Lecture, one hour; laboratory, six hours. Prerequisite: courses 6, 107. Offered in alternate years.

A survey of the tissues of the higher plants in relation to function.

***119. Mycology. (3) I.**

Mr. Plunkett

Lecture, one hour; laboratory, six hours. Prerequisite: course 2, or equivalent. For students in botany, bacteriology, agriculture, and forestry.

Structure, development, and classifications of the important genera and species of fungi.

126. Medical Mycology. (4) II.

Mr. Plunkett

Lecture, two hours; laboratory, six hours. Prerequisite: course 119 or Bacteriology 1. This course is designed for students in bacteriology, parasitology, and medicine.

An introduction to the morphology, physiology, and taxonomy of the pathogenic fungi which cause disease in man and the domestic animals.

***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) II.

Mr. Phinney

Lecture, three hours; laboratory, three hours. Prerequisite: course 1 or Life Sciences 1A-1B or Zoology 1 or Bacteriology 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 130A.

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 path-

* Not to be given, 1958-1959.

ways 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: course 3 or equivalent.

The fundamentals of systematic botany. A survey of the orders and families commonly met with in the native and cultivated floras.

***152. Advanced Systematic Botany. (3) II.** Mr. Lewis
Lecture, one hour; laboratory or field, six hours. Prerequisite: course 151, elementary genetics, and consent of the instructor. Offered in alternate years.

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.

155. Distribution and History of Angiosperms. (2) I. Mr. Epling
Lecture, two hours. Prerequisite: course 151.

A comparative study of the distributional patterns of angiosperm families and their historical development.

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. Designed primarily for students expecting to do research in the botanical or horticultural sciences, or other research involving plant physiology and plant biochemistry.

An advanced course illustrating the experimental study of the topics considered in Botany 160.

***190. Research Methods in Morphology. (4) I.** Mr. Haupt
Lecture, one hour; laboratory, nine hours. Prerequisite: consent of the instructor. Offered in alternate years.

The theory and methods of preparing plant tissues and materials for microscopic study.

195A-195B. Proseminar in Botany. (2-2) Yr. Mr. Phinney
Lecture, two hours. Prerequisite: senior standing and consent of the instructor.

Oral reports and discussions on research topics of interest to biologists.

199. Special Studies. (2-4) I, II. The Staff
Prerequisite: senior standing and consent of the instructor.

201A-201B. Principles and Theories of Botany. (2-2) Yr. Mr. Thompson
Lecture, two hours. Prerequisite: major in botanical science. Required of graduate students in botany.

A point of orientation for advanced graduate research.

* Not to be given, 1958-1959.

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. Open to all students interested in plant physiology; may be entered any semester.
- A survey of the entire field of plant physiology, covering a period of three years. 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.
- 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
Students may enter in any semester.
Special topics covering all aspects of genetics, differing each semester for three years.
- 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. Introductory Bacteriology and Microbiology.**
- Geography 118. Plant Geography.**
- Geology 120. Paleobotany.**
- Floriculture and Ornamental Horticulture 131A-131B. Taxonomy and Ecology of Ornamental Plants.**
- Floriculture and Ornamental Horticulture 136A-136B. General Floriculture.**
- Floriculture and Ornamental Horticulture 139. Advanced Floriculture.**
- Floriculture and Ornamental Horticulture 146A, 146B. Plant Breeding.**
- Irrigation and Soil Science 110A. The Soil as a Medium for Plant Growth.**
- Life Sciences 1A-1B. Fundamentals of the Life Sciences.**
- Life Sciences 370. Methods and Materials for Teaching Life Science.**
- Plant Pathology 120. Plant Diseases.**
- Horticultural Science 101. Citriculture.**
- Horticultural Science 102. Subtropical Fruits Other Than Citrus.**
- Horticultural Science 110. Plant Propagation.**

* Not to be given, 1958-1959.

Horticultural Science 111. Plant Metabolism.

Horticultural Science 113. Fruit Physiology and Storage Problems.

Zoology 101A, B, C. General Physiology.

Zoology 130, 131. Genetics.

Zoology 140. Development of Biological Ideas.

Zoology 159. Physical Ecology.

BUSINESS ADMINISTRATION

(Department Office, 250A Business Administration-Economics Building)

Ralph M. Barnes, Ph.D., *Professor of Production Management and Professor of Engineering.*

George W. Brown, Ph.D., *Professor of Business Administration, Professor of Engineering, and Director, Western Data Processing Center.*

William F. Brown, Ph.D., *Professor of Marketing.*

Albert B. Carson, Ph.D., C.P.A., *Professor of Accounting (Acting Chairman of the Department).*

*Ralph Cassady, Jr., Ph.D., *Professor of Marketing.*

John C. Clendenin, Ph.D., *Professor of Finance.*

Benjamin Graham, B.S., *Visiting Professor of Finance.*

Leo Grebler, Ph.D., *Professor of Real Estate and Urban Land Economics.*

Neil H. Jacoby, Ph.D., LL.D., *Professor of Business Economics and Policy.*

Harold D. Koontz, Ph.D., *Professor of Business Policy and Transportation.*

Wayne L. McNaughton, Ph.D., *Professor of Business Administration.*

Frederic Meyers, Ph.D., *Professor of Personnel Management and Industrial Relations.*

Howard Scott Noble, M.B.A., C.P.A., LL.D., *Professor of Accounting.*

Cyril J. O'Donnell, Ph.D., *Professor of Business Organization and Policy.*

*George W. Robbins, M.B.A., *Professor of Marketing (Chairman of the Department).*

George A. Steiner, Ph.D., *Professor of Management Theory and Director, Division of Research.*

*Robert Tannenbaum, Ph.D., *Professor of Personnel Management and Industrial Relations.*

J. Frederick Weston, Ph.D., *Professor of Business Economics and Finance.*

Ira N. Frisbee, M.B.A., C.P.A., *Professor of Accounting, Emeritus.*

Theodore A. Andersen, Ph.D., *Associate Professor of Business Administration.*

Elwood S. Buffa, M.B.A., Ph.D., *Associate Professor of Production Management.*

*Joseph D. Carrabino, M.B.A., Ph.D., *Associate Professor of Production Management.*

*Fred E. Case, M.B.A., D.C.S., *Associate Professor of Real Estate and Urban Land Economics.*

James M. Gillies, Ph.D., *Associate Professor of Real Estate and Urban Land Economics.*

Ralph C. Hoeber, J.D., Ph.D., *Associate Professor of Business Law.*

James R. Jackson, Ph.D., *Associate Professor of Business Administration.*

*Wilbert E. Karrenbrock, Ph.D., *Associate Professor of Accounting.*

*Paul Kircher, Ph.D., C.P.A., *Associate Professor of Accounting.*

Phillip Neff, Ph.D., *Associate Professor of Business Economics.*

* Absent on leave, 1958-1959.

† In residence spring semester only, 1958-1959.

- Alfred Nicols, Ph.D., *Associate Professor of Business Economics.*
Frank E. Norton, Ph.D., *Associate Professor of Business Economics.*
Irving Pfeffer, Ph.D., *Associate Professor of Insurance.*
*Harry Simons, M.A., C.P.A., *Associate Professor of Accounting.*
E. Clay Sprowls, Ph.D., *Associate Professor of Business Statistics.*
Jacob Stockfish, Ph.D., *Associate Professor of Business Administration.*
John B. Van de Water, A.B., J.D., *Associate Professor of Industrial Relations and Business Law.*
Irving R. Weschler, Ph.D., *Associate Professor of Personnel Management and Industrial Relations.*
Robert M. Williams, Ph.D., *Associate Professor of Business Economics and Statistics.*
James B. Boulden, Ph.D., *Assistant Professor of Business Administration.*
Thomas Petit, Ph.D., *Assistant Professor of Marketing.*
John C. Scheib, Ph.D., *Assistant Professor of Production Management.*
William M. Borton, Ph.D., *Acting Assistant Professor of Marketing.*
George R. Hawkes, M.B.A., C.P.A., *Acting Assistant Professor of Business Administration.*
Harold J. Hertzberg, C.P.A., *Acting Assistant Professor of Business Administration.*
David Houston, B.S., *Acting Assistant Professor of Insurance.*
Leland R. Howell, B.A., *Acting Assistant Professor of Business Administration.*
John M. Lishan, M.A., *Acting Assistant Professor of Business Administration.*
Charles F. Louie, M.B.A., *Acting Assistant Professor of Business Administration.*
Arthur K. Marshall, LL.M., *Acting Assistant Professor of Business Law.*
Frederick Massarik, M.A., Ph.D., *Acting Assistant Professor of Personnel Management.*
Harold Petrowitz, LL.M., *Acting Assistant Professor of Business Law.*
Jerome Reisel, M.A., *Acting Assistant Professor of Business Administration.*
Willard M. Reisz, LL.B., C.P.A., *Acting Assistant Professor of Accounting.*
Roger B. Ulvestad, M.B.A., *Acting Assistant Professor of Business Administration.*
Eugene Voorhees, LL.B., *Acting Assistant Professor of Business Law.*
Robert Wendell Buttrey, A.B., C.P.A., *Lecturer in Accounting.*
John G. Carlson, M.B.A., *Lecturer in Production Management.*
Francis M. Fillerup, M.B.A., *Lecturer in Business Administration.*
Malcolm F. Heslip, Ph.D., *Lecturer in Business Administration.*
Paul Prasow, Ph.D., *Lecturer in Personnel Management.*
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.*
Karl Venter, M.A., *Lecturer in Business Administration.*
Robert B. Andrews, M.B.A., *Associate in Business Administration.*
John J. Barry, B.S., *Associate in Production Management.*
Earl S. Beecher, M.B.A., *Associate in Business Administration.*
Otto B. Christian, Jr., M.B.A., *Associate in Business Administration.*
Harold R. Dilbeck, M.B.A., *Associate in Business Administration.*
Erwin C. Drucke, M.B.A., *Associate in Business Administration.*
Raymond Ezekiel, M.A., *Associate in Business Administration.*
Chester F. Healy, M.B.A., *Associate in Business Administration.*
Richard H. Hill, M.A., *Associate in Business Administration.*
Robert P. Hungate, B.A., *Associate in Business Administration.*
Michal Ingraham, M.B.A., *Associate in Business Administration.*

* In residence spring semester only, 1958-1959.

Mildred G. Massey, Ph.D., *Associate in Business Administration.*

Paul T. McElhiney, M.A., *Associate in Traffic and Transportation Management.*

James L. McKenney, M.I.E.E., *Associate in Business Administration.*

Charles R. Miller, M.B.A., *Associate in Business Administration.*

Anelise N. Mosich, M.B.A., *Associate in Business Administration.*

J. Russell Nelson, B.S., *Associate in Business Administration.*

Jack L. Rettig, M.A., *Associate in Business Administration.*

Gene T. Skrivan, M.B.A., *Associate in Business Administration.*

Robert D. Tucker, M.B.A., *Associate in Finance.*

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 50-56.

College of Letters and Science

Letters and Science List.—Courses 3, 131, 133, 135, 160. For regulations governing this list, see page 5.

LOWER DIVISION COURSES

1A-1B. Elementary Accounting. (3-3) Beginning either semester.

Mr. Noble in charge

Lecture, two hours; laboratory, two hours. Prerequisite: sophomore standing. 1A is prerequisite to 1B.

An introduction to accounting theory and practice. The first semester presents the recording, analyzing and summarizing procedures used in preparing balance sheets and income statements. The second semester includes payroll and tax accounting, partnership and corporation accounts, manufacturing and cost accounting and supplementary statements.

3. Fundamentals of Accounting. (4) I, II.

Mr. Carson, Mr. Noble

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. Business Administration 1A-1B and Economics 1A-1B or their equivalent are prerequisite to all upper division courses unless specifically waived.

1. Business Economics

100. Theory of Business. (3) I, II.

Mr. Andersen, Mr. Neff, Mr. Nicols, Mr. Norton,

Mr. Stockfish, 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. Andersen, Mr. Neff, Mr. Nicols, Mr. Norton,
Mr. Stockfish, Mr. Williams

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.

102G. Business Economics. (3) I, II.

Mr. Neff, Mr. Nicols, Mr. Norton, Mr. Williams

Open only to graduate students. May be substituted for Economics 1A-1B and courses 100 and 101. Not open to students who have credit for courses 100 and 101.

An analysis of motivation and decision-making in the business firm, competitive policies and market structure, revenue and cost behavior, and expansion through investment. Quantitative methods of sales, cost, and profit forecasting. General business forecasting and the cyclical mechanisms. The role of business enterprise in a political democracy and implications for public policy.

II. Business Law**105B. Business Law. (3) I, II. Mr. Hoerber, Mr. Petrowitz, Mr. Voorhees**

Prerequisite: course 18 (Berkeley) or equivalent. Not open to students who have credit for course 108.

Significance and growth of the law; law in its relationship to business, with special emphasis on current problems and on the law of sales, property, negotiable instruments, business organizations, and trade regulations.

106. General Laws Relating to Property. (3) I, II. Mr. Marshall

Prerequisite: course 108 or equivalent.

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. Mr. Marshall

Prerequisite: course 108 or equivalent.

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. Hoerber, Mr. Petrowitz, Mr. Van de Water, Mr. Voorhees

Not open to students who have credit for course 18 (Berkeley) or 105B or equivalents. Must be completed in the first or second semester in residence.

Significance and growth of the law; law in its relationship to business, with special emphasis on current problems; coverage of the law of contracts, agency, sales, property, negotiable instruments, business organizations including the functions of inside and outside counsel and trade regulations.

III. Business Statistics

115. Business Statistics. (3) I, II.

Mr. Sprowls

Lecture, 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. Introduction to Operations Analysis. (3) I, II.

Mr. Jackson

Prerequisite: course 115.

Organization and fundamental concepts of operations analysis; analysis of operations based on models; simulation of operations; mathematical analysis of models; case histories in manufacturing, transportation, personnel, merchandising, etc.; introduction to electronic computing machines.

119. Electronic Computers in Business. (3) I, II. Mr. Sprowls, Mr. Hill

Prerequisite: course 118 or consent of the instructor.

Electronic computers in business; the logic of computers; elements of programming and operation; costs; case studies and inspection of computer installations.

IV. Accounting

120. Intermediate Accounting. (3) I, II.

Mr. Hawkes, Mr. Karrenbrock, Mr. Mosich, Mr. Simons

Prerequisite: courses 1A-1B. Not open for credit to students who have credit for course 120M.

Required of all students whose field of concentration is accounting in their first semester in residence.

The balance sheet, income and surplus statement, the accounting process illustrated, cash and temporary investments, receivables, inventories, investments-stocks and bonds, plant and equipment, intangibles, deferred charges, current liabilities, long-term debt, capital stock, surplus, statement analysis and application of funds.

120G. Survey of Accounting Principles. (3) I, II.

Mr. Carson, Mr. Louie, Mr. Kircher

Open only to graduate students. May be substituted for courses 1A-1B and 120M. May be elected by students in fields of concentration other than

accounting to meet core course requirement in accounting. Not open to students who have credit for courses 1B or 120 or 120M.

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.

Mr. Carson, Mr. Hawkes, Mr. Kircher, Mr. Louie

Prerequisite: courses 1A, 1B. May be elected by students in fields of concentration other than accounting to meet core course requirement in accounting. Not open for credit to students who have credit for course 120.

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

Prerequisite: course 120. Mr. Hertzberg, Mr. Karrenbrock, Mr. Simons

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.

Problems of verification, valuation, and presentation of financial information in reports covered by the opinion of an independent public accountant. Responsibilities of the public accountant and rules of professional conduct.

125. Fund Accounting and Accounting Systems. (3) I, II.

Prerequisite: course 120.

Mr. Kircher, Mr. Reisz

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. Reisz, Mr. Simons

Prerequisite: courses 121, 122, 123, 127; 125 (may be taken concurrently). Three hours of lecture and two practice sessions of two hours each weekly.

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.

V. Finance

Economics 135 is required of all students in the School of Business Administration.

131. Business Finance. (3) I, II.

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. Clendenin, Mr. Miller

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, Mr. Tucker

Prerequisite: courses 120 or 120M or 120G, and 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.

VI. Risk-Bearing and Insurance

135. Principles of Insurance. (3) I, II.

Mr. Houston, 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. 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. Houston, 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. Houston, 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.

VII. Production Management**140. Elements of Production Management. (3) I, II.**

Mr. Andrews, Mr. Boulden, Mr. Carlson, Mr. Carrabino, Mr. Scheib

Lecture, 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. 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, Mr. Barry

Lecture, 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. Andrews, 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. Scheib

Prerequisite: course 140 or consent of the instructor.

A study of purchasing and procurement in industry and government. Purchasing policies and organization; coordination 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, Mr. Scheib

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.

VIII. Personnel Management and Industrial Relations**150. Elements of Personnel Management. (3) I, II.**

Mr. McNaughton, Mr. Massarik, Mr. Meyers,

Mr. Prasow, Mr. Tannenbaum, 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. Reisel, Mr. Schmidt,

Prerequisite: senior standing. 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 members 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. Lectures and "sensitivity training" laboratory.

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 Structure. (3) I, II.

Mr. Meyers

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.

IX. Marketing**160. Elements of Marketing. (3) I, II.**

Mr. Borton, Mr. Brown, Mr. Heslip,

Mr. Howell, Mr. Petit, Mr. Ulvestad

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.

160G. Marketing. (3) I, II.

Mr. Petit, Mr. Robbins

Open only to graduate students who do not have credit for a basic course in Marketing.

The institutions and functions in the distribution of goods and services emphasizing the viewpoint of management in the planning, execution, and measurement of marketing activities and strategies, and the viewpoint of society in the analysis of cost, impact, and results.

162. Retail Store Management. (3) I, II.

Mr. Brown, Mr. Cassady

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. Petit

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. Borton, Mr. O'Donnell, Mr. Robbins

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 emphasizes 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.

X. Transportation and Traffic Management**170. Transportation and Traffic Management. (3) I, II.**

Mr. Koontz, Mr. Ulvestad

Prerequisite: Economics 173 or consent of the instructor.

Emphasizes principles governing the use by business managers of the serv-

ices 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. Koontz, Mr. Ulvestad

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, II. 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. Mr. Koontz, Mr. McElhiney

Prerequisite: course 173 or consent of the instructor.

Analysis of management principles and problems involved in ocean, inter-coastal, coastwise, and inland waterways ship operation including, among other topics, equipment acquisitions, documentation, regulation, competition, rate policy, and organization.

XI. Real Estate and Urban Land Economics

180. Elements of Real Estate and Urban Land Economics. (3) I, II.

Mr. Case, Mr. Gillies, Mr. Skrivan

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) I. 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) II. 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. Case

The initiation and development of managerial policy relating to the de-

velopment 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.

XII. Management Theory and Policy

190. Organization and Management Theory. (3) I, II.

Mr. Andersen, Mr. Boulden, Mr. Heslip, Mr. Koontz,
Mr. O'Donnell, Mr. Schabaeker

Prerequisite: 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.

XIII. Advanced Study in Business Administration

199. Special Studies in Business Administration. (1-4) I, II. 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†

201. Business Forecasting. (3) I, II.

Mr. Andersen

Prerequisite: courses 100, 101, and 115.

The role of business forecasting in managerial planning. Principles and methods of forecasting. Evaluation of the reliability of existing forecasting techniques. Covers both short-term and long-term forecasting of industry, regional and national business trends.

210. Seminar in Operations Analysis. (3) I, II.

Mr. Jackson

Prerequisite: course 118.

Theory and practice of operations analysis as an approach to management problems, illustrated by case histories; classification of operations analysis problems; case studies in which students apply the methods of operations analysis.

213. Problems in Integrated Business Systems. (3) I, II.

Mr. Kircher

Prerequisite: course 118 or consent of the instructor.

Need for integrated systems for the collection, transmission, processing, and recording of information; development of models for integrated systems; evaluation of procedures; general purpose and special purpose equipment; case studies of operating systems.

216. Advanced Statistical Inference in Business. (3) I.

Mr. Jackson

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.

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.

† 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.

- 221A. Seminar in Accounting Problems I. (3) I.** Mr. Simons
Prerequisite: course 123.
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. Buttrey
Prerequisite: course 127.
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. Source 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 120 or 120M or 120G 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 131 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 120M or 120G, and 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) II.** 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) II.** Mr. Pfeffer
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) I.** Mr. Pfeffer
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.** 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. Buffa
A study of the problems and policy decisions encountered at the coordinative, or plant management level. Basic production policies and organization; determination of production methods; coordinating 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. Carrabino
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.** Mr. Scheib
Prerequisite: course 142.
The application of newly developed techniques to production planning and scheduling; probability models in inventory control; linear programming in 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, 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. Prasow
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. Van de Water

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 groundwork for sound investigative procedures in solving marketing problems. Intensively studies the legal environment in which marketing institutions operate (Sherman, Clayton, and Federal Trade Commission Acts, Fair Trade Laws, Unfair Practices Acts, etc.) and critically examines various types of competitive factors (such as commercial propaganda, dealer relations, product quality, self-service operations, store location, use of premiums, etc.) in relation to effective rivalry.

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 advisable.

270. Transportation Management. (3) II.

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 location of commercial enterprises. Original research on a selected problem required.

290. Seminar in Organization Theory. (3) I. Mr. Koontz, Mr. O'Donnell

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.

294. Seminar in Business Policies. (3) I, II.

Mr. Jacoby

(Former number, 298.)

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.

298. Studies in Business Administration. (3) I, II.

The Staff

Number 1. Managerial Planning Under Federal Financial Policies. Mr. Jacoby.

Special seminars in business administration offered by permanent and visiting members of the faculty. Students should consult the Office of the Assistant Dean for complete information.

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.

299R. Research Methods in Business Administration. (3) I, II.

Mr. Weschler

The scientific method in management research, variations in research methodology and design, methods of data collection and analysis, the application of research findings. Individual and/or group projects will be required.

BUSINESS EDUCATION

(Department Office, 321 Business Administration-Economics Building)

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., *Associate Professor of Office Management and Business Education.*

Richard S. Perry, Ed.D., *Assistant Professor of Office Management and Business Education.*

George Watto, M.A., *Visiting Assistant Professor of Office Management and Business Education.*

Lucille P. Irvine, M.Ed., *Lecturer in Office Management and Business Education.*

Edward C. Kelly, M.A., *Acting Instructor in Office Management and Business Education.*

The business education major is offered in the College of Applied Arts. Areas of specialization are designed to prepare students to teach in secondary schools and colleges.

NOTE: Students majoring in business education may not elect business administration as a minor.

Preparation for the Major.—Courses 3A–3B, 5, Business Administration 1A–1B, Economics 1A–1B, Psychology 1A, 1B or 33, English 1A, Speech 1, 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 teaching specialization in office administration.

The Major.—The major comprises 36 upper division units, distributed as follows:

I. General requirements: Business Education 110, 112, 113, 114, 115; Business Administration 108, 160.

II. Specialization requirements:

1. Office Administration.

Business Education 111, 116, 370A; and electives chosen from the following list to bring the total to 36 units: Business Education 370B, 370C, Business Administration 115, 120, 121, 127, 135, 152, 180, Economics 140, Education 106, 112, 165.

2. Accounting.

Business Education 370B and two units chosen from 370A, 370C; Business Administration 120 and one additional upper division accounting course; one course chosen from Business Administration 135, 152, 180, Business Education 111, 116; Education 165; and, if necessary, electives chosen from the optional courses listed in this specialization to bring the total units to at least 36.

3. General Business.

Business Education 111 and 116 (or Business Administration 120 and one additional upper division accounting course); 370C and two units chosen from 370A, 370B; one course chosen from Business Administration 135, 152, 180, Economics 150, 195; Education 165; and, if necessary, electives chosen from the optional courses listed in this specialization to bring the total units to at least 36.

4. Merchandising.

Business Education 111 and one course chosen from Business Education 116, Business Administration 135, 152, 180 (or Business Administration 120 and one additional upper division accounting course); 370C and two units chosen from 370A, 370B; Business Administration 162, 163, 165; Education 165; and, if necessary, electives chosen from the optional courses listed in this specialization to bring the total units to at least 36.

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. Kelly

Designed especially for and limited to students preparing for the teaching credential in business education.

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, Mr. Kelly

Designed especially for and limited to students preparing for the teaching credential in business education.

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

Open only to lower division students.

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.

10. Personal Investments. (1) II.

Mr. Erickson, Mr. Watto

Not open for credit to business administration majors or students having credit for Home Economics 144.

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.

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.

Mr. Kelly

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, Mr. Watto

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. 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, Mr. Watto

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) I.

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.

199. Special Studies. (1-4) I, II.

The Staff

Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES**210. Case Studies in Office Management. (2) II.**

Mr. Keithley

299. Independent Study in Business Education. (2-4) 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. Erickson, Mr. Watto

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, Mr. Watto

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

(Department Office, 3010 Chemistry Building)

- Francis 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.*
 William G. McMillan, Jr., Ph.D., *Professor of Chemistry.*
 James B. Ramsey, Ph.D., *Professor of Chemistry (Chairman of the Department).*
 Hosmer W. Stone, Ph.D., *Professor of Chemistry.*
 Saul Winstein, Ph.D., *Professor of Chemistry.*
 William G. Young, Ph.D., *Professor of Chemistry.*
 ———, *Professor of Chemistry.*
 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.*
 Robert L. Peesok, Ph.D., *Associate Professor of Chemistry.*
 Robert L. Scott, Ph.D., *Associate Professor of Chemistry.*
 Kenneth N. Trueblood, Ph.D., *Associate Professor of Chemistry.*
 William C. Drinkard, Ph.D., *Assistant Professor of Chemistry.*
 James B. Hendrickson, Ph.D., *Assistant Professor of Chemistry.*
 Daniel Kivelson, Ph.D., *Assistant Professor of Chemistry.*
 Roberts A. Smith, Ph.D., *Assistant Professor of Chemistry.*
 Charles A. West, Ph.D., *Assistant Professor of Chemistry.*
 Kenneth Conrow, Ph.D., *Instructor in Chemistry.*
 Mark Cher, Ph.D., *Instructor in Chemistry.*
 ———, *Instructor 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 5.

Preparation for the Major.—Required: Chemistry 1A–1B, 5A (or Chemistry 3A–3B), Physics 1A, 1C, Mathematics C, 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 lower division curriculum in the College of Letters and Science at Los Angeles.

* Absent on leave, 1958–1959.

The Major.—The minimum requirement for the major in chemistry is Chemistry 5B (3), 110A–110B (6), 112A–112B (10), 111 (4) and two additional courses in chemistry, of which one must include laboratory work, selected from the following group: 103, 107, 121, 125, 126A, 126B, 130A, 130B, 131, 132, 133, 135, 136, 137, 198. It is recommended that courses through Chemistry 110B and 112B be completed by the end of the junior year provided this can be accomplished without neglecting broader educational needs. The courses which should be considered for the senior year depend somewhat on the student's special interest. If this be physical-inorganic chemistry, courses 121, 125, 130A, 130B, 131, 132 and 133 are recommended for consideration along with certain advanced courses in physics and mathematics; if organic chemistry, courses 103, 126A and 126B; and if biochemistry, courses 107, 135, 136 and 137, along with certain courses in the life sciences.

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.

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.—A student who transfers to the University of California, Los Angeles, with a grade of B or better in both Chemistry 8 and 9 (or their equivalents) may be admitted to Chemistry 112B. It is recommended, however, that he take Chemistry 112A for which he will receive 3 units of credit instead of the usual 5 units. A transfer student who has credit for only Chemistry 8 (or its equivalent), or for Chemistry 8 and Chemistry 9 (or their equivalents) with a grade less than B in either of these courses, must take Chemistry 112A for which he will receive 3 units of credit. To receive credit toward the major for Chemistry 112A and 112B (or their equivalent), which have been taken elsewhere, the consent of the departmental adviser is required.

Upper Division Credit.—Chemistry majors will receive upper division credit for Chemistry 5B if taken while in upper division. Non-chemistry majors will receive upper division credit for any three of the courses 5A, 5B, 8, 9, if taken while in the upper division.

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: advanced, biological, inorganic, organic, or physical chemistry.

The general University requirements for the M.S. degree are given on page 70; 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 72. 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 and 112A, 6 units; 8, 9 and 112A, 9 units.

1A. General Chemistry. (5) I, II.

Mr. Drinkard, Mr. McCullough, Mr. Stone, Mr. Trueblood

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, premining, prepharmacy, and preoptometry students; also of majors in applied physics, bacteriology, chemistry, geology, physics, and medical technology, 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, Mr. Trueblood

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. Drinkard, Mr. Trueblood, Mr. West

Lecture, three hours. 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.

An introductory course emphasizing the principles of chemistry and including a brief introduction to elementary organic chemistry.

2A. Introductory Chemistry. (5) I, II.

Mr. Drinkard, Mr. Trueblood, Mr. West

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. Not open for full credit to students who have credit for course 2.

An introductory course emphasizing the principles of chemistry and including a brief introduction to elementary organic chemistry.

3A-3B. Introductory Chemical Principles. (5-5) Yr. Mr. Trueblood

Lecture, three hours; laboratory and quiz, six hours. Prerequisite: an outstanding record in high school chemistry or physics and in at least three years of high school mathematics. Admission will be on basis of special examination to be given approximately ten days before instruction begins. Enrollment to be limited. Not open to students who have credit for Chemistry 1A.

5A. Quantitative Analysis. (3) I, II.

Mr. Cher, Mr. Farrington, Mr. Pecsok

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:

site: course 5A or 3B. 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. Conrow, Mr. Cram, Mr. Geissman, Mr. Jacobs

Prerequisite: courses 1A and 1B. Course 2A will be accepted for nonscience majors only. Concurrent enrollment in course 9 is advisable.

An introductory study of the compounds of carbon, including both aliphatic and aromatic derivatives.

9. Methods of Organic Chemistry. (3) I, II.

Mr. Conrow, ———

Lecture and quiz on principles of laboratory manipulation, two hours; laboratory, six hours. Prerequisite or concurrent: course 8. Required of pre-medical 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. Conrow, Mr. Cram, Mr. Geissman, 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; 108A, 108B and 135, 6 units; 109 and 110A, 5 units; 8 and 112A, 6 units; 8, 9 and 112A, 9 units.

103. Qualitative Organic Analysis. (3) I, II. Mr. Hendrickson, ———

Lecture, discussion, and quiz, two hours; laboratory, six hours. Prerequisite: courses 5A or 3B and 112B.

Classification, reactions, and identification of organic compounds.

106. Clinical Chemistry. (5) II.

Mr. West

Lecture, three hours; laboratory, six hours. Prerequisite: courses 5A or 3B and 9. Required in the medical technology curriculum. 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 or 3B and 9 or 112B.

A detailed treatment of the chemistry and metabolism of amino acids, polypeptides, and proteins.

108A-108B. General Biochemistry. (3-3) Yr.

Mr. Atkinson, Mr. West, Mr. Smith

Lecture, three hours. Prerequisite: course 8 or 112B.

This course may not be offered as part of the major requirements in chemistry. Chemistry majors may take Chemistry 135.

Discussion of the basic principles of the biochemistry of plants, animals, and microorganism with emphasis on metabolism.

109. General Physical Chemistry. (4) I.

Mr. Garner, Mr. James, Mr. McCullough, Mr. Trueblood

Lecture and demonstration. Prerequisite: course 5A or 3B, 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. James, Mr. McCullough, Mr. Ramsey, Mr. Scott

Prerequisite: course 5B, Physics 1A, 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; gas laws and molecular kinetic theory; colligative properties of solutions of nonelectrolytes.

110B. Physical Chemistry. (3) I, II.Mr. Garner, Mr. Kivelson, Mr. James,
Mr. McMillan, Mr. Ramsey, Mr. Scott

Prerequisite: course 110A and Physics 1C; Mathematics 4B or 6B (may be taken concurrently).

The mass-action law of chemical equilibrium and the phase rule, thermodynamic 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. James, Mr. McCullough, Mr. Ramsey, Mr. 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. Garner, Mr. Kivelson, Mr. James,
Mr. McMillan, Mr. Ramsey, Mr. Scott

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. 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

Lecture, three hours; laboratory and quiz, six hours. Prerequisite: courses 1B and 5A, or 3B. Recommended: course 5A. A student who has received a grade of B or better in both courses 8 and 9 may be admitted to course 112B without having had course 112A. It is recommended, however, that he take course 112A, for which he will receive 3 units of credit instead of the usual 5 units.

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.

121. Methods of 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. James, 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.

130A. Advanced Physical Chemistry. (3) I.

Mr. Garner, Mr. McMillan, Mr. Scott

Lecture, three hours. Prerequisite: Chemistry 110B; Mathematics 4B or 6B; 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. 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.

* Not to be given, 1958-1959.

133. Inorganic Chemistry. (3) II.

Mr. Drinkard

Lecture, three hours. Prerequisite: courses 110B and the equivalent of 112A. Theory of bonding in inorganic chemistry; stereochemistry; uncommon oxidation states; the periodic generalization with emphasis on relationship to electronic structure; acid-base theory and related topics.

135. Biochemistry. (3) I.

Mr. Atkinson

Lecture, 3 hours. Prerequisite: courses 112B and either 109 or 110A (110A may be taken concurrently).

A course in the principles of biochemistry designed for chemistry majors and others with equivalent preparation. Students lacking such preparation may take courses 108A and 108B which are not counted toward the fulfillment of the chemistry major requirements.

136. Methods of Biochemistry. (3) II.

Mr. Atkinson

Lecture, discussion, and quiz, two hours; laboratory, six hours. Prerequisite: courses 5A or 3B and 108B or 135 (108B may be taken concurrently).

The preparation, analysis, and reactions of metabolites in animals, plants, and microorganisms.

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.

198. Special Courses in Chemistry. (2-3) I, II.

The Staff

199. Special Studies in Chemistry. (3) I, II.

The Staff

Prerequisite: senior standing and consent of the chairman of the department.

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. 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.

222A-B-C-D-E-F. Advanced Topics in Organic Chemistry. (2) I, II.

A Staff Member in Organic Chemistry

The subject matter of this course will be in a recognized field of organic chemistry in which the staff member giving the course has developed special proficiency due to his research interests.

231. Nuclear Chemistry. (3) I.

Mr. Garner, Mr. James

Radioactivity; nuclear reactions; interaction of nuclear radiations with matter; detection and measurement of nuclear radiations; methods of preparation, isolation and identifications of radio nuclides; chemical effects of nuclear transformations; isotope effects; applications of stable and radioactive tracers to chemical problems.

232A-B-C-D-E-F. Advanced Topics in Physical and Inorganic Chemistry.

(2) I, II.

A Staff Member in Physical or Inorganic Chemistry

The subject matter of this course will be in a recognized field of physical or inorganic chemistry in which the staff member giving the course has developed special proficiency due to his research interests.

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. Kivelson, 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) II.

Mr. West

Prerequisite: course 108A-108B or 135.

Detailed consideration of the metabolic transformation of animals and plants and the experimental methods employed in this field.

***240. Chemistry of Enzyme Action. (3) II.**

Mr. Atkinson

Prerequisite: courses 108A-108B or 135 and 109 or 110A, or consent of the instructor.

Physical and chemical characteristics of enzymes; kinetics and mechanisms of enzyme-catalyzed reactions.

260. Seminar in Chemistry. (1) I, II.

Mr. Geissman

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

299. Research in Chemistry. (3 to 6), I, II.

The Staff

Research in analytical chemistry, biological chemistry, inorganic chemistry, organic chemistry, and physical chemistry.

* Not to be given, 1958-1959.

CHINESE

For courses in Chinese, see under Department of Oriental Languages.

CLASSICS

(Department Office, 340 Royce Hall)

Frederick Mason Carey, Ph.D., *Professor of Classics.*

¹Wolf Leslau, Docteur ès Lettres, *Professor of Hebrew and Semitic Linguistics.*

Paul Friedlander, Ph.D., *Professor of Latin and Greek, 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., *Assistant Professor of Hebrew.*

Jaan Puhvel, M.A., *Acting Assistant Professor of Classics and Indo-European Linguistics.*

Helen Florence Caldwell, M.A., *Associate in Classics.*

Evelyn Venable Mohr, 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 5.

Major Fields

The student may take the major in Latin, in Greek, or in Latin and Greek (i.e., in the Classics). Students considering a major in the department should consult the adviser as soon as possible in their university career, but in no case later than the point at which they are about to take upper division courses.

Preparation for the Major

A. Latin. Required: courses 1, 2, 3, 4, or four years of high school Latin and course 4, or three years of high school Latin and courses 3 and 4, or two years of high school Latin and courses 2, 3, and 4; course 9A-9B (which may be taken concurrently with upper division courses). Recommended: English, French, German, Greek, Italian, Spanish.

B. Greek. Required: courses 1 and 2, or two years of high school Greek; and any two units of courses 100A-100B, 100C-100D (which may be taken concurrently with upper division courses). Recommended: English, French, German, Italian, Latin, Spanish.

C. Latin and Greek (the Classics). Required: the courses listed above as required in preparation for the major in Latin (A.) and for the major in Greek (B.). Recommended: English, French, and German.

The Major

A. Latin. (1) courses 101, 102, 103, 104, 105, 106; (2) two units of course 199, to be taken in the senior year and to consist of directed reading in the history of Latin literature from the beginnings through Apuleius (this requirement may be satisfied by passing Latin 180 with a grade of B or better); (3) at least four units of upper division courses in Classics, English, French, German, Greek, Italian, Latin, Sanskrit, Spanish, ancient or medieval history or philosophy, to be chosen with the approval of the department (especially

¹ In residence fall semester only, 1958-1959.

recommended are Classics 170A-170B; Greek 100 through 106, and 180A-180B; History 111A-111B and 113A-113B; Linguistics 150).

B. Greek. (1) courses 100A-100B, 100C-100D, 101, 102, 103, 104, 105, 106; (2) two units of course 199, to be taken in the senior year and to consist of directed reading in the history of Greek literature from the beginnings through the Alexandrian Age (this requirement may be satisfied by passing Greek 180A-180B with a grade of B or better); (3) at least four units of upper division courses in Classics, English, French, German, Greek, Italian, Latin, Sanskrit, Spanish, ancient or medieval history or philosophy, to be chosen with the approval of the department (especially recommended are Classics 170A-170B, Latin 101 through 180, History 111A-111B and 112A-112B, Linguistics 150).

C. Latin and Greek (the Classics). Required: (1) Latin 101, 102, 103 or 105, 104 or 106, and Greek 101, 102, 103 or 105, 104 or 106; (2) two units of Greek 199 and two units of Latin 199, to be taken in the senior year and to consist of directed reading in the history of Greek and Latin literature designed to provide a survey of the chief authors and movements from Homer through Apuleius (the Greek phase of this requirement may be satisfied by passing Greek 180A-180B with a grade of B or better, the Latin phase by passing Latin 180 with similar standing). Recommended: Classics 170A-170B, History 111A-111B, English, French, German, Sanskrit, Linguistics 150.

Requirements for Admission to Regular Graduate Status

A candidate for admission to regular graduate status in the department must meet, in addition to general university requirements, the minimum requirements for an undergraduate major in Latin, in Greek, or in Latin and Greek (the Classics). If the student is deficient in this prerequisite, he must fulfill it by undergraduate work which is not counted toward his regular graduate residence.

Undergraduate students contemplating graduate work should consult the adviser early in their upper division residence. Students who are admitted to the department with regular graduate status directly from another school must discuss their projected work with the adviser before their program for the first semester of study will be approved by the department.

Special Requirement for the Teaching Credential in Latin

Latin 165A-165B and 165C-165D are required of students preparing for this credential.

The Master's Degree

The degree is offered in Latin, in Greek, and in Latin and Greek (the Classics). In order to qualify, the candidate must satisfy (1) the general university requirements, (2) the general departmental requirements, and (3) the special departmental requirements for the degree in one of the three fields. Only those who do so *with distinction* will be recommended to other universities for work toward the Ph.D.

General University Requirements for the Master's Degree

See page 70. The department follows the comprehensive examination plan. For inclusion in electives outside the twelve units "in strictly graduate courses in the major subject," the department especially recommends Classics 170A-170B, 272A-272B, 272C-272D; History 111A-111B, 112A-112B, 113A-113B; Linguistics 150; Sanskrit.

General and Special Departmental Requirements for the Master's Degree

In addition to fulfilling the general university requirements, the candidate must meet (1) general departmental requirements for the master's degree, and (2) special departmental requirements for the master's degree in Latin, Greek, or Latin and Greek (the Classics). For these departmental require-

ments, students may consult the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION, or obtain copies from the departmental adviser.

COURSES WHICH DO NOT REQUIRE A KNOWLEDGE OF GREEK, LATIN OR HEBREW

Classics 113, 170A-170B, 178, 272A-B-C-D.

Latin 40, 180.

Greek 40, 180A-180B.

Hebrew 182A-182B.

CLASSICS

UPPER DIVISION COURSES

113. **Ancient Drama.** (3) I. Mr. Travis
 A knowledge of Latin and Greek is not required.
 The major Greek and Latin dramas in translation, with a history of the theater and dramatic productions.
- 170A. **Greek Archaeology.** (2) I. Mr. Clement
 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. This course may be taken independently of 170A.
 The painting, sculpture, and architecture of the Hellenic society during its Hellenistic and Roman phases.
178. **Greek and Roman Mythology.** (3) I. Mr. Puhvel
 A knowledge of Greek and Latin is not required.
 Origin and development of the myths and legends; their place in the religion, literature and art of Greece and Rome; modern approaches to the understanding of mythology.

GRADUATE COURSES

200. **History of Classical Scholarship, Bibliography, and Methodology.**
 (3) I. Mr. Carey
 Required of all candidates for the master's degree.
- 272A-B-C-D. **Seminar in Minoan and Hellenic Art and Archaeology.**
 (2) II. 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.
2. **Readings in Latin Prose.** (4) I, II. Mrs. Mohr
 Sections meet five hours weekly.
 Prerequisites: course 1, or two years of high school Latin. Students who have not had Latin for a year or more should review elementary grammar before attempting this course.

* Not to be given, 1958-1959.

- 3. Readings in Latin Poetry: Ovid and Vergil's Aeneid.** (4) I, II.
Mrs. Mohr, Mr. Clement
Prerequisite: course 2, or three years of high school Latin.
- 4. Catullus: Selections; Horace: Odes and Epodes.** (4) I, II.
Mr. Clement, Mrs. Mohr
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; 9A is prerequisite to 9B.
A systematic survey of Latin syntax and idiom through translation of English into Latin.
- 40. The Latin Element in English.** (2) II. Mrs. Mohr
A knowledge of Latin is not required.
A course in vocabulary building based on a study of the many groups of English words which are derived from the Latin.

UPPER DIVISION COURSES

Important: certain upper division courses are given every other year only, for example, 103, 104, 105, and 106 (see below). All courses required for the major may readily be taken within the usual four years of undergraduate study, but adequate planning is essential.

- 101. Plautus and Terence.** (3) I. Mr. Puhvel
(Former number, 102).
Prerequisite: course 4.
- 102. Lucretius; Vergil: Eclogues and Georgics.** (3) II. Miss Caldwell
(Former number, 146).
Prerequisite: course 4.
- *103. Satire: Horace, Juvenal, and Martial.** (3) I. Mr. Travis
(Former number, 157).
Prerequisite: course 101 or 102 (in special cases, course 103 may be taken concurrently with 101). This course is normally given every other year in alternation with course 105.
- *104. Cicero and Seneca: The Philosophical Works.** (3) II. Mr. Hoffleit
(Former number, 191).
Prerequisite: course 101 or 102 (in special cases, course 104 may be taken concurrently with 102). This course is normally given every other year in alternation with course 106.
- 105. Roman Elegy.** (3) I. Mr. Carey
(Former number, 115).
Prerequisite: course 101 or 102 (in special cases, course 105 may be taken concurrently with 101). This course is normally given every other year in alternation with course 103.
- 106. Livy; Tacitus: Annals.** (3) II. Mr. Hoffleit
(Former number, 154).
Prerequisite: course 101 or 102 (in special cases, course 106 may be taken concurrently with 102). This course is normally given every other year in alternation with course 104.

* Not to be given, 1958-1959.

- *165A-165B. Latin Composition. (1-1) Yr.** Miss Caldwell
Prerequisite: course 9A-9B. 165A is not prerequisite to 165B. This course is normally given every other year in alternation with course 165C-165D. Ciceronian prose.
- 165C-165D. Latin Composition. (1-1) Yr.** Mr. Hoffleit, Miss Caldwell
Prerequisite: course 9A-9B. 165C is not prerequisite to 165D. This course is normally given every other year in alternation with course 165A-165B. Ciceronian prose.
- 180. A Survey of Latin Literature in English. (3) II.** Mr. Travis
A knowledge of Latin is not required. This course is normally given every other year in alternation with Greek 180A-180B.
- 199. Special Studies in Latin. (1-5) I, II.** The Staff
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 202. Cicero's Philosophical Works. (3) I.** 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
- 220. Vulgar Latin: Introduction to Romance Linguistics. (3) II.** Mr. Puhvel
- 253. Seminar in Latin Studies. (3) II.** Mr. Travis
Textual criticism.
- *254. Seminar in Latin Studies. (3) II.** 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.

* Not to be given, 1958-1959.

GREEK

LOWER DIVISION COURSES

1-2. Greek for Beginners. (4-4) Yr. Miss Caldwell
 Sections meet five hours weekly. Upon completing Greek 2, students may enroll directly in course 101.

The elements of Greek grammar and readings from Attic prose.

40. The Greek Element in English. (2) I. Mrs. Mohr
 A knowledge of Greek is not required.
 A course in vocabulary building based on a study of the many groups of English words which are derived from the Greek.

UPPER DIVISION COURSES

Important: certain upper division courses are given every other year only, for example, 103, 104, 105, and 106 (see below). All courses required for the major may readily be taken within the usual four years of undergraduate study, but adequate planning is essential.

***100A-100B. Prose Composition. (1-1) Yr.** Mr. Carey
 Prerequisite: course 1-2; 100A is not prerequisite to 100B. This course is normally given every other year in alternation with course 100C-100D.

100C-100D. Prose Composition. (1-1) Yr. Mr. Carey, Mr. Clement
 Prerequisite: course 1-2; 100C is not prerequisite to 100D. This course is normally given every other year in alternation with course 100A-100B.

101. Plato: Apology and Crito; Herodotus: Selections. (3) I. Miss Caldwell
 (Former number, 102).
 Prerequisite: course 1-2.

102. Lyric Poets; Homer: Odyssey. (3) II. Mr. Puhvel
 (Former number, 101).
 Prerequisite: course 101.

***103. Plato: Republic. (3) I.** Mr. Hoffleit
 (Former number, 114).
 Prerequisite: courses 101, 102. This course is normally given every other year in alternation with course 105.

***104. Euripides and Aristophanes. (3) II.** Mr. Carey
 (Former number, 103).
 Prerequisite: courses 101, 102. This course is normally given every other year in alternation with course 106.

105. Thucydides and Demosthenes. (3) I. Mr. Hoffleit
 (Former number, 104).
 Prerequisite: courses 101, 102. This course is normally given every other year in alternation with course 103.

106. Aeschylus and Sophocles. (3) II. Mr. Carey
 (Former number, 105).
 Prerequisite: courses 101, 102. This course is normally given every other year in alternation with course 104.

* Not to be given, 1958-1959.

117A-117B. Greek New Testament. (2-2) Yr. Mr. Dearing
Prerequisite: course 1-2. 117A and 117B may be taken independently for credit. This course does not count toward the major in Greek.

*180A-180B. A Survey of Greek Literature in English. (2-2) Yr. Mr. Carey
This course is normally given every other year in alternation with Latin 180. A knowledge of Greek is not required. 180A and 180B may be taken independently for credit.
A study of the literature of Greece from Homer to Lucian with reading in English.

199. Special Studies in Greek. (1-5) I, II. The Staff
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

*201A. Homer: The Iliad. (3) I. Mr. Clement
*201B. Homer: The Odyssey. (3) II. Mr. Clement
*202. Sophocles. (3) II. Mr. Hoffleit
203. Thucydides. (3) II. Mr. Hoffleit
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
Linguistics 150. Introduction to Indo-European Linguistics. (3) I. Mr. Puhvel
Linguistics 190. The Elements of Sanskrit. (3) II. Mr. Puhvel

HEBREW

LOWER DIVISION COURSE

5A-5B. Elementary Hebrew. (4-4) Yr. Mr. Greenfield
Sections meet five hours weekly.

UPPER DIVISION COURSES

*101. Hebrew Conversation and Composition. (2) II. _____
Prerequisite: course 105A 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.

* Not to be given, 1958-1959.

- 110A-110B. Advanced Hebrew.** (3-3) Yr. Mr. Greenfield
Prerequisite: course 105A-105B, or the equivalent.
Selected modern literary texts.
- *120A-120B. Selected Texts of the Bible.** (3-3) Yr. Mr. Greenfield
Prerequisite: course 105A-105B, 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.
- *130. Biblical Aramaic.** (2) I. Mr. Leslau
Prerequisite: course 105A-105B or the equivalent.
Grammar of Biblical Aramaic and reading of texts.
- 131. Ancient Aramaic.** (2) II. Mr. Greenfield
Prerequisite: course 110A-110B or the equivalent.
Study of the grammar and vocabulary of Ancient Aramaic and reading of the surviving inscriptions and texts.
- 135. Ugaritic.** (2) I. Mr. Greenfield
Prerequisite: course 110A-110B or the equivalent.
Study of the Ugaritic language and literature (found at Ras-Shamra in Syria) with special reference to the development of Hebrew literature.
- 182A-182B. A Survey of Hebrew Literature in English.** (2-2) Yr.
182A. From Biblical period to 1300. Mr. Leslau
182B. From 1300 to the present day.
182A and 182B may be taken independently for credit. A knowledge of Hebrew is not required.
- 199. Special Studies.** (1-5) I, II. Mr. Leslau
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

For the master's degree in Hebrew and Semitics see the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

- Semitics 211A-211B. Ethiopic.** (2-2) Yr. Mr. Leslau
- Semitics 280A-280B. Seminar in Comparative Semitics.** (3-3) Yr. Mr. Leslau
- Semitics 298A-298B. Special Studies.** (1-4; 1-4) Yr. The Staff

RELATED COURSE IN ANOTHER DEPARTMENT

- History 138A-138B. Jewish History.** (2-2) Yr. Mr. Greenfield

ECONOMICS

(Department Office, 270 Business Administration-Economics Building)

- Armen A. Alchian, Ph.D., *Professor of Economics (Acting Chairman of the Department).*
- 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.*

* Not to be given, 1958-1959.

*Dudley F. Pegrum, Ph.D., *Professor of Economics.*

Warren C. Scoville, Ph.D., *Professor of Economics.*

*Marvel M. Stockwell, Ph.D., *Professor of Economics.*

*William R. Allen, Ph.D., *Associate Professor of Economics.*

Robert Baldwin, 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).*

Jack Hirschleifer, Ph.D., *Visiting Associate Professor of Economics.*

John F. Barron, Ph.D., *Assistant Professor of Economics.*

Norman V. Breckner, Ph.D., *Assistant Professor of Economics.*

W. Lee Hansen, Ph.D., *Assistant Professor of Economics.*

Henry L. Miller, Jr., Ph.D., *Assistant Professor of Economics.*

Melvin Rothbaum, Ph.D., *Assistant Professor of Economics.*

William F. Stanton, Jr., Ph.D., LL.B., *Assistant Professor of Economics.*

Donald E. Stout, Ph.D., *Assistant Professor of Economics.*

Charles M. Tiebout, Ph.D., *Assistant Professor of Economics.*

R. Thayne Robson, M.S., *Acting Assistant Professor of 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 5.

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 training 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, including requirements (1) and (2).

† *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

* Absent on leave, 1958-1959.

† Not more than 42 units of upper division courses in economics and business administration may be counted toward the bachelor's degree.

‡ In residence spring semester only, 1958-1959.

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).
- 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).
- Economic Development (course 109).

1A.-1B. Principles of Economics. (3-3) Yr. Beginning either semester.

Mr. Allen, Mr. Baldwin, Mr. Breckner, Mr. H. L. Miller, Mr.

E. J. Miller, Mr. Rothbaum, Mr. Scoville, Mr. Stockwell

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. Homan, 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. Allen, Mr. Hansen, Mr. H. L. Miller, Mr. Stout

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. Baldwin, Mr. Gorter, Mr. Hansen,

Mr. H. L. Miller, Mr. Stout

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. Barron, Mr. E. J. Miller, Mr. H. L. Miller,

Mr. Robson, Mr. Stanton, Mr. Tiebout

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, Mr. Hansen
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, Mr. Stout
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.
- 109. Economic Development. (3) II.** Mr. Baldwin
A brief survey of development theories from Adam Smith to the post-Keynesians is followed by an examination of the problems both of accelerated development in poor countries and of maintaining development in rich countries.
- 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.**
Mr. Barron, Mr. Brunner, Mr. Breckner, Mr. E. J. Miller,
Mr. H. L. Miller, Mr. Stanton, Mr. Tiebout
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) II.** 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.

* Not to be given, 1958-1959.

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. Not open for credit to students who have completed Business Administration 115.

†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. Hansen
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. Rothbaum
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) I, II. Mr. Robson
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) II. Mr. Rothbaum
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.

156. Labor Law and Legislation. (3) I. Mr. Stanton
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. Mr. Rothbaum
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.

† Not to be given, 1958-1959, however, students may enroll in Business Administration 116A-116B and receive credit for work toward the economics major.

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. Barron

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. National Transport Policy. (3) II.

Mr. Pegrum

Prerequisite: Economics 173.

Major economic problems of national transport policy; interagency pricing; interagency integration; investment allocation within and among agencies; traffic allocation among agencies; economic analysis of public aid and regulation; terminal and metropolitan transport problems; coordination of regulatory agencies.

176. Economics of Natural Resources. (3) II.

Mr. Barron

Pricing system and efficiency in the use and conservation of natural resources; private and social cost, and the concept of waste; cost allocation among users. Analysis of policies for petroleum, coal, timber, fisheries, and minerals.

177. Water and Land Economics. (3) II.

Mr. Milliman

Economic principles in utilization of water and resources. Legal and institutional factors governing use. Problems in development, reclamation, conservation, and allocation. Project and area studies. One field trip required. Not open for credit to students who have taken Agricultural Economics 177.

195. Principles of International Trade. (3) I, II.

Mr. Allen, Mr. Baldwin, Mr. Gorter, Mr. H. L. Miller

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) I.**

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) II.

Mr. Allen

Prerequisite: course 135 or 195.

Emphasis on interpretation of the balance of payments and the adjustment to national and international equilibria through changes in price levels, exchange rates, and national income. Other topics include: making international payments, determination of exchange rates under various monetary standards, capital movements, exchange controls, and international monetary organizations.

* Not to be given, 1958-1959.

199. **Special Studies in Economics.** (1-3) I, II. The Staff
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 201A-201B. **Price and Distribution Theory.** (3-3) Yr.
(Formerly 251A-251B.) Mr. Alchian, Mr. Baldwin, Mr. Brunner
202. **Macroeconomics: 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) Mr. Pegrum
Economics 260A is not a prerequisite for 260B.
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. Allen, Mr. Gorter
- 268A-268B. **Economic Growth of Underdeveloped Areas. Seminar.**
(3-3) Yr. Mr. Stout
- *270A-270B. **History and Problems of Organized Labor. Seminar.** (2-2) Yr. _____
- 271A-271B. **Labor Economics. Seminar.** (3-3) Yr. Mr. Hildebrand
- *272. **Industrial Relations. Seminar.** (3) _____
- *273. **Social Insurance. Seminar.** (2) Mr. Robson
290. **Special Problems.** (1-6 units each semester) I, II. The Staff

EDUCATION

(Department Office, 325 Moore Hall)

- Jesse A. Bond, Ed.D., *Professor of Education and Director of Training.*
 William 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.*
 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. Sengoe, Ph.D., *Professor of Education.*
 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.*
 Howard E. Wilson, Ed.D., *Professor of Education (Chairman of the Department).*
 Flaud C. Wooton, Ph.D., *Professor of Education.*
 ———, *Professor of Education.*
 ———, *Professor of Education.*
 Edwin A. Lee, Ph.D., *Professor of Education, Emeritus.*
 Junius L. Meriam, Ph.D., *Professor of Education, Emeritus.*
 Corinne A. Seeds, M.A., *Professor of Elementary Education, Emeritus.*
 Charles Wilkin Waddell, Ph.D., *Professor of Education, Emeritus.*
 Fredric P. Woellner, Ph.D., LL.D., *Professor of Education, Emeritus.*
 Melvin L. Barlow, Ed.D., *Associate Professor of Education.*
 Watson Dickerman, Ph.D., *Associate Professor of Education.*
 *Wilbur H. Dutton, Ed.D., *Associate Professor of Education.*
 Clarence Fielstra, Ph.D., *Associate Professor of Education.*
 C. Wayne Gordon, Ph.D., *Associate Professor of Education and Sociology.*
 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.*
 *William H. Lucio, Ph.D., *Associate Professor of Education.*
 Lorraine M. Sherer, Ed.D., *Associate Professor of Education.*
 A. Garth Sorenson, Ph.D., *Associate Professor of Education.*
 ———, *Associate Professor of Education.*
 ———, *Associate Professor of Education.*
 Harvey L. Ehy, Ph.D., *Associate Professor of Education, Emeritus.*
 Ethel I. Salisbury, M.A., *Associate Professor of Elementary Education, Emeritus.*
 Philip Lambert, Ph.D., *Assistant Professor of Education and Principal of the University Elementary School.*

¹ Sabbatical leave in residence, fall semester, 1958-1959.

² In residence fall semester only, 1958-1959.

³ Sabbatical leave in residence, spring semester, 1958-1959.

Donald A. Leton, Ph.D., *Assistant Professor of Education.*

John D. McNeil, Ed.D., *Assistant Professor of Education, and Associate Director of Training.*

———, *Assistant Professor of Education.*



Aubrey L. Berry, Ed.D., *Lecturer in Education.*

Ernest R. Toon, M.Ed., *Lecturer in Education, Physical Sciences.*

Howard A. Campion, Ed.D., *Lecturer in Education.*

Lyle Herbst, M.A., *Lecturer in Education, Life Sciences.*

Wendell P. Jones, Ph.D., *Lecturer in Education.*

Howard B. Webster, Ed.D., *Lecturer in Education.*

———, *Lecturer in Education.*

Supervisors of Training

Vivienne M. Brady, A.B., *Elementary.*

Evelyn W. Lindstrom, A.B., *Elementary.*

Elizabeth M. Schneider, A.B., *Elementary.*

Jo M. Stanchfield, M.A., *Elementary.*

Winifred P. von Boenigk, M.A., *Elementary.*



Freeman Ambrose, M.A., *Secondary, English.*

Nora B. Cole, A.B., *Secondary, Physical Education for Women.*

Helen Chute Dill, M.A., *Secondary, Music.*

Marie S. Drent, A.B., *Secondary, Communication Skills.*

Kenneth Kilday, M.A., *Secondary, Physical Education for Men.*

Gladys W. Harris, M.A., *Secondary, Art.*

Allen A. Hogle, M.Ed., *Secondary, Social Studies.*

Cecilia 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.*

Ernest R. Toon, M.Ed., *Secondary, Mathematics and Science.*

UNIVERSITY ELEMENTARY SCHOOL

Philip Lambert, Ph.D., *Principal.*

Mary Rogers, M.S., *Supervisor, Nursery School.*

Sterling S. Stott, M.A., *Counselor.*

Mary Maxine Bentzen, A.B., *Demonstration Teacher, Fifth Grade.*

Lola C. Binney, B.S., *Supervisor, Third Grade.*

Ann Blake, A.B., *Demonstration Teacher, Second Grade.*

Cynthia Brown, M.A., *Demonstration Teacher, First Grade.*

Eleanore Cornberg, M.A., *Supervisor, Kindergarten.*

John D. Cunningham, M.A., *Supervisor, Science.*

Richard J. L. Covington, M.Ed., *Demonstration Teacher, Sixth Grade.*

Janet R. Eeki, A.B., *Demonstration Teacher, Second Grade.*

Emma S. Griffith, M.A., *Supervisor, Fourth Grade.*

Mee Lee Ling, A.B., *Supervisor, Fifth Grade.*

Penrod Moss, A.B., *Supervisor, Sixth Grade.*

- June M. Patterson, M.S., *Demonstration Teacher, Kindergarten.*
 Olga M. Richard, M.A., *Supervisor, Art.*
 Marjorie F. Rimer, M.A., *Supervisor, Music.*
 Florence Speers, A.B., *Demonstration Teacher, Third Grade.*
 Jean W. Staude, A.B., *Demonstration Teacher, Nursing School.*
 Dorothy Tait, A.B., *Supervisor, Fourth Grade.*
 Margaret F. Tougaw, B.Ed., *Supervisor, First Grade.*
 Ruth S. White, M.A., *Supervisor, Rhythms.*
 ———, *Supervisor, Physical Education.*
 Margaret D. Mathews, B.Ed., *Assistant Principal.*

City Training Schools

ELEMENTARY SCHOOLS

- , *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.*
 Gertrude G. Woodmansee, M.A., *Principal, Warner Avenue Elementary School.*

Training teachers and demonstration teachers in these and other 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

- Eugene Olson, Ed.D., *Principal, University High School.*
 Carroll O. Lockridge, M.A., *Vice-President, University High School.*
 Doris H. Miller, M.S., *Vice-Principal, University High School.*
 Alice K. Brees, A.B., *Counselor, University High School.*
 Thomas A. Campbell, M.A., *Principal, Emerson Junior High School.*
 Lewis McAninch, Ed.D., *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 5.

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 130 which are open to high sophomores.

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. Wooton
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. MacLean, Mr. Kneller
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, ———
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. Mr. Leton
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
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.
Elementary descriptive statistical procedures and sampling error theory through simple analysis of variance and Chi square as applied to educational problems.

116. The Education of Exceptional Children. (3) I. ———
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. Beginning either semester. 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.

- 118. Counseling and Guidance for the Handicapped.** (2) II. Mr. Leton
Prerequisite: course 116.
Principles and practices employed in guidance and counseling services for persons who are handicapped, mentally, physically, or socially. Emphasis given to occupational opportunities for the handicapped and to the role of appraisal of individual differences in planning for social, emotional, and vocational adjustments.
- 119. Educational Measurement.** (3) I, II. Mr. Ryans
Lecture and laboratory. 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.
- 123. Social Backgrounds in the Development of Younger Children.** (3) II. Mrs. Sherer
Prerequisite: course 111 or its equivalent.
Environmental factors in the family, neighborhood, and community as influences on the mental, emotional, and social development of children from infancy through early childhood. Includes family-school relationships from both parental and school viewpoints.
- *124. The Arts in Early Childhood Education.** (3) II. _____
Prerequisite: course 111 or its equivalent.
The role of the arts—music, art, rhythm, dramatic play and creative language—in-the-school and out-of-school experiences of younger children.
- 128A. Early Childhood Education.** (4) I, II. Mrs. Sherer, _____
Prerequisite: course 106 or 130, 111, approval of Selection and Counseling Service. Mathematics 38 recommended. Course 147EC and Art 330 (Kindergarten-Primary) must be taken concurrently. Three morning hours of participation in teaching are required each week in addition to class hours. Students who have taken Education 128 (Kindergarten-Primary) will not receive credit for this course.
Theory and practice in nursery schools, kindergartens, and primary grades, with particular emphasis on social studies, science and mathematics for younger children.
- 128B. Early Childhood Education.** (4) I, II. Mrs. Sherer
Prerequisite: course 128A, English 118. Music 330 (Kindergarten-Primary) must be taken concurrently. Students who have taken course 128 (Kindergarten-Primary) will not receive credit for this course.
Language development of children from nursery school age through the primary grades: includes oral and written language, pre-reading, reading, and literature.
- 130. Elementary Education.** (3) I, II. Mr. Hockett
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.
Organization, curricula, and procedures in classes for the mentally retarded.
- 139. The Elementary Curriculum.** (4) I, II. Mr. Dutton
Prerequisite: courses 111, 110. In addition to the regular class hours, students must plan for three hours each week for participation in West District schools.

* Not to be given, 1958-1959.

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.

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, Mr. Webster
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.
- 147EC. Audio-Visual Education During Early Childhood.** (2) I, II.
Must be taken concurrently with course 128A. Mr. Webster
Theory and practice in the use of audio-visual materials in early childhood education. The activities emphasize utilization and evaluation of field trips, environmental materials, films and still pictures in instruction.
- 148. Legal Bases of Public Education in California.** (2) I, II. Mr. Briscoe
Prerequisite: consent of the instructor.
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.
- 148C. Laws Relating to Children.** (2) I, II. Mr. Berry
The educational code, labor code, and welfare code of the State of California, together with federal legislation applicable to school children.
- 149. Field Work.** (2-4) I, II.
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. Jacobsen
Supervised field work in public schools. Limited to candidates for appropriate credentials in Supervision or Administration.

Section 2. General Pupil Personnel Services. Mr. Leton, Mr. Sorenson
Supervised field work in public schools and other community agencies. Limited to candidates for appropriate credentials in General Pupil Personnel Services.

Section 3. Adult Education. Mr. Dickerman
Supervised field work in Adult Education.

Vocational Education

160. Vocational Education. (2) I, II. Mr. Barlow
The economic and social significance of vocational education in a democracy, with particular reference to principles underlying education in the high school and junior college for agriculture, commerce, homemaking, and industry.

165. Business Education. (3) II. Mr. Wanous
The organization, administration, and teaching of business education in secondary schools.

Secondary Education

170. Secondary Education. (3) I, II. Mr. Vredevoe, Mr. McNeil
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.

180. Social Foundations of Education. (3) I, II. Mr. Dickerman, ———
Education as a factor in social evolution. Analysis of current educational practices in the light of modern social needs.

181. Adult Education. (2) I, II. Mr. Dickerman, Mr. Campion
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.

199. Special Studies. (1-5) I, II. The Staff
Prerequisites: senior standing and consent of the instructor.

GRADUATE COURSES

200A-200B. Fundamentals of Educational Research. (2-2) Yr. Mr. Ryans
Lectures; nonscheduled laboratory. Prerequisite: course 114, or equivalent. 200A is prerequisite for 200B. Required of all candidates for 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.

201. History of Education. (2) I.

Mr. Wooton

In general, not open to students with credit for Education 101.

A survey of educational ideas and practices in the history of Western civilization.

202. History of Education in the United States. (2) II.

Mr. Wooton

In general, not open to students with credit for Education 102.

A survey of educational ideas and practices in the history of America.

206A-206B. Philosophy of Education. Advanced. (2-2) Yr.

Prerequisite: course 206A is prerequisite to course 206B. Mr. Kneller

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.

Prerequisite: courses 106 and 180 or the equivalent. Mr. Kaplan

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 curriculum 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. 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.

Exploration and critical study of current literature and research in educational psychology.

216A-216B. Counseling and Guidance of Exceptional Children. (2-2) Yr.

Prerequisite: courses 116 and 119. Course 117B recommended. ———

An advanced course dealing with the principles and techniques of counseling exceptional children; designed for experienced teachers who are preparing for leadership careers in this area.

217A-217B. Principles of Guidance. Advanced. (2-2) Yr.

Mr. Sorenson

Prerequisite: courses 110, 117A, 119. Admission on consultation with the instructor.

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.

224A-224B. Vocational Education. Advanced. (2-2) Yr.

Mr. Barlow

Prerequisite: course 160 or the equivalent. Admission upon consultation with the instructor.

An advanced course in the principles of vocational education, designed especially for supervisory and administrative personnel and candidates for the doctorate in education.

226A-226B. Business Education. (2-2) Yr.

Mr. Wanous

Admission on consultation with the instructor.

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.

228A-228B. Early Childhood Education. Advanced. (2-2) Yr. Mrs. Sherer

Prerequisite: course 128A-128B or equivalent, and a minimum of one year's teaching experience.

Critical survey of current literature and research in early childhood education.

230A-230B. Social Studies in Elementary Education. (2-2) Yr.

Mrs. Sherer

Prerequisite: teaching experience and consent of the instructor.

Advanced study and research in social studies teaching and learning with implications for curriculum development.

233A-233B. Mathematics and Science in Elementary Education. (2-2) Yr.

Mr. Dutton

Prerequisite: teaching experience and consent of the instructor.

Critical analysis of significant research in elementary mathematics and science teaching and learning. Application of findings to improvement of school programs. Evaluative techniques and individual student research.

234A-234B. Reading and Language in Elementary Education. (2-2) Yr.

Mr. Hockett

Prerequisite: teaching experience and consent of the instructor.

Advanced study and research in reading, spelling, and oral and written language. Application of findings to improvement of school curricula.

236A-236B. Evaluation in Elementary Education. (2-2) Yr. Mr. Lambert

Prerequisite: teaching or administrative experience and consent of the instructor.

Critical analysis of theories and principles of evaluation applied to elementary education; review of pertinent research studies in evaluation dealing with all aspects of elementary education.

238A-238B. Curriculum Construction in Elementary Education. (2-2) Yr.

Mr. Lucio

Prerequisite: teaching experience and consent of the instructor.

Intensive study of research relating to design, evaluative criteria, and staff organization in curriculum improvement.

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. Required of all candidates for the doctorate in education. Open to teachers of experience who wish to qualify for the administration credentials.

An advanced course in the organization and administration of public education in the United States.

***241A-241B. School Surveys. (2-2) Yr.**

Mr. Morrisett

Admission on consultation with the instructor. Not open for credit to students who have credit for Education 241C-241D.

* Not to be given, 1958-1959.

A critical study of the techniques and findings of school surveys combined with practice in making studies of school systems.

243A-243B. Administration of Secondary Education. (2-2) Yr.

Admission on consultation with the instructor. Mr. Vredevoe

Units covered: (A) *Legal basis, organization, philosophy, qualifications, and duties of administrators, school plant, records and schedule.* (B) *Supervision of certificated, noncertificated and student personnel, administration of guidance program, the instructional program, library and evaluation.*

For teachers of experience who desire to qualify for the secondary school supervision or secondary school administration credential.

246. Administration of Elementary Education. (2) I. Mr. Lucio

Admission on consultation with the instructor.

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.

247A-247B. Audio-Visual Education. Advanced. (2-2) Yr. Mr. Webster

Admission on consultation with the instructor.

For supervisors and administrators dealing with the problems involved in developing programs of visual education on the various levels in public school education.

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.

251A-251B. Supervision of Instruction and Curriculum. Seminar. (2-2) Yr.

Admission on consultation with the instructor.

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.

†253A-253B. Early Childhood Education. Seminar. (2-2) Yr. Mrs. Sherer

Admission on consultation with the instructor.

For graduate students whose major interest is in the nursery school, kindergarten, or primary education.

†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

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.

† Offered in alternate years.

256A-256B. Philosophy of Education. Seminar. (2-2) Yr. Mr. Kneller
Prerequisite: course 106 or the equivalent; 206A-206B or the equivalent.
Admission by consent of instructor.

Limited to candidates for advanced degrees whose major interest is philosophy of education.

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. Admission on consultation with the instructor.

For teachers, curriculum workers, administrators, and other graduate students interested in the intensive study of curriculum problems in the elementary school.

***266A-266B. Vocational Education and Guidance. Seminar. (2-2) Yr.**

Admission on consultation with the instructor.

Mr. Champion

For graduate students whose major interest is in vocational education, vocational guidance, or closely related problems.

267. Research Problems in Education. Seminar. (2) II.

Mr. Ryans

Prerequisite: course 254A-B-C-D. Admission for one or both years on consultation with the instructor. 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.

270A-270B. Secondary Education. Seminar. (2-2) Yr.

Mr. Vredevoe

Prerequisite: course 170. Admission by consent of the instructor. 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.

(A) Special problems and issues in secondary education. (B) Evaluation of the secondary schools.

275A-275B. The Secondary School Curriculum. Seminar. (2-2) Yr.

Prerequisite: course 170 or the equivalent.

Mr. Fielstra

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 Supervision and Curriculum. (1-4; 1-4) Yr.

Prerequisite: course 275A or 275B.

Mr. Fielstra

For graduate students who desire to pursue independent research in the curriculum.

* Not to be given, 1958-1959.

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.

278A-278B. Technical Education in the Junior College. (2-2) I, II.

Admission on consultation with the instructor.

Mr. Barlow

A study of the content, methods, and organization of technical education programs of a vocational-technical nature with particular reference to junior college problems of teaching and administration.

279A-279B. The Junior College. Seminar. (2-2) Yr.

Mr. Johnson, Mr. MacLean, Mr. Wilson

Prerequisite: course 209A-209B or the equivalent. Admission for one or both years on consultation with the instructor.

For graduate students whose major interest is higher education. In 1958-1959 the emphasis will be upon college and university problems. In 1959-1960 the emphasis will be upon the junior college, the technical institute, or closely related areas of study.

281A-281B. Adult Education. Seminar. (2-2) Yr.

Mr. Dickerman

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.**

Prerequisite: course 111, and a C average or better for all work taken in the University of California. Prerequisite to all supervised teaching for the General Elementary credential. In addition to the regular class hours, students must plan for three hours each week for participation in assigned schools. Only 2 units of credit given if Education 131A has been completed previously.

Teaching and learning in the elementary school. Preparation of curriculum materials; study of procedures and methods, including the evaluation of outcomes.

370. Teaching in Secondary Schools. (3) I, II. Mr. Bond, Mr. McNeil

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

EC335A-EC335B. Supervised Teaching: Early Childhood Education. (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.

EC336. Supervised Teaching: Early Childhood Education. (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, A375, Art 370A-370B, 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, M375, Music 369, 370, 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 and Lip Reading. (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: Life Science 370; Physical Education 145B; Physical Science 370; 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: Life Science 370; Physical Education 145B; Physical Science 370; 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) 2.5 or better in all courses comprising the undergraduate college major subject

- 2) 2.5 or better in all upper division courses
- 3) 2.5 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 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 EC335A-EC335B and E335A; or E335A-E335B and EC335A.
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

(Department Office, 3066 Engineering Building)

Morris Asimow, Ph.D., *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.*

- Joseph S. Beggs, M.Sc., *Professor of Engineering.*
Alexander E. Boldyreff, Ph.D., *Professor of Engineering.*
Charles T. Boehnlein, Ph.D., *Professor of Engineering.*
L. M. K. Boelter, M.S., *Professor of Engineering (Chairman of the Department).*
George W. Brown, Ph.D., *Professor of Engineering and Professor of Business Administration.*
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 Engineer (Vice-Chairman in Charge of Academic Activities).*
John M. English, Ph.D., *Professor of Engineering.*
Alan E. Flanigan, Ph.D., *Professor of Engineering.*
*H. Kurt Forster, Ph.D., *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 in Charge of the Institute of Industrial Cooperation).*
W. Julian King, M.E., *Professor of Engineering.*
William J. Knapp, D.Sc., *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 in Charge of Laboratory Facilities).*
John H. Mathewson, M.S., *Professor of Engineering.*
*John W. Miles, Ph.D., *Professor of Engineering.*
Russell R. O'Neill, Ph.D., *Professor of Engineering.*
Wesley L. Orr, C.E., *Professor of Engineering (Vice-Chairman in Charge of Faculty Activities).*
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.*
William F. Seyer, Ph.D., *Professor of Engineering.*
Francis R. Shanley, B.S., *Professor of Engineering.*
Edward H. Taylor, M.S., *Professor of Engineering.*
William T. Thomson, Ph.D., *Professor of Engineering.*
Myron Tribus, Ph.D., *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.*
*Andrew Charwat, Ph.D., *Associate Professor of Engineering.*
Robert S. Elliott, Ph.D., *Associate Professor of Engineering.*
Gerald Estrin, Ph.D., *Associate Professor of Engineering.*
Daniel Gerlough, Ph.D., *Associate Professor of Engineering.*
Jacob Frankel, Ph.D., *Associate Professor of Engineering.*
Warren A. Hall, Ph.D., *Associate Professor of Engineering.*

* Absent on leave, 1958-1959.

- John C. Harper, D.Sc., *Associate Professor of Agriculture (Davis) and 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.*
- Cornelius T. Leondes, Ph.D., *Associate Professor of Engineering.*
- John Lyman, Ph.D., *Associate Professor of Engineering and Associate Professor of Psychology.*
- Joseph W. McCutchan, M.S., *Associate Professor of Engineering.*
- Bruce R. Mead, Ph.D., *Associate Professor of Engineering.*
- George E. Mount, Ph.D., *Associate Professor of Engineering and Associate Professor of Psychology.*
- Robert A. Needham, M.S., *Associate Professor of Engineering.*
- Alan Powell, D.L.C., Ph.D., *Associate Professor of Engineering.*
- Allen B. Rosenstein, M.S., *Associate Professor of Engineering.*
- Frederick W. Schott, Ph.D., *Associate Professor of Engineering.*
- *George Sines, Ph.D., *Associate Professor of Engineering.*
- William D. Van Vorst, Ph.D., *Associate Professor of Engineering.*
- George A. Zizicas, Ph.D., *Associate Professor of Engineering.*
- Harold W. Mansfield, *Associate Professor of Engineering, Emeritus.*
- Thomas J. Conolly, Ph.D., *Assistant Professor of Engineering.*
- Harold Davis, Ph.D., *Assistant Professor of Engineering.*
- Darell B. Harmon, Ph.D., *Assistant Professor of Engineering.*
- Richard A. Holroyd, Ph.D., *Acting Assistant Professor of Engineering.*
- John Isherwood, B.S., *Assistant Professor of Engineering and Acting Assistant Agricultural Engineer.*
- Walter J. Karplus, Ph.D., *Assistant Professor of Engineering.*
- Richard C. Mackey, M.S., *Assistant Professor of Engineering.*
- Ken Nobe, Ph.D., *Assistant Professor of Engineering.*
- Jack Willis, B.Sc., *Acting Assistant Professor of Engineering.*
- Lowell Dean Amdahl, M.S., *Lecturer in Engineering.*
- John Arthur Aseltine, Ph.D., *Lecturer in Engineering.*
- Fred H. Blanchard, *Lecturer in Engineering.*
- Bertram Bussell, M.S., *Lecturer in Engineering.*
- John C. Dillon, B.S., *Lecturer in Engineering.*
- Warren Flock, M.S.E.E., *Lecturer in Engineering.*
- Henry C. Froula, M.A., M.S., *Lecturer in Engineering.*
- Richard H. Haase, B.S., M.B.A., *Lecturer in Engineering.*
- Heinz Haber, Dr. Res. Nat., *Lecturer in Engineering.*
- Gerald L. Hassler, Ph.D., *Lecturer in Engineering.*
- Sam Houston, Ph.D., *Lecturer in Engineering.*
- Eldon L. Knuth, Ph.D., *Lecturer in Engineering.*
- Norman M. Martin, Ph.D., *Lecturer in Engineering.*
- Philip F. O'Brien, M.S., *Lecturer in Engineering.*
- William C. Pomeroy, Sr., Ph.D., *Lecturer in Engineering, Emeritus.*
- John B. Powers, B.S.E.E., *Lecturer in Engineering.*
- *John Rex, A.B., *Lecturer in Engineering.*
- Neal A. Richardson, M.S., *Lecturer in Engineering.*
- John M. Salzer, D.Sc., *Lecturer in Engineering.*
- Victor D. Sanders, M.S., *Lecturer in Engineering.*
- John M. Server, Jr., B.S., *Lecturer in Engineering.*
- George J. Tauxe, M.S., *Lecturer in Engineering.*
- Willis H. Ware, Ph.D., *Lecturer in Engineering.*

* Absent on leave, 1958-1959.

* In residence spring semester only, 1958-1959.

Albert D. Wheelon, Ph.D., *Lecturer in Engineering.*
 Arthur J. Winter, M.S., *Lecturer in Engineering.*
 Abe M. Zarem, Ph.D., *Lecturer in Engineering.*
 James R. Alder, M.S., *Associate in Engineering.*
 Robert Brenner, M.S., *Associate in Engineering.*
 Jamal N. Habib, B.Sc., *Associate in Engineering.*
 Bernard Katz, M.S., *Associate in Engineering.*
 Albert F. Klinge, M.S., *Associate in Engineering.*
 Levi J. Knight, M.S., *Associate in Engineering.*
 Peter Kurtz, Jr., M.S., *Associate in Engineering.*
 Sidney Loeb, B.S., *Associate in Engineering.*
 Adin E. Mathews, M.S., *Associate in Engineering.*
 William R. Micks, M.S., *Associate in Engineering.*
 Robert N. Parker, M.S., *Associate in Engineering.*
 Gerhard F. Paskusz, M.S., *Associate in Engineering.*
 Virgil Peterson, M.A., *Associate in Engineering.*
 Harry C. Showman, B.S., *Associate in Engineering.*
 John Staudhammer, M.S., *Associate in Engineering.*
 Edward W. Wedbush, M.E., M.B.A., *Associate in Engineering.*
 Yujiro Yamamoto, M.S., *Associate in Engineering.*
 Arthur A. Borsei, M.S., *Assistant in Engineering.*
 Shahan Hovanessian, M.S., *Assistant in Engineering.*
 Robert M. Inman, M.S., *Assistant in Engineering.*
 Aziz S. Odeh, M.S., *Assistant in Engineering.*
 Shoichi Uchiyama, M.S., *Assistant in Engineering.*

Letters and Science List.—Courses 1A, 1B, 2, 4A, 15A-15B, 102B, 155A.

Enrollment in engineering courses is permitted to students from other colleges 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.

Mr. Dillon
 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. Engineering Graphics. (3) I, II.

Mr. McCutchan in charge
 Lecture, one hour; laboratory, five hours. Prerequisite: one year of high school drafting, plane geometry, trigonometry.

The principles of descriptive geometry and graphics and their application to the solution of problems in engineering and science.

18. Materials of Production and Construction. (3) I. Mr. Sines in charge

Prerequisite: Chemistry 1A or 2.

A study of the properties of materials and the mass production methods of processing them.

108D. Properties of Art Ceramic Materials. (3) I.

Mr. Knapp

Prerequisite: Art 170A. Occasional field trips will be scheduled. For students in Applied Arts.

Composition of ceramic materials and products. Properties of ceramic bodies and glazes, and calculation methods for compounding.

149A. Construction Methods and Equipment. (3) II.

Mr. Server

Prerequisite: courses 1A, 18; Business Administration 1A. Field trips.

A study of building construction procedures and the equipment used for them.

149B. Construction Costs and Estimates. (3) I.

Mr. Server

Prerequisite: course 149A (may be taken concurrently). Field trips.

A study of building construction estimates and costs. Practice in the preparation of estimates and bids.

LOWER DIVISION COURSES**°1B. Surveying (3) II.**

Mr. Dillon

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. Field trips may be scheduled.

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.

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. Grandi in charge

Lecture, two hours; laboratory, three hours. Prerequisites: course 4B; Chemistry 1B, Physics 1A, Mathematics 5B. Not open for full credit to students who have had course 8.

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.

* To be given every other year; will be given 1958-1959.

4D. Introduction to Engineering Processes. (3) I, II.

Mr. Grandi in charge

Lecture, one hour; laboratory, six hours. Prerequisite: course 4C. Concurrent: course 15B, Physics 1C, Mathematics 6B. Field trips may be scheduled.

Manufacturing, construction, chemical and sanitation processes which combine or separate materials, considered as engineering systems. Measurement and control of mechanical and human variables.

***6. Engineering Drawing. (3) I.**

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.

15A-15B. Elementary Mechanics. (3-3) Yr. Beginning either semester.

Lecture, two hours; laboratory, three hours. Mr. Taylor in charge

This is a unified course covering elementary topics of analytical mechanics and strength of materials.

15A, prerequisite: Physics 1A; prerequisite or concurrent: course 4C, Mathematics 4A or 6A.

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; prerequisite or concurrent: Mathematics 4B or 6B.

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.

96. Engineering in Civilization. (3) I, II.

Mr. Campbell

For students in the College of Engineering.

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.

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.

UPPER DIVISION COURSES

Admission to junior status in the College of Engineering is determined on the basis of lower division grades and the score on the *Engineering Examination, Upper Division*. Applicants for junior status from all sources, including applicants from the University's lower division, will be required to meet the same minimum standard. Junior status in the College of Engineering is prerequisite to all upper division courses.

* To be given when there is sufficient demand.

100A. Circuit Analysis. (3) I, II.

Mr. Karplus 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. Field Theory and Energy Flow. (3) I, II.

Mr. Mathews in charge

Prerequisite: courses 100A; 104A (may be taken concurrently). Occasional field trips may be scheduled.

A study of electrostatic and electromagnetic fields, of the interaction of fields and matter, and of fields in areas other than electrical. Energy in the magnetic field will be studied.

100C. Electrical Power Operation and Distribution. (3) I.

Mr. Grandi

Prerequisite: courses 100B, 104B. Occasional field trips will be scheduled.

Electrical power generation and distribution systems are considered from the viewpoint of equipment, operations, transmission and distribution, and system economics.

102B. Engineering Dynamics. (3) I, II.

Mr. Hurty 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. (3) II.

Mr. Hurty

Prerequisite: course 102B.

Introduction to fundamentals of mechanical vibrations, types of oscillatory motions, Fourier components. Study of free, forced, and transient vibrations, damping, vibration isolation, vibration measuring instruments. Coupled oscillations of lumped systems, use of Lagrange's equations, Rayleigh and matrix-iteration methods.

103A. Elementary Fluid Mechanics. (3) I, II.

Mr. Taylor in charge

Prerequisite: courses 102B, 105A. Recommended to be taken concurrently: course 105B. Occasional field trips may be scheduled.

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.

103B. Intermediate Fluid Mechanics. (3) I.

Mr. 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.

104A. Experimental Engineering. (3) I, II.

Mr. E. F. King in charge

Laboratory, six hours per week. Additional three hours required for preparation, calculations, and reports. Prerequisite: course 100A (may be taken concurrently.) Occasional field trips may be scheduled.

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.

104B. Experimental Engineering. (3) I, II. Mr. E. F. King in charge

Laboratory, six hours per week. Additional three hours required for preparation, calculations, and reports. Prerequisite: courses 100A, 104A; 108B (may be taken concurrently). Concurrent: courses 100B, 103A. Occasional field trips may be scheduled.

Introductory experiments on the operation and application of machines, and on the behavior of engineering structures. Measurements and instrumentation.

104C-104D. Experimental Engineering. (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. Occasional field trips may be scheduled.

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.

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. Tribus

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.

106A. Machine Design. (4) I, II.

Mr. Mason in charge

Lecture, two hours; laboratory, six hours. Prerequisite: course 4B or equivalent introductory design course, 102B.

The design of machine elements on the basis of static and dynamic working stresses; selection of materials and shop processes, economic problems in design, design and use of various machine elements, linkages, fastenings, power transmission equipment; friction and lubrication.

† To be given if a sufficient number of students enroll.

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. Lin in charge
Lecture, two hours; laboratory, three hours. Prerequisite: courses 107A, 108B.

Design methods for member, connections, and simple structures of steel and reinforced concrete. General procedures in engineering design. Individual design projects.

106F. Design of Timber Structures. (3) II. Mr. Duke in charge
Prerequisite: courses 106C, 107A. Field trips.

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.

107A. Analysis of Framed Structures. (3) I, II. Mr. Lin in charge
Prerequisite: course 108B.

Analysis of beams and plane and space framed structures; applications of superposition and influence lines; deflections of beams and framed structures. Introduction to analysis of indeterminate beams and framed structures.

107B. Advanced Analysis of Framed Structures. (3) II.

Prerequisite: course 107A. Mr. Lin in charge
Extension of principles covered in Engineering 107A to the general solution of more complicated determinate and indeterminate framed structures. Slope deflection and moment distribution methods. Principles of limit analysis of frames and trusses. Analysis of rings and arches including those with variable moment of inertia.

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. Taylor in charge
Prerequisite: course 4C; a course in analytical mechanics—statics (equivalent to Engineering 35, Berkeley campus); Mathematics 4B or 6B (may be taken concurrently). Not open for credit to students who have had courses 15A or 15B.

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.

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.

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. 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.

112B. The Communication of Information. (3) I, II†. Mr. Hershberger
Prerequisite: course 115A or former course 112A.

Delineation of the fundamental problem of communication between human beings, with emphasis on factors common to all systems. The course includes

† To be given in the evening only.

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.

113A-113B. The Engineer and His Professional Duties. (2-2) Yr.

Mr. Boelter in charge

Prerequisite: senior standing in engineering. Enrollment limited to twenty students per section.

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.

***115A. Fundamentals of Electron Devices. (3) I, II.**

(Formerly numbered 112A.)

Mr. E. F. King in charge

Prerequisite: course 100A (may be taken concurrently). Not open for credit to students who have had course 112A.

A unified fundamental treatment of electron devices including vacuum tubes and transistors. Equivalent circuits. Introduction to small-signal operation.

***115B. Active Electronic Circuits. (3) I, II.**

Mr. E. F. King in charge

Prerequisite: course 115A or former course 112A.

Amplifiers: untuned voltage, untuned power, direct-coupled, broad-band, tuned voltage and power; feedback. Oscillators; modulation, mixing detecting; analog computing circuits. Design considerations.

***115C. Active Electronic Circuits. (3) I, II.**

Mr. E. F. King in charge

Prerequisite: course 115B.

Large-signal and nonlinear situations. Graphical and analytical methods for analysis and design. Introduction to switching-mode operation. Design considerations.

***115D. Pulse and Digital Methods. (3) I, II.**

Mr. E. F. King in charge

Prerequisite: course 115B.

Linear and nonlinear wave shaping; linear pulse amplification; bistable, monostable and astable multivibrators, time-base generators; counting, synchronization and frequency division; digital computer circuits, gates, comparators; time modulation and measurement, pulse and digital systems; design considerations.

117A. Applied Electromagnetic Theory. (3) I, II.

Mr. Hershberger

Prerequisite: course 115A or former course 112A. Not open for credit to students who have had course 112C.

Fundamentals of wave propagation, static electric and magnetic fields, Maxwell's equation in integral and differential form, plane electromagnetic waves.

117B. Applied Electromagnetic Theory. (3) II.

Mr. Hershberger

Prerequisite: course 117A.

Propagation and reflection of plane waves, wave guides, resonant cavities, microwave networks, Hertzian dipole.

* A maximum of 12 units credit is allowable for combinations of Engineering 115ABCD and Engineering 198. Special courses: Transistor Electronics I and II, and Applications of Electronic Circuits to Engineering Data.

120. Principles of Engineering Investment and Economy. (3) I, II.

Prerequisite: courses 100B, 103A, 105B. Mr. Asimow 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 and Mathematics 110AB or 110C.

A course in the fundamentals of aerodynamics dealing with the basic aspects of compressible and incompressible fluid dynamics; theory of potential flow, airfoils, and finite wings; lifting surfaces in supersonic flow.

130A. Environmental Biotechnology. (3) I. Mr. Lyman 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 biomechanical and environmental aspect of human factors in engineering.

130B. Machine and Systems Biotechnology. (3) II.

Mr. Lyman in charge

Prerequisite: junior standing in engineering. Occasional field trips may be scheduled.

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.

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.

143A. Oil Field Development. (3) I.

Mr. Yuster

Prerequisite: course 103A; course 105B (may be taken concurrently). Field trips will be made.

Origin, accumulation, and properties of petroleum; petroleum reservoirs, exploration methods, drilling methods, mud technology, well completion, logging methods, and core analysis.

143B. Oil and Gas Production. (3) II.

Mr. Yuster

Prerequisite: course 143A or consent of the instructor. Occasional field trips will be scheduled.

Oil and gas production mechanisms; internal gas drive, water drive, gravity drainage, recycling; thermodynamic relations, reservoir forces, fundamental equations, secondary recovery.

145. Tool Engineering. (3) II.

Mr. Asimow

Lecture, two hours; laboratory, two hours. Prerequisite: course 106A (may be taken concurrently). Field trips will be scheduled.

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.

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. Seyer

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. Tribus

Prerequisite: course 105B.

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. Van Vorst

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. Principles of Separation Operations. (3) II.

Mr. Van Vorst

Prerequisite: course 152A.

Requirements and limitations in the separation of a mixture into its component parts. Emphasis on repetitive counter-flow operations and on applications common to all fields. Specific examples from fields of chemistry, metallurgy, fossil fuels, atomic energy, etc.

152C. Chemical Reactor Analysis. (3) I.

Mr. Van Vorst

Prerequisite: course 152A.

Basic principles of reaction kinetics, chemical reactor kinetics, and inter-phase transfer kinetics continuous-flow systems. Steady-state flow systems contrasted with batch systems. The effects of thermodynamic variables on kinetics.

153. Thermal and Luminous Radiation. (3) II.

Mr. O'Brien

Prerequisite: course 105B.

The spectral characteristics of sources and receptors of ultraviolet, visible, and infrared radiation; the spectral behavior of transmitters, reflectors, 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, II.

Mr. Hicks

Prerequisite: senior standing in engineering, physics, or chemistry.

Introduction to the basic engineering principles involved in the design of nuclear reactors. Includes a review of basic physics required for engineering applications, diffusion of neutrons, reactor mechanics, and radiation shielding.

- 155B. Nuclear Reactor Design. (3) II.** Mr. Hicks
Prerequisite: course 155A or equivalent.
Studies of the major elements of reactor design and the integration of these elements, including both over-all design and component design.
- 155C. Nuclear Reactor Control. (3) I.** Mr. Hicks
Prerequisites: courses 155A, 181C or equivalent.
Reactor kinetics, automatic control and control mechanisms, feedback loops, transient response, long term reactivity changes, effects of power plant control, and reactor start-up and shutdown.
- 156. Aircraft Propulsion and Power. (3) II.** Mr. W. J. King
Prerequisite: courses 103A, 105B.
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.
- 157. Design and Analysis of Gas Turbines. (3) I.** Mr. Charwat
Prerequisite: courses 103A, 105B; course 156 recommended.
Aerodynamic and mechanical design of compressors and turbines; elements of combustion technology; synthesis of gas turbine power plants; propulsive characteristics of aircraft jet engines; fundamental data and experimental techniques.
- 170. Sales Engineering. (3) I.** Mr. Case
Lecture, three hours. Prerequisite: senior standing in engineering. Field trips may be arranged.
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.
- 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. Brenner
Prerequisite: junior standing in engineering.
Delineation of the over-all accident prevention problems, 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) I, II.

Mr. Beggs in charge

Prerequisite: course 102B. A field trip will be scheduled during the spring recess.

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.

181A. Linear System Solutions by Transform Methods. (3) I, II.

Mr. Forster 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. Leondes 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 some typical problems drawn from practice.

181D. Analog Computations. (3) I, II.

Mr. Karplus in charge

Prerequisite: Mathematics 110C or equivalent; courses 115A or former course 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) I.

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) II.

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. Probability and Stochastic Processes for Engineers. (3) I, II.

Prerequisite: Mathematics 6B.

Mr. Coleman in charge

Combinatorial analysis, sample space, events, probability theory, discrete and continuous random variables, probability distributions, population parameters, stochastic independence, sums of random variables, law of large numbers. Central limit theorem and applications. Statistical inference, stochastic processes and calculus of random function.

183B. Engineering Statistics. I. (3) I†, II†. Mr. Coleman in charge
Lecture, two hours; laboratory, two hours. Prerequisite: course 183A or equivalent. Not open for credit to students who have had course 183A prior to fall semester, 1958.

Fundamental statistical concepts, population (system), sample, parameter, statistics. Significance tests and confidence limits. Efficient computational procedures. Risks of wrong decisions, power functions, operating characteristic curves. Simple and multiple regression and correlation, bivariate normal distribution. Applications in engineering and industry

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. Special Courses (1-6) 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 year, 1958-1959; the fall semester, 1958; and the spring semester, 1959:

Year, 1958-1959

Problems of Materials for Nuclear Reactors. (3) I, II.

Aeroelasticity. (3) I, II.

Network Synthesis. (3) I, II.

*Applications of Electronic Circuits to Engineering Data. (3) I, II.

Introduction to Electronic Digital Computing Systems. (3) I, II.

Design of Optical Systems, Part I and Part II. (3-3) Yr.

*Transistor Electronics, Part I and Part II. (3-3) Yr.

Advanced Design Techniques for Feedback Control Systems. (3) I, II.

Intermediate Circuit Theory. (3) I, II.

Systems Engineering, Operations Research. (3) I, II.

The Logical Design of Digital Computing Machinery. (3) I, II.

Optimum Structural Design, Part I and Part II. (2-2) Yr.

Digital Computer and System Design. (3) I, II.

Aircraft Stability and Control. (3) I, II.

Nonlinear Differential Equations in Engineering. (3) I, II.

Fall Semester, 1958

Sampled-Data Systems and Digital Computers. (3)

Architectural Background for Structural Engineers. (2)

Petroleum Production. (3)

Circuit Design of Digital Computers. (3)

Human Considerations in Transportation Engineering. (3)

Mechanics of Missile Guidance. (3)

Fundamentals of Corrosion. (3)

Fatigue of Metals. (2)

Basic Magnetism. (3)

Astronautical Guidance and Control. (3)

Spring Semester, 1959

Equilibria for Materials at Elevated Temperatures. (3)

* See footnote, page 182.

† To be given in evening classes only.

Problems in Engineering Education. (1)
 Theory of Hydrodynamic Stability. (3)
 Random Processes. (3)
 Air Conditioning Principles. (3)
 Dynamic Programming. (3)
 Digital Simulation of Large Systems. (2)
 Introduction to X-Ray Diffraction. (3)
 Advanced Theory of Automatic Control Systems. (3)

199. **Special Studies (1-5) I, II.** Mr. Boelter in charge
 Prerequisite: senior standing and consent of the instructor.

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
 Application of mathematical methods to engineering problems; basic problems in the fields of fluid dynamics, heat conduction, and electromagnetic theory will be discussed.

210A. **Properties of Engineering Materials.** (3) I. Mr. Rosenthal in charge
 (Formerly numbered 210B.)

Prerequisite: graduate standing in engineering. (Not open for credit to students who have had course 210B prior to fall, 1958.)

Application of solid-state physics to determination of structure and properties (mechanical) of engineering materials. Elements of X-ray structure analysis. Cohesive strength of ionic crystals and simple metals. Lattice imperfections, nonelastic behavior of solids.

210B. **Properties of Engineering Materials.** (3) II. Mr. Sines
 (Formerly numbered 210A.)

Prerequisite: graduate standing in engineering, Physics 121 (or equivalent). (Not open for credit to students who have had course 210A prior to fall, 1958.)

Application of solid-state physics to determination of properties (other than mechanical) of engineering materials. Introduction to modern concepts. Specific heat, conductivity (conductors and semiconductors), dielectrics, magnetic properties. Electron theory of alloys. (Not open for credit to students who have had course 210A prior to fall, 1958.)

220A-220B. **Fluid Dynamics.** (3-3) Yr. Mr. Miles

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.

221A. **Gas Dynamics.** (3) I. Mr. Miles

Prerequisite: consent of the instructor.

Review of thermodynamics, wave and shock motion in unsteady one-dimensional and steady two- and three-dimensional flows, small perturbation theory for wings and bodies, similarity rules, characteristics theory, effects of viscosity and conductivity.

230A. Applications of Electromagnetic Theory. (3) I. Mr. Hershberger

Prerequisite: courses 117A, 117B, or consent of the instructor.

Review of field equations; Poynting vector, retarded potentials, radiation from current elements and current sheets, impedance of antennas; radiation from antenna arrays, and aperture antennas.

230B. Applications of Electromagnetic Theory. (3) II. Mr. Hershberger

Prerequisite: course 230A, or consent of the instructor.

Diffraction and propagation of waves; tropospheric and ionospheric propagation; properties of materials at microwave frequencies; ferrites, paramagnetic and ferromagnetic resonance.

251A. Heat and Mass Transfer. (3) I.

Mr. Harmon, Mr. Van Vorst

Prerequisite: courses 151A and 152A or consent of the instructor.

Derivation of equations describing heat, mass, and momentum transfer in fluids. General principles of diffusional and mass transfer processes. Analogies among mass, heat and momentum transfer in convection. Applications to systems and processes with combined heat and mass transfer such as evaporative cooling.

255A. Nuclear Reactor Analysis. (3) II.

Mr. Hicks

Prerequisite: course 155A or equivalent.

Derivation of the reactor equations, age theory, reactor kinetics, temperature effects, etc., and their use with respect to both homogeneous and heterogeneous reactors. Development of multigroup, multiregion neutron theory, and neutron transport theory.

†270A-270B-270C-270D. Executive Systems Engineering. (1-4; 1-4; 1-4; 1-4) 4 semesters, beginning in the fall.

Mr. Asimow in charge

Prerequisite: acceptance to the Engineering Executive Program.

Development and application of quantitative methods in the analysis and synthesis of engineering executive systems; recently developed mathematical, statistical and machine methods; optimization of outputs with respect to costs-time-material-energy-information-manpower.

†271A-271B-271C. The Engineer in the General Environment. (1-4; 1-4; 1-4) 3 semesters, beginning in the fall.

Mr. Lyman in charge

Prerequisite: acceptance to the Engineering Executive Program.

Influences of history, literature, and human relations on development and utilization of natural and human resources; role of the engineer in applying both quantitative and historical methods to problems in transportation, water supply, etc., in local, national, and international communities.

†272A-272B-272C. The Engineer in the Business Environment. (1-4; 1-4; 1-4) 3 semesters, beginning in the fall.

Mr. Manildi in charge

Prerequisite: acceptance to the Engineering Executive Program.

Accounting theory. Analysis of financial statements with special reference to their use in and effect on engineering activity; economy of business enterprise; organization and management of engineering activity; relationship of the engineering function with 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.

† Open only to Engineering Executive Program students. Consult the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

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 1958-1959; the fall semester, 1958, and the spring semester, 1959.

*Year, 1958-1959***Advanced Biotechnology. (3) I, II.**

Mr. Lyman

Prerequisite: course 130A-130B, or consent of the instructor.

Analysis of bioscience background of problems in engineering component and system design. Consideration of optimum environment and performance of humans in relation to control, production, and communication functions. Broad coverage of "human factors" and "human engineering," with particular orientation toward methodological and scientific principles underlying application.

Digital Computers. (3)

Mr. Estrin

Prerequisite: introduction to digital computers, logical design; and/or consent of instructor.

A survey of the literature in the field of digital computers with emphasis on switching theory and application, digital computer design, and the application of digital computers.

Control Systems Seminar. (3)

Mr. Aseltine, Mr. Leondes

Prerequisite: consent of the instructor.

Critical review and evaluation of literature on control system techniques. Random processes in automatic control systems, sampled data theory, non-linear servo synthesis, linear time variable systems, complex multiloop servo synthesis, self-optimizing or self-adaptive systems, hybrid control systems.

*Fall semester, 1958***Special Problems in Petroleum Production. (3)**

Mr. Yuster

Prerequisite: course in petroleum reservoir engineering, or equivalent experience.

A study of such problems as unsteady state flow, special production techniques, production energy, models, and others.

Aircraft Preliminary Design. (3)

Mr. Needham

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. The student is responsible for a design study project as a final course contribution.

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.

Mechanics of Deformable Solids, Part I. (3)

Mr. Zizicas

Prerequisite: course 108B; Mathematics 110AB or 110C; or the equivalent.

Deals with directional dependence of stress and strain, stress-strain relations in the elastic and inelastic range, local and integral formulation of elastic and inelastic problems.

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.

Analog Simulation of Field Problems. (3)

Mr. Karplus

Prerequisite: courses 181A, 181D, or equivalent; course 200A recommended.

A comprehensive study of the application of conducting sheet analogs, electrolytic tanks, and network analyzers to the solution of partial differential equations. Emphasis is placed on problems important in engineering endeavors including such areas as electrostatics, heat transfer, air pollution, and oil reservoir engineering.

Random Processes in Automatic Control Systems. (3)

Mr. Leondes

Prerequisite: Laplace transform theory, servomechanisms, and probability theory.

Techniques for the analysis and synthesis of linear control systems which are subjected to random inputs; analysis and synthesis of nonlinear control systems.

Advanced Dynamics of Rigid Bodies. (3)

Mr. Hurty

Prerequisite: elementary dynamics.

Generalized coordinates, Lagrange's equation, Euler's equation, applications to gyroscopes and missiles.

Advanced Topics in Thermodynamics. (3 or 4)

Mr. Tribus

Prerequisite: courses 105A, 105B, and consent of the instructor.

A review of the fundamental notions of classical and irreversible thermodynamics; applications to chemical equilibria and flow processes; student reports on current topics in thermodynamics.

Applied Elasticity. (3)

Mr. Lin

Prerequisite: course 108D, Mathematics 110AB or 110C.

Elastic stress-strain relations, plane stress and plane strain problems in rectangular and cylindrical coordinates, bending of prismatic bars, stress concentration due to circular holes in strained plates, rotating disks and cylinders, torsion of circular and rectangular bars, thermal elastic stresses.

Waiting Line Theory and Application. (3)

Mr. Davis

Analysis of those systems which can be described and studied advantageously by means of stochastic models of waiting line (queuing) theory. Problems in operations research: toll booth operations, traffic control, maintenance of multiple machine systems, inventory level control, and materials handling.

Spring Semester, 1959

Stochastic Processes in Linear Systems. (3)

Mr. J. L. Barnes

Prerequisite: courses 181A, 183A and B.S. degree in engineering, physics, or mathematics.

Formulation and solution of equations of behavior of lumped and distributed linear electrical, rigid- and fluid-mechanical, and thermal systems with stochastic (i.e., chance) excitation, or system change, and response.

Theory of Plasticity. (3)

Mr. Lin

Prerequisite: course 108B; Mathematics 110AB or 110C.

Deformation theory, flow theory, slip theories of plasticity and their limitations, simple inelastic structures as inelastic beams, shafts, columns, spherical

shells, thick cylinders, rotating disks and cylinders, plastic hinges in rigid frames and visco-elastic structures.

Dislocations and the Properties of Materials. (2) Mr. Frankel

Prerequisite: working knowledge of the Theory of Elasticity.

Basic theory of dislocations in crystals, experimental techniques, deformation of crystals, yielding, work-hardening, recovery, and other subjects of interest to students. Seminar discussion group.

Seminar in Radiation Transfer. (2) Mr. Harmon, Mr. O'Brien

Prerequisite: course 153 or consent of instructor.

Topics covered will include fundamental aspects of radiation emission due to thermal excitation, gas emissivities from spectral data, radiation exchange in systems including absorbing and scattering media, and other selected topics.

Analysis of Convection and Boiling. (3) Mr. Tribus

Prerequisite: consent of instructor.

A review of the current literature in the fields of convective heat transfer and boiling heat transfer with special emphasis on analytical methods. Student reports on advanced topics in heat transfer.

Dynamics of Structures. (3) Mr. Hurty

Prerequisite: courses 102B, 102D.

Properties of structures; principles of dynamics; degrees of freedom, generalized coordinates, Lagrange equations, variational principles. Normal mode vibration. Forced vibrations, impedance concept, influence of damping. Nonperiodic forces, response by superposition of normal modes, solution by Laplace transforms, frequency response.

Applications of Electromagnetic Theory. (3) Mr. Elliott

Integral equation solutions of self impedance of dipole, slot, helix, and other antenna elements. Mutual impedance in arrays. Synthesis of array performance. Aperture distribution theories. Methods of feeding and scanning large antenna arrays.

Advanced Analog Computations. (3) Mr. Karplus

Prerequisite: course 181D.

Selected topics in the design and application of analog computers: adjoint techniques, treatment of random variables, limitations on accuracy, applications to network synthesis, combined use of analog and digital facilities.

Propagation of Electromagnetic Waves. (3)

Prerequisite: course 117B.

Mr. Wheelon, Mr. Hershberger

A balanced account of the mechanisms for radiowave propagation in the range 15 kcs to 10,000 mcs is presented. The approach is analytical, but the course is primarily concerned with understanding observed transmissions.

Advanced Circuit Theory. (3)

Mr. Ho

Prerequisite: Intermediate Circuit Theory, Network Synthesis Part I or equivalent. Complex variables recommended.

General theory of two terminal pair networks. Advanced techniques of transfer function synthesis. Approximation in frequency domain. Potential analog techniques, Fourier Series techniques. Time domain approximations. Introduction to active network synthesis.

Mechanics of Deformable Solids, Part II. (3)

Mr. Zizicas

Prerequisite: Mechanics of Deformable Solids, Part I.

Deals with three-dimensional problems, anisotropic solids and large strains.

Aerothermochemistry. (3)

Mr. Knuth

Prerequisite: courses 103B and 105B or consent of instructor.

Equations of change for multicomponent mixtures; rate equations for momentum transfers, mass transfers, energy transfers, chemical reactions, phase changes; equilibrium criteria; reaction heats, characteristic times and dimensionless parameters of aerothermochemistry; examples: burning of pre-mixed gases, cooling with mass transfer, quenching of chemical reactions.

299. Research in Engineering. (1-5) I, II.

Mr. Boelter in charge

Occasional field trips may be arranged.

Investigation of advanced technical problems.

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. Occasional visits to electron microscopy laboratory.

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.

NUMERICAL ANALYSIS RESEARCH

Attention is directed to Numerical Analysis Research, the activities of which are described on page 277.

ENGLISH

(Department Office, 2303 Humanities Building)

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., D.Lit. (London), *Professor of English.*
 ———, *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., Ph.D., *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.*Ralph Cohen, Ph.D., *Associate Professor of English.*Vinton Adams Dearing, Ph.D., *Associate Professor of English.*Robert 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.*Claude Jones, Ph.D., *Associate Professor of English.*

* Not to be given, 1958-1959.

† Sabbatical leave, 1958-1959.

‡ In residence spring semester only, 1958-1959.

- Paul 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.*
 Waldo Woodson Phelps, Ph.D., *Associate Professor of Speech.*
 Clifford Holmes Prator, Ph.D., *Associate Professor of English.*
 Ralph Richardson, Ph.D., *Associate Professor of Speech.*
 John Frederic Ross, Ph.D., *Associate Professor of English.*
 Robert Paul Stockwell, Ph.D., *Associate Professor of English.*
 Daniel Vandraegen, Ph.D., *Associate Professor of Speech.*
 Frank Whittemore Wadsworth, Ph.D., *Associate Professor of English.*
 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.*
 Michael J. D'Asaro, Ph.D., *Assistant Professor of Speech.*
 Jonathan Peale Bishop, Ph.D., *Assistant Professor of English.*
 Earl Richard Cain, Ph.D., *Assistant Professor of Speech.*
 *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.*
 Alfred Lewis Larr, Ph.D., *Assistant Professor of Speech.*
 Earl Roy Miner, Ph.D., *Assistant Professor of English.*
 Lowry Nelson, Jr., Ph.D., *Assistant Professor of English.*
 Robert Thomas Lenaghan, Ph.D., *Instructor in English.*
 Florence H. Ridley, Ph.D., *Instructor in English.*
 Walter Heinrich Evert, M.A., *Acting Instructor in English.*
 Rudolph Everett Habenicht, M.A., *Acting Instructor in English.*
 James Murray, Ed.D., *Lecturer in Speech.*
 Frances Clarke Sayers, *Lecturer in English.*
 William H. Buell, M.A., *Associate in English.*
 Harriett Ramras, M.A., *Associate in English.*
 Jane J. Robinson, Ph.D., *Associate in English.*



- *George M. Savage, Ph.D., *Professor of Theater Arts.*
 Lawrence Clark Powell, Ph.D., *Lecturer in English.*
 Joseph Sheehan, Ph.D., *Associate 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 23 C of this bulletin.

Letters and Science List.—All undergraduate courses in English except 370 and all undergraduate courses in speech except 370 are included in the Letters and Science List of Courses. For regulations governing this list, see page 5.

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 History 151A–151B for junior transfers, 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. de-

* Absent on leave, 1958–1959.

† Sabbatical leave in residence, fall semester, 1958–1959.

‡ In residence fall semester only, 1958–1959.

§ In residence spring semester only, 1958–1959.

gree 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.

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 1 and 2 or 4; (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, 109, 110, 111, 112A, 112B, 122, 140; (7) Theater Arts 103.
- (b) The passing of the Senior Comprehensive Final Examination with a grade 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) Speech 1; (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.

Requirement for the Master's Degree

1. For the general requirements, see page 70. The department follows Plan II, as described on page 71. The Comprehensive Examinations are given toward the end of each semester for both the M.A. and for the Ph.D. qualifying, and during the Summer Session for the M.A. degree alone.

2. Departmental requirements: (1) Students are required to take the reading test in French or German at the beginning of the first semester of residence. (2) They must complete at least 24 units in English, including the following: course 200, or 201; 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. The Comprehensive Examination for the M.A. consists of an oral examination of not less than one hour covering the candidate's general knowledge of English and American literature. For the M.A. leading to the Ph.D., see "Requirements for the Doctor's Degree," following.

Requirements for the Doctor's Degree

1. For the general requirements, see page 72.

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. Part I of the qualifying examinations must be taken before the candidate has completed more than 30 units of graduate work. 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. Hagemann 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. _____
- *4B. Great Books: Dramatic Tragedy. (1) II. _____
- *4C. Great Books: the English Novel. (1) I. _____
- *4D. Great Books: the Continental Novel. (1) II. _____
- 4E. Great Books: Lyric Poetry. (1) I. Mr. Nelson in charge
- 4F. Great Books: Narrative Poetry. (1) II. Mr. Nelson in charge
- *4G. Great Books: Famous Utopias. (1) I. _____
- *4H. Great Books: Great Satirists. (1) II. _____

Sophomore Courses

- 30A. American Literature of the Pre-Civil War Period. (2) I, II.
Mr. Howard in charge
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.
Mr. Howard in charge
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.
Prerequisite: course 1A-1B. Mr. Swedenberg in charge

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 114C, 114D, 114E. Students who have not passed English 81 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.

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.

* Not to be given, 1958-1959.

- 106A. The Short Story.** (2) I, II. Mr. Espey, Mr. Hagemann
Prerequisite: consent of the instructor.
- 106C. Critical Writing.** (2) I, II. Mr. Jorgensen, Mr. Nelson
- 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, 1958.
- 106F. Exposition.** (2) I, II. Mr. Espey
- 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. Bishop, Mr. Durham, Mrs. Robinson
- 110. Introduction to the English Language.** (3) I.
Mr. Matthews, Mr. Stockwell
- 111. The English Language in America.** (3) II.
Mr. Matthews, Mr. Stockwell
- 114A-114B. English Drama from the Beginning to 1900.** (3-3) Yr.
Mr. Dick, Mr. Smith
- 114C. Contemporary Drama.** (2) I, II. Mr. Smith, Mr. Wadsworth
- 114D-114E. English Plays and Playwrights.** (3-3) Yr.
Mr. Dent, 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.** (3) 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.
- 117L. Advanced Shakespeare.** (3) II.
Prerequisite: course 117J. Mr. Dent, Mr. Wadsworth
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. Bishop, 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. Durham, Mr. Nevius
Not open to students who have not had 46A-46B.
133. *American Life in American Letters.* (3) II. Mr. Durham, Mr. Falk
The main currents of thought in American life as reflected in literature.
135. *American Fiction.* (3) I, 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
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, Miss Ridley
- 151M. *Milton.* (3) II. 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. Lenaghan, Mr. Matthews
153. *Introduction to the Study of Poetry.* (3) I, II. Mr. Jones, Miss Nisbet
155. *Literary Criticism.* (3) I. Mr. Cohen, Mr. Nelson
156. *The Age of Elizabeth.* (3) I, II. Mr. Kinsman, Mr. Phillips, Mr. Dick
158. *The Age of the Stuarts.* (3) I, II. Mr. Miner, Mr. Swedenberg
167. *The Age of Pope and Johnson.* (3) I, II. Mr. Cohen, Mr. Dearing, 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.

* Not to be given, 1958-1959.

196. Libraries and Learning. (2) II.

Mr. Powell

A survey of printing, publishing, bookselling, book collecting, and reading from the viewpoint of their relationship to the development and use of libraries.

197. Proseminar. (3) I, II.

The Staff

Prerequisite: senior standing as an English major and consent of the instructor. Sections limited to twenty students.

Intensive study of a single author, with discussion, oral reports, and the preparation of one or more papers on the subject. 1958-1959: first semester—Faulkner; second semester—Donne.

199. Special Studies in English. (1-3) I, II.

The Staff

Prerequisite: senior standing and consent of the instructor.

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 2, 3; second semester, May 5, 6.

Mr. Longueil in charge

GRADUATE COURSES

200. Bibliography. (3) I, II.

Mr. Dearing, Mr. Dick

201. The Functions of Literary Criticism. (3) I, II.

Mr. Longueil

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, II.

Mr. Dick, Mr. Jorgensen

223A. Jacobean and Caroline Literature. (3) II.

Mr. Swedenberg

223B. Neo-Classicism. (3) I.

Mr. Dearing, Mr. Swedenberg

224. Romanticism. (3) I.

Mr. Griggs, Mr. Longueil

225. Victorianism. (3) I, II.

Miss Nisbet, Mr. Rolfe

226. American Literature. (3) I, II.

Mr. Falk, Mr. Howard, Mr. Nevius

250. Problems in English Linguistics. Seminar. (3) II.

Mr. Matthews, Mr. Stockwell

*252A-252B. History of Literary Criticism. Seminar. (3-3) Yr.

Mr. Griggs

* Not to be given, 1958-1959.

***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) I. 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. Dick, 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. ———
 263B. Trends in Seventeenth-Century Poetry. (3) I. Mr. Swedenberg
 *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. Swedenberg

264A, B, C. Studies in Eighteenth-Century Literature. Seminar.

- *264A. Pope and His Contemporaries. (3) II. Mr. Swedenberg
 *264B. Studies in the English Novel. (3) I. Mr. Jones
 264C. Johnson and His Contemporaries. (3) II.
 Mr. Cohen, 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) I. Mr. Griggs
 265D. Studies in the English Novel. (3) I. Mr. Booth

266A, B. Studies in Contemporary Literature. Seminar.

- 266A. (3) II. Mr. Espey
 *266B. (3) I. Mr. Ewing

* Not to be given, 1958-1959.

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. Nevins

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.

COURSES IN ENGLISH AS A SECOND LANGUAGE

These courses (with the exception of 370K and 370L) are only for students whose first language was other than English. Courses 33A and 33B are not open to those who have received a satisfactory grade in English 1A at the University of California. Permission to enroll in 33A and 33B is given on the basis of the entrance examination which students whose native language is not English must take instead of the Subject A examination (see page 23 C of this bulletin). Depending on the results of this examination, entering students are: (1) required to spend a semester studying elementary English; (2) required to take 33A followed by 33B; (3) required to take 33B; or (4) credited as having met the subject A requirement.

English 33A. Intermediate English for Foreign Students. (4) I, II.
Mr. Buell, Miss Ramras

Intensive drill in pronunciation, structural patterns, vocabulary, conversation, and composition. Meets five hours weekly.

English 33B. Intermediate English for Foreign Students. (4) I, II.
Mr. Buell, Miss Ramras

Continuation of course 33A. Meets five hours weekly.

Speech 103K. Phonetics for Foreign Students. (3) I. Mr. Prator
Prerequisite: consent of the instructor. A detailed and systematic study of the sounds of American English and the way in which they are put together in connected speech, applied to the improvement of the students' own accent and to the training of teachers of English as a second language.

English 106K. Advanced Composition for Foreign Students. (3) II.
Mr. Prator

Prerequisite: course 33B or the equivalent. Exercises in writing based on literature dealing with American life and thought, with the aim of developing control of idiomatic expression.

* Not to be given, 1958-1959.

English 370K. The Teaching of English as a Second Language. (3) I.

Mr. Prator

Prerequisite: an educational background sufficient to qualify the student as a teacher in his home country or in the United States. Bibliography, survey, and evaluation of methods and materials; the nature of language learning; analysis of the differences between two languages as the basis of instruction.

English 370L. Problems in the Teaching of English as a Second Language.

(3) II.

Mr. Prator

Prerequisite: English 370K. The development of plans and materials to meet the various needs of pupils of different language backgrounds in elementary schools, secondary schools, and adult classes. Observation of classes and practice teaching.

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 23 C of this bulletin.

Preparation for the Major.—Speech 1, 2, 3, 4, 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 111 (or 112A); 134, or 135, or 137; 6 units from 106, 107, 109 (or 110); (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 1, 2, 3, 4; (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), 109 (or 110), 111 (or 112A); 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 graduate courses in two major areas of speech.

The minor in speech (with English) for the general secondary credential will consist of the following courses: (1) Speech 1, 2, 3, 4; (2) English 1A-1B; (3) 6 units in speech from one of the following sequences: (a) 106, 107, 109, (b) 111, 112A, 112B, (c) 103, 140, 142A, 142B.

For the field major and the field minor in English (with speech), see page 195.

Requirement for the Credential to Teach Exceptional Children: Speech Correction and Lipreading.

1. For general requirements, see the ANNOUNCEMENT OF THE SCHOOL OF EDUCATION, LOS ANGELES.

2. Specific course requirements:

- (a) The general area of preparation (12 units): Education 116 or Psychology 161; Education 118 or 216A; Speech 140; Education SC376 or MR376.

- (b) Area of specialization—Speech correction and lipreading (16 units): Psychology 162; Speech 103, 142A-142B, 145, 146, 147.

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 70. The department follows Plan II as described on pages 71-72. The Master's Comprehensive Examination is given toward the end of each semester.

2. Departmental requirements: (a) Students are required to take the reading test in French or German in the first year of residence. (b) During the first semester of residence, students must pass a speech proficiency examination in public speaking and oral reading. (c) They must complete the requirements under Plan II as follows: English 200, Section 2; 12 units of graduate courses in speech selected from two speech fields (interpretation, public address, speech correction); 9 units of upper division or graduate courses to complete a 24-unit program (6 of these may be in related courses in other departments selected with the approval of the graduate adviser. (d) They must pass a comprehensive final examination consisting of four written tests of one and one-half hours each, as follows: (1) one examination in general speech; (2) two examinations in one major speech area (public address, interpretation, speech correction); and (3) one examination in a second major speech area. Specific information about these examinations may be secured from departmental advisers.

Requirements for the Doctor's Degree

1. For general requirements, see page 72.

2. Departmental requirements: (a) On entering the department the student will present to the Graduate Committee a written statement of his preparation in French and German. He must take the reading test in one of the languages not later than the first semester of residence, and the test in the other foreign language not later than the third semester of residence. No student will be permitted to take Part II of the Qualifying Examination until the language requirements have been met. (b) During the first semester of residence, the candidate must demonstrate proficiency in public speaking and oral reading (see M.A. requirements above). (c) The Qualifying Examination for the Ph.D. will be given in two parts, each of which consists of oral and written sections. Part I is normally taken after one year of graduate work and Part II at the end of a second year. The written portion of Part I is the same as the comprehensive examination for the master's degree, and students receiving that degree from this University will have completed this requirement. Students transferring here with a master's degree in speech will normally take this written examination at the end of the first semester of residence. Those who show promise of superior scholarship in the written examination will be given a two-hour oral examination by a departmental committee. If they do well in this, they will be encouraged to proceed with further graduate study. (d) In the year following successful completion of Part I of the Qualifying Examination, the candidate will take additional courses in his fields of major and minor interests in speech, and such courses

in other departments as are necessary in preparation for writing his dissertation, after which he will take Part II of the Qualifying Examination and be advanced to candidacy. Of course, this period may be curtailed or extended according to circumstances. Part II will consist of two three-hour written examinations in the major speech area and one three-hour written examination in the minor area. It will also include a two-hour oral examination, before an interdepartmental committee, in the candidate's special field and such areas as are chosen in consultation with the adviser. (e) 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 Speech 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 course or examination validated by the department before he can proceed toward completion of the requirements.

LOWER DIVISION COURSES

1. **Introduction to Speech.** (3) I, II. The Staff
The basic principles and practices of effective oral communication in platform speaking, group discussion, and oral reading.
2. **Elements of Public Speaking.** (3) I, II. The Staff
Prerequisite: course 1.
The principles of effective speech composition in public address.
3. **Basic Voice Training.** (2) I, II. The Staff
Lecture and discussion, 3 hours. Prerequisite: course 1.
Voice physiology, phonetics, and voice drills.
4. **Elementary Interpretation.** (3) I, II. _____
Prerequisite: course 1.
Principles and methods of the oral communication of prose and poetry with understanding and appreciation.

UPPER DIVISION COURSES

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.** (8) I, II. Mr. Andersen
Prerequisite: course 2 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. Cain, Mr. Lewis
Prerequisite: course 2 or consent of the instructor.
Analysis of propositions, tests of evidence, briefing. Study of hindrances to clear thinking, of ambiguity of terms, or prejudice.
109. **Problems of Audience Analysis.** (3) I II. Mr. Lewis, Mr. Lomas
Prerequisite: course 2 or the equivalent.
Theory of audience analysis and adaptation. Preparation and delivery of the occasional speech.

110. **Analysis of Style in Speech Composition.** (3) II.
Prerequisite: course 2 or the equivalent. Mr. Lewis, Mr. Lomas
Preparation and delivery of special forms of public address.
111. **Theories and Techniques of Interpretation.** (3) I, II.
Prerequisite: course 4 or the equivalent. Mr. Hargis, Mr. Vandraegen
A study of the schools, principles, and techniques of oral interpretation.
- 112A-112B. **Oral Interpretation of Literature.** (3-3) Yr.
Prerequisite: course 4 or the equivalent. Mr. Hargis, Mr. Vandraegen
122. **Scientific Bases of Speech.** (3) I. Mr. D'Asaro
Prerequisite: course 3.
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.** (3) I, II. Mrs. Hahn
Required course for special secondary credential in speech correction.
Problems and methods of correcting speech defects.
- 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.
Prerequisite: Speech 142A. Mr. D'Asaro, Mrs. Hahn, Mr. Sheehan
Practice in methods in the Speech Clinic of the Psychological Clinic.
145. **Introduction to Audiology.** (2) I. Mr. Larr
146. **Principles and Methods of Pure Tone and Speech Audiometry.** (2) II.
Mr. Larr
147. **Principles and Techniques of Lipreading.** (2) II. Mr. Larr
- 190A-190B. **Forensics.** (1-1) Yr. Mr. Lewis, Mr. Murray
Prerequisite: consent of the instructor. May be repeated once for credit.
199. **Special Studies.** (1-3) I, II. The Staff
Prerequisite: senior standing and consent of instructor.

* Not to be given, 1958-1959.

GRADUATE COURSES

204. **The Development of Speech in the Child.** (3) I Mrs. Hahn
206. **Backgrounds and Theories of Discussion.** (3) I. Mr. Andersen
207. **Forms and Methods of Argumentation.** (3) II. Mr. Lewis
- 211A, B. **Backgrounds and Theories of Oral Interpretation.**
- 211A. **From Quintilian to Bush.** (3) I. Mr. Vandraegen
- *211B. **From Bush to the Present.** (3) I. Mr. Hargis
- 234A, B. **Classical and Modern Rhetorical Theory.**
- *234A. **Classical Theory.** (3) I. Mr. Cain
- 234B. **Modern Theory.** (3) I. Mr. Phelps
- 240A, B. **Organic Speech Disorders.**
- 240A. **Voice Defects and Cleft Palate.** (3) I. Mrs. Hahn
- 240B. **Cerebral Palsy and Aphasia.** (3) II. Mr. D'Asaro
- 250A, B. **Seminar in Oral Interpretation.**
- 250A. **Theory.** (3) II. Mr. Hargis
- *250B. **Analysis of Materials.** (3) II. Mr. Vandraegen
- 260A, B. **Seminar in the Criticism of Public Address.**
- 260A. **Historical and Social Settings.** (3) II. Mr. Richardson
- *260B. **Historical Criticism.** (3) II. Mr. Lomas
266. **Seminar in Critical Analysis of Discussion.** (3) II. Mr. Andersen
267. **Seminar in Critical Analysis of Argumentation.** (3) II. Mr. Lewis
- 270A, B. **Seminar in Speech Correction.**
- 270A. **Speech Correction.** (3) II. Mrs. Hahn
- *270B. **Speech Therapy.** (3) II. Mrs. Hahn
- *275. **Seminar in Audiology.** (3) II. Mr. Larr
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.

* Not to be given, 1958-1959.

ENTOMOLOGY

(Department Office, 297 Physics-Biology Building)

John N. Belkin, Ph.D., *Professor of Entomology.*

Walter Ebeling, Ph.D., *Professor of Entomology (Vice-Chairman of the Department).*

Leland R. Brown, Ph.D., *Associate Professor of Entomology.*

Roland N. Jefferson, Ph.D., *Associate Professor of Entomology.*

Irwin B. Tarshis, Ph.D., *Assistant Professor of Entomology.*

Completion of the curriculum requires residence during the last two years on the Berkeley or Davis campus. See the BULLETIN OF THE COLLEGE OF AGRICULTURE and consult the appropriate adviser for students in agriculture.

UPPER DIVISION COURSES

- 100. General Entomology. (4) II.** Mr. Belkin
Lecture, two hours; laboratory, six hours. Offered in alternate years.
The classification, life history, structure, and physiology of insects.
- 100C. Entomotaxy. (1) II.** Mr. Belkin
Laboratory, three hours; four or five Saturday field trips. Offered in alternate years.
Prerequisite or concurrent: course 100.
Collection, preservation and preparation of insects for study; rearing methods; identification of local forms.
- *105. Introduction to Structure and Function in Insects. (5) II.** Mr. Belkin
Lecture, two hours; laboratory, nine hours. Offered in alternate years.
Prerequisite: course 100 or equivalent.
Comparative anatomy and physiology of selected insect types; anatomical and histological techniques; general principles of insect physiology.
- 112A. Systematic Entomology. (3) I.** Mr. Belkin
Lecture, three hours. Offered in alternate years.
History and principles of classification; taxonomic categories and procedure; nomenclature, bibliographical methods; museum practices.
- 126. Medical Entomology. (4) I.** Mr. Belkin
Lecture, 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.
- 126C. Laboratory and Field Methods in Medical Entomology. (1) I.** Mr. Belkin
Laboratory, three hours; four or five Saturday field trips.
Prerequisite or concurrent: course 126.
Collection, preservation and preparation of arthropods for study; laboratory and field survey methods; rearing techniques; identification of local forms.
- *134. Insects Affecting Subtropical Fruit Plants. (4) I.** Mr. Ebeling
Lecture, 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.

* Not to be given, 1958-1959.

***144. Insects Affecting Ornamental Plants and Flower Crops. (4) II.**

Mr. Jefferson, Mr. Brown

Lecture, three hours; laboratory, three hours; several field trips. Offered in alternate years.

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.

199. Special Studies. (2-4) I, II.

The Staff

Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES**226. Advanced Medical Entomology. (2) II.**

Mr. Belkin, Mr. Tarshis

Lecture, two hours. Prerequisite: course 126; Zoology 111. Recommended: Course 100, 106; Zoology 110, 115. Offered in alternate years.

Genesis and entomological aspects of arthropod-borne diseases.

226C. Laboratory in Advanced Medical Entomology. (1) II.

Mr. Belkin, Mr. Tarshis

Laboratory, three hours. Prerequisite: course 226 (may be taken concurrently). Offered in alternate years.

Laboratory work to accompany course 226.

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

(Department Office, 357 Physics-Biology Building)

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., *Associate Professor of Floriculture.*Harry C. Kohl, Jr., Ph.D., *Associate Professor of Floriculture.*_____, *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 Soil 101A.

Recommended courses, or the equivalent: Botany 3 or 151; Plant Pathology 140; Agricultural Economics 130; Horticultural Science 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.**UPPER DIVISION COURSES*****121. Taxonomy, Ecology and Management of Turfgrasses. (3) II.**

Mr. Youngner

Lecture, two hours; laboratory, three hours. Prerequisite: Botany 1 or the equivalent.

Taxonomy, identification, adaptation, and breeding of turfgrasses and ground covers. Ecological relationships of grasses and other components of the turfgrass community. Basic principles underlying turfgrass cultural practices, including soil management, nutrition, and water relations.

* Offered in spring, 1960, and alternate years.

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. 131A is not a prerequisite to 131B.

The botanical classification, relationships, and identification of the more important ornamental plants in southern California, with special emphasis on their environmental requirements and adaptations.

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) II. Mr. Kofranek, Mr. Kohl

Lecture, two 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.

****146A. Plant Breeding.** (3) I. Mr. Towner

Lecture, two hours; laboratory, three hours. Prerequisite: Botany 140 or the equivalent.

Application of cytogenetics to the problems and methods of plant breeding, including studies of interspecific hybridization, sterility phenomena, inbreeding acceleration, gene transfer, chromosomal aberrations, and special linkage problems.

****146B. Plant Breeding.** (3) II. Mr. Johnson

Lecture, two hours; laboratory, three hours. Prerequisite: Botany 140 or the equivalent.

Application of biometrical genetics to the problems and methods of plant breeding, including studies of linkage, inbreeding and heterosis, quantitative inheritance, selection in populations, backcrossing and hybridization.

***148. Design and Analysis of Horticultural Experiments.** (3) II.

Lecture, two hours; laboratory, three hours. 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.

199. Special Studies. (2-4) I, II. The Staff

Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

280A-280B. Seminar in Floriculture. (2-2) Yr. The Staff

286A-286B. Research in Ornamental Horticulture. (2-6; 2-6) Yr. The Staff

* Offered in spring, 1960, and alternate years.

** Offered in 1958-1959 and alternate years

FOLKLORE GROUP

Wayland D. Hand, Ph.D., *Professor of German and Folklore.*



- James Richard Andrews, Ph.D., *Assistant Professor of Spanish.*
 Gustave Otto Arlt, Ph.D., *Professor of German.*
 John A. Crow, Ph.D., *Professor of Spanish.*
 Alma Hawkins, Ed.D., *Associate Professor of Physical Education.*
 Mantle Hood, Ph.D., *Assistant Professor of Music.*
 Arden Johnson, M.Ed., *Assistant Supervisor of Physical Education.*
 Claude Jones, Ph.D., *Associate Professor of English.*
 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.*
 Jaan Puhvel, M.A., *Acting Assistant Professor of Classics and Indo-European Linguistics.*
 John Frederic Ross, Ph.D., *Associate Professor of English.*
 Richard C. Rudolph, Ph.D., *Professor of Oriental Languages.*
 Frances Clark Sayers, *Lecturer in English.*
 Carol J. Scothorn, M.A., *Assistant Supervisor of Physical Education.*
 Charles Speroni, Ph.D., *Professor of Italian.*
 Councill Taylor, Ph.D., *Assistant Professor of Anthropology.*
 Erik Wahlgren, Ph.D., *Professor of Scandinavian Languages.*
 Harry F. Williams, Ph.D., *Associate Professor of French.*
 Marion Albert Zeitlin, Ph.D., *Professor of Spanish.*



Charles Seeger, A.B., *Research Associate in Music (Ethnomusicology and Folk Music).*

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, Music 136A or 136B.
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.
199. **Special Studies in Folklore.** (1-3) I, II. The Staff
Prerequisite: senior standing and consent of the instructor.

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, Music 136A or 136B.
- 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. Carrasco, Mr. Taylor
- Anthropology 124. **Comparative Religion.** (3) I, II. Mr. Lessa
- Anthropology 127. **Primitive Art.** (3) II. Mr. Taylor
- Art 119A-119B. **Art of the Americas.** (2) II. Mr. Bloch, Mr. Sheppard
- Classics 178. **Greek and Roman Mythology.** (3) II. Mr. Puhvel
- 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 136A-136B. **Musical Cultures of the World.** (3-3) Yr.
Mr. Hood, Mr. Petran
- Oriental Languages 32. **History of Japanese Civilization.** (2) II.
Mr. Rudolph
- Oriental Languages 42. **History of Chinese Civilization.** (2) I.
Mr. Rudolph
- Physical Education 150. **History of Dance and the Related Arts.** (2) I.
Mrs. Scothorn
- Physical Education 151. **History of Dance.** (3) II. Mrs. Scothorn

* Not to be given, 1958-1959.

- 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, Mr. Andrews

GRADUATE COURSES

- English 221. Medievalism. (3) II. Mr. Matthews
 French 206A-206B. Survey of Medieval Literature. (2-2) Yr.
 Mr. Williams
 German 208. The Sixteenth and Seventeenth Centuries. (3) I. Mr. Arlt
 Music 264A-264B. Seminar in Ethnomusicology (3-3) Yr.
 Mr. Hood, Mr. Kremenliev
 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

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)
 *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)
 Latin 180. A Survey of Latin Literature in English. (3)

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)
 *150. Medieval Great Books. (3)

French 109M-109N. A Survey of French Literature. (3-3)

- 110A-110B. The Novel of the Nineteenth and Twentieth Centuries. (2-2)
 110C. The Drama of the Twentieth Century. (2)
 122A-122B. Medieval Literature in English Translation. (2-2)

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)

* Not to be given, 1958-1959.

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)

Spanish 150A-150B. Spanish and Spanish-American Literature in English Translation. (2-2)

FRENCH

(Department Office, 4303 Humanities Building)

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)*.

Myron Irving Barker, Ph.D., *Associate Professor of French*.

Judd D. Hubert, 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*.

Leland J. Thielemann, Ph.D., *Associate Professor of French*.

Harry F. Williams, Ph.D., *Associate Professor of French*.

Alexander Green Fite, Ph.D., *Associate Professor of French, Emeritus*.

Hassan El Nouty, Docteur ès Lettres, *Assistant Professor of French*.

Neal Oxenhandler, Ph.D., *Assistant Professor of French*.

Marius Ignace Biencourt, Docteur de l'Université de Paris, *Assistant Professor of French, Emeritus*.

Paul Pimsleur, Ph.D., *Instructor in French*.

Rochelle Bernard, Docteur en Droit, *Associate in French*.

Colette Brichant, Docteur de L'Université de Paris, *Associate in French*.

Yvone Lenard, M.A., *Associate in French*.

Madeleine Letessier, A.B., *Associate in French*.

Pierre Mohos, Licencie ès Lettres, *Associate in French*.

Yvette R. Richard, Licencie ès Lettres, *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 5.

Preparation for the Major.—Required: courses 1, 2, 3, and 4 or 25A-25B, or their equivalents.

The Major.—Required: at least 24 units of upper division French, including 101A-101B, 109A-109B, 120A-120B, and at least one other year course in literature. With permission of the department 4 units of the 24 may be satisfied by appropriate upper division courses in the following departments: Classics, English, German, History, Italian, Philosophy or Spanish. Students who fail to maintain a C average or better on all work undertaken in upper division courses in the Department of French, will upon approval of the Dean of the College of Letters and Science, be excluded from the major in French.

Students intending majors in French must consult the major adviser before registering for French courses in the upper division.

Requirements for the Master's Degree

For the general requirements, see page 70. The department favors the

* Not to be given, 1958-1959.

Comprehensive Examination plan. For specific departmental requirements, consult the Department of French.

Requirements for the Ph.D. Degree

For the general requirements, see page 72. The Department of French offers the Ph.D. degree in French or in Romance Languages and Literature.

Requirements for the Ph.D. Degree in French

1. In addition to the general requirements for admission to graduate studies, prospective candidates must have a good command of the French language and literature (equivalent to an undergraduate major).

2. A student will be advanced to candidacy when he has:

- a) Passed the graduate reading examination in German, Latin and Italian or Spanish.
- b) Passed, among others, courses 201, 202, 220, 235, or their equivalents, and at least four one-semester seminars.
- c) Had the subject of his dissertation approved by the department.
- d) Demonstrated through the qualifying examinations and the courses that he possesses:
 - (1) A comprehensive knowledge of the whole body of French literature, including its interrelations with other literatures.
 - (2) A mastery of the field in which he intends to write his dissertation.
 - (3) A knowledge of the linguistics of the French language as well as a mastery of the language itself amounting to the ability to write in that language material suitable for publication and to lecture in it.

3. The third year of graduate study will be devoted primarily to the preparation of the dissertation, a preliminary draft of which must be submitted early in the academic year in which it is to be presented.

For further details consult the Department of French.

Requirements for the Ph.D. Degree in Romance Languages and Literature

See page 147 of the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

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. The Staff
Sections meet five hours weekly.

1G. **Reading Course for Graduate Students.** (No credit) I, II. The Staff

2. **Elementary French.** (4) I, II. The Staff
Sections meet five hours weekly.
Prerequisite: course 1 or two years of high school French.

3. **Intermediate French.** (4) I, II. The Staff
Sections meet five hours weekly.
Prerequisite: course 2 or three years of high school French.

4. **Intermediate French.** (4) I, II. The Staff
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.

The Staff

The class meets two hours weekly. Open to students who have completed course 2 or its equivalent with Grade A or B.

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. Conducted in French.

UPPER DIVISION COURSES

The prerequisite to all upper division courses except those in translation is 16 units of lower division courses, including course 4 with a grade of B or higher, or course 25.

All upper division courses, except where so designated, are conducted mainly in French. Courses 101A-101B and 109A-109B are ordinarily prerequisite to other upper division courses, but unusually well prepared students, or those whose major is not French, may be admitted to any upper division courses by permission of the major adviser and the instructor.

101A-101B. Composition, Oral and Written. (3-3) Yr. Beginning either semester.

Mr. Oxenhandler in charge

107A-107B. French Phonetics. (2-2) Yr.

Mr. Pimsleur

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-109B. A Survey of French Literature from the Middle Ages to the Present. (3-3) Yr. Beginning either semester.

Mr. Oxenhandler, Mr. Nouty

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.

112A-112B. The Nineteenth Century. (2-2) Yr.

Mr. Nouty

114A-114B. Contemporary French Literature. (2-2) Yr.

Mr. Pucciani

The French novel, poetry, and essay since 1885. Symbolism, surrealism, existentialism, as represented by Rimbaud, Mallarmé, Gide, Proust, Apollinaire, Valéry, Malraux, Sartre, and others.

***115A-115B. Modern French Drama. (2-2) Yr.**

Mr. Oxenhandler

A study of the French Theater from the *Théâtre Libre* to the present.

118A-118B. The Renaissance. (2-2) Yr.

Mr. Humiston

Literature and 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.

Mr. Hubert, Mr. Lapp

A study of the development of Classicism through representative works of Corneille, Molière, Racine, Descartes, Pascal, and others.

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.

***124A-124B. French Lyric Poetry from Villon to the Present. (2-2) Yr.**

Mr. Lapp

A course in the history of French poetry: versification, imagery, changing themes and approaches to poetry through the ages.

* Not to be given, 1958-1959.

130A-130B. **Advanced Grammar and Composition.** (3-3) Yr. Mr. Bonno
Prerequisite: course 101A-101B.

This course is required of all candidates for the Certificate of Completion of the teacher training curriculum.

131A-131B. **Advanced Literary Composition.** (3-3) Yr. Mr. Hubert
Prerequisite: course 101A-101B.

A course in the writing of literary French. Advanced syntax, problems of style, creative translation. Required of all candidates for the M.A.

134A-134B. **Survey of French Culture and Institutions.** (3-3) Yr.

Required for the Certificate of Completion. Mrs. Brichant

199. **Special Studies in French.** (1-5) I, II. The Staff

Prerequisite: senior standing and consent of the instructor.

COURSES IN WHICH NO KNOWLEDGE OF FRENCH IS REQUIRED

(May not be taken for major or graduate credit)

109M-109N. **Survey of French Literature.** (3-3) Yr. Beginning either semester.
Mr. Humiston, Mr. Barker

110A-110B. **The Novel of the 19th and 20th Centuries.** (2-2) Yr.
Mr. Barker, Mr. Pucciani

110C. **Contemporary French Theater in English Translation.** (2) I.
Mr. Pucciani

The French theater since Copeau. Readings in Cocteau, Giraudoux, Anouilh, Bernanos, Sartre, Camus, and others.

122A-122B. **Medieval Literature in English Translation.** (2-2) Yr.

A. Epic, Romance, history.

Mr. Barker

B. Drama, lyric and allegorical poetry.

GRADUATE COURSES

Concerning conditions for admission to graduate courses, see page 75 of this bulletin.

201. **History of the French Language.** (3) I, II. Mr. Williams

Phonology, morphology, syntax and lexicography of the French language from its origin to the present.

202. **Old French.** (3) I, II. Mr. Williams

Grammar of medieval northern dialects; intensive reading and translation of representative texts.

206A-206B. **Survey of Medieval Literature.** (2-2) Yr. Mr. Williams

Prerequisite: French 202 or the equivalent.

Religious and profane literature of the Old French periods: Saints' lives, epics, romances, *fabliaux*, lyric poetry, drama.

208A-208B. **The Renaissance.** (2-2) Yr. Mr. Humiston

The development of poetry; prose writers and dramatists; the early Baroque.

212A-212B. **The Age of Enlightenment.** (2-2) Yr. Mr. Thielemann

Main currents and figures of eighteenth-century French literature.

220. **Explication de Textes.** (2) I, II. Mr. Bonno
- 230A-230B. **French Literary Criticism.** (2-2) Yr. Mr. Pucciani
 A. The history of literary criticism from the Renaissance to the present.
 B. A specific problem of literary criticism.
235. **Methods of Literary Research.** (2) I, II. Mr. Crowley
- *250A-250B. **Studies in Medieval French Literature. Seminar.**
 A. Medieval Literature to the 14th Century. (3) I. Mr. Williams
 B. Medieval Literature of the 14th and 15th Centuries. (3) II. Mr. Barker
- 251A-251B-251C-251D. **Studies in the Renaissance.**
 *A. Rabelais. (3) I. Mr. Lapp
 *B. Montaigne. (3) II. Mr. Lapp
 *C. Poetry. (3) I. Mr. Humiston
 *D. Drama. (3) II. Mr. Humiston
- 252A-252B-252C-252D. **Studies in Classicism.**
 A. Classic Tragedy. (3) I. Mr. Lapp
 *B. Classic Comedy. (3) II. Mr. Hubert
 C. Classic Prose. (3) II. Mr. Bonno
 D. Non-Dramatic Poetry. (3) I. Mr. Lapp
- 253A-253B-253C-253D. **Studies in the Enlightenment and Neo-Classicism.**
 A. *The Philosophes: Voltaire.* (3) I. Mr. Crowley
 *B. *The Philosophes: Rousseau.* (3) I. Mr. Thielemann
 *C. *The Philosophes: Diderot.* (3) II. Mr. Thielemann
 D. *Studies in the Drama.* (3) II. Mr. Crowley
- 254A-254B-254C-254D. **Studies in the Nineteenth Century.**
 A. Romantic Prose. (3) I. Mr. Hubert
 *B. Romantic Poetry. (3) I. Mr. Nouty
 *C. Realism and Naturalism. (3) II. Mr. Barker
 D. Theater. (3) II. Mr. Nouty
- 255A-255B-255C. **Studies in Contemporary Literature.**
 *A. The Novel. (3) I. Mr. Pucciani
 B. The Theater. (3) I. Mr. Oxenhandler
 *C. Lyric Poetry. (3) I. Mr. Pucciani
297. **Directed Studies.** (1-6) I, II. The Staff
299. **Research on Theses.** (1-6) I, II. The Staff

PROFESSIONAL COURSE IN METHOD

370. **The Teaching of French.** (3) I, II. 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 (see pages 370 and 145)

- Romance Languages and Literature 203A-203B. **Old Provençal: Reading of Texts.** (2-2) Yr. Mr. Williams
- Latin 220. **Vulgar Latin: Introduction Romance Linguistics.** (3) II. Mr. Puhvel
- Classics 178. **Greek and Roman Mythology.** (3) I. Mr. Puhvel

GEOGRAPHY

(Department Office, 55A Haines Hall)

Henry J. Bruman, Ph.D., *Professor of Geography (Chairman of the Department)*.

Robert M. Glendinning, Ph.D., *Professor of Geography*.

Clifford H. MacFadden, Ph.D., *Professor of Geography*.

Joseph E. Spencer, Ph.D., *Professor of Geography*.

Clifford M. Ziercer, Ph.D., *Professor of Geography*.

Ruth Emily Baugh, Ph.D., *Professor of Geography, Emeritus*.

George McCutchen McBride, Ph.D., *Professor of Geography, Emeritus*.

† Harry P. Bailey, Ph.D., *Associate Professor of Geography*.

John F. Gaines, Ph.D., *Associate Professor of Geography*.

H. Louis Kostanick, Ph.D., *Associate Professor of Geography*.

Richard F. Logan, Ph.D., *Associate Professor of Geography*.

Howard J. Nelson, Ph.D., *Associate Professor of Geography*.

Benjamin E. Thomas, Ph.D., *Associate Professor of Geography*.

Richard E. Dahlberg, M.A., *Acting Assistant Professor of Geography*.

Tom L. McKnight, Ph.D., *Assistant Professor of Geography*.

William D. Pattison, Ph.D., *Assistant Professor of Geography*.

Norman J. W. Thrower, Ph.D., *Acting Assistant Professor of Geography*.

Myrta L. McClellan, M.A., *Assistant Professor of Geography, Emeritus*.

—, *Associate in Geography*.

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 5.

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, 105, 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 106, 113, 118, 119, 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, 122B, 123A, 123B, 124A, 124B, 125, 126, 127, 131; plus four courses from Group III: Geography 101, 105, 106, 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.

† Absent on leave, 1958-1959.

LOWER DIVISION COURSES

1A. Introduction to Geography: Physical Elements. (3) I, II.

Mr. Gaines in charge

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. Spencer in charge

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, Mr. McKnight

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.

Mr. Dahlberg

Lecture, one hour; laboratory, two hours.

Interpretation of maps, charts, and aerial photographs; coverage and quality of world mapping; sources; properties of map projections; interpretation of symbols, terrain characteristics and settlement patterns on foreign and domestic maps.

5A. Economic Geography. (3) I, II.

Mr. McKnight in charge

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.

Mr. Nelson

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. Pattison

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) I, II.

Mr. Logan

Saturdays. 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.

- 105. Introductory Cartography.** (3) I, II. Mr. Dahlberg
 Prerequisite: course 4 and one of the following: 1A-1B, or 5A-5B, or 100, or consent of the instructor.

Survey of the field of cartography. Includes theory and construction of map projections, compilation procedures, principles of generalization and symbolization, cartographic drafting and lettering techniques, and map reproduction methods.

- 106. Intermediate Cartography.** (3) II. Mr. Thrower

Prerequisite: course 4 and 105, or consent of the instructor.

Examination of principles of map design and their relationship to representation and reproduction methods. Theory and practice of quantitative mapping, graphics, and lettering.

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. Gaines 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 occupancy, 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.

* Not to be given, 1958-1959.

- 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, Mr. Nelson
 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, Mr. McKnight
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. Mr. Pattison
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. Bruman, Mr. Spencer
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.
- 199. Special Studies.** (1-4) I, II. The Staff
Prerequisites: senior standing and consent of the instructor.

GRADUATE COURSES‡

- 205. Advanced Cartography.** (3) II. Mr. Thrower
Prerequisite: course 105 or the equivalent, and consent of the instructor.
Advanced work in cartographic methodology, including terrain representation, symbolization, color, and reproduction. Laboratory work in advanced construction techniques.

‡ Requirements for the master's degree in geography may be met by either Plan I or Plan II. Attendance at a recognized summer field camp is required for the master's degree.

Plan I, required of those preparing for advanced professional positions, must include at least three courses (one from each of three of the following groups): 250; 255, 256, 257, 258, 259 or 273; 261 or 262; 270, 271 or 272; 275; 205, 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 four of the above groups); and a comprehensive examination.

The general requirements for the Ph.D. degree in geography are described on page 72 of this bulletin.

250. **The Growth of Geographic Thought. Seminar. (3) I.** Mr. Spencer
Prerequisite: consent of the instructor.
Normally the first seminar 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. Nelson
Prerequisite: consent of the instructor.
The topic for 1959 will be concerned with some aspect of urban geography.
273. **Seminar in Selected Regions. (3) I.** Mr. Thomas
Prerequisite: course 127, and consent of instructor.
The region to be considered for 1958 will be Africa.
275. **Advanced Field Problems in Local Geography. (6)** Mr. Logan
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.
280. **Geographic Writing—Research Techniques and Reports. (3) I.** Mr. Gaines
Prerequisite: consent of the instructor.
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.

* Not to be given, 1958-1959.

GEOLOGY

(Department Office, 3611 Geology Building)

- Daniel I. Axelrod, Ph.D., *Professor of Geology.*
 †Cordell Durrell, Ph.D., *Professor of Geology.*
 U. S. Grant, Ph.D., *Professor of Geology.*
 Willis P. Popenoe, Ph.D., *Professor of Geology.*
 §Joseph Murdoch, Ph.D., *Professor of Geology, Emeritus.*
 *William C. Putnam, Ph.D., *Professor of Geology.*
 George Tunell, Ph.D., *Professor of Geology.*
 Kenneth D. Watson, Ph.D., *Professor of Geology.*
 William John Miller, Ph.D., Sc.D., *Professor of Geology, Emeritus.*
 Donald Carlisle, Ph.D., *Associate Professor of Geology.*
 John C. Crowell, Ph.D., *Associate Professor of Geology (Chairman of the Department).*
 Clemens A. Nelson, Ph.D., *Associate Professor of Geology.*
 John M. Christie, Ph.D., *Assistant Professor of Geology.*
 Clarence A. Hall, Jr., Ph.D., *Assistant Professor of Geology.*
 N. Gary Lane, M.A., *Acting Assistant Professor of Geology*
 John L. Rosenfeld, Ph.D., *Assistant Professor of Geology.*
 Edward L. Winterer, Ph.D., *Assistant Professor of Geology.*
 Alexander Stoyanow, Ph.D., *Research Associate in Geology.*
 †Ronald L. Shreve, Ph.D., *Acting Instructor in Geology and Geophysics.*
 *Ted L. Bear, A.B., *Lecturer in Petroleum Geology.*
 Gordon R. Gastil, Ph.D., *Lecturer in Geology.*
 *Helen Tappan Loeblich, Ph.D., *Lecturer 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.*
 Leon Knopoff, Ph.D., *Associate 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 5.

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, 102C, 103, 107, 116 and 118A-118B or 199 (6 units), and Paleontology 111. Each major program must be approved by the department.

At the end of the senior year each student must take a comprehensive final examination.

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.

Students interested in mining geology may take such courses as mineral exploration, mineral economics, mineral exploitation, and mineral dressing at Berkeley.

† Absent on leave, 1958-1959.

§ Recalled to active service, 1958-1959.

* In residence fall semester only, 1958-1959.

* In residence spring semester only, 1958-1959.

GEOPHYSICS

For the interdepartmental curriculum in geophysics, see page 12.

GEOLOGY**LOWER DIVISION COURSES**

- 2. General Geology—Physical.** (3) I, II. 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. Lane
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. Gastil
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.** (3-3) Yr. The Staff
Lecture, one hour; field work Tuesdays or Saturdays all day. Prerequisite: course 3; Engineering 1A; 103 (may be taken concurrently with 102A); 102C (must be taken concurrently); English 106S (may be taken concurrently); 102A prerequisite to 102B.
Principles and methods of geologic mapping.
- 102C. Geologic Problems.** (1) I. The Staff
Laboratory, three hours. Prerequisite: course 102A must be taken concurrently.
Application of descriptive geometry and trigonometry to geologic problems; interpretation of geologic maps and air photographs; preparation of geologic illustrations.
- 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.
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. Christie
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. Solution of structural problems.
- 117. Geomorphology. (3) II.** 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 102B.
A survey of geologic, paleontologic, biologic, and climatic principles applicable to stratigraphy, and their bearing on paleogeography.
- 199. Special Studies in Geology. (1 to 5) I, II.** The Staff (Mr. Nelson in charge)
Prerequisite: senior standing and consent of the department chairman.

GRADUATE COURSES

- *214A-214B. Advanced Petrographic Laboratory. (2-5; 2-5) Yr.** Mr. Rosenfeld, 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. Rosenfeld, Mr. Watson
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. Winterer
Prerequisite: course 158.

* Not to be given, 1958-1959.

- 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
Occasional field trips during the course. Prerequisite: course 110. The second semester of this course may be taken without the first.
- 299. Research in Geology. (1 to 6) I, II.**
The Staff (Mr. Nelson 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. Rosenfeld
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. Watson
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 or consent of the instructor.
A survey of the principles governing the evolution and distribution of fossils.
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. Mrs. Loeblich
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. Hall
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.
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. The Staff

* Not to be given, 1958-1959.

GEOPHYSICS

UPPER DIVISION COURSE

- 122. Geophysical Prospecting. (3) II.** Mr. Slichter, Mr. Knopoff
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
Seismology, geophysical prospecting, electromagnetic prospecting. Selected topics in earth physics. The content will vary from year to year.
- 253. Seminar in Geochemistry. (3) I.** Mr. Kennedy
Consideration of phase equilibria with particular attention to the origin of igneous and metamorphic rocks.
- 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
This course will include studies relative to exploration geophysics and experimental work in the electromagnetic model laboratory; research relative to gravity-surveying and to gravity earthtides (Mr. Slichter); theoretical and experimental studies relative to seismology and geophysics (Mr. Knopoff); tectonophysics and properties of matter at high pressure (Mr. Griggs); atmospheric electrical phenomena (Mr. Holzer); meteorological problems (Mr. Palmer).

GERMANIC LANGUAGES

(Department Office, 310 Royce Hall)

- Gustave Otto Arlt, Ph.D., *Professor of German.*
¹Alfred 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 Languages.*
 Frank H. Reinsch, Ph.D., *Professor of German, Emeritus.*
 Carl William Hagge, Ph.D., *Associate Professor of German.*
 Robert R. Heitner, 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.*
 Charles W. Hoffmann, Ph.D., *Assistant Professor of German.*
 Lee B. Jennings, Ph.D., *Assistant Professor of German.*
 William F. Roertgen, Ph.D., *Assistant Professor of German.*
 Terence Harrison Wilbur, Ph.D., *Assistant Professor of German.*
 Franz H. Bäuml, Ph.D., *Instructor in German.*

¹ In residence fall semester only, 1958-1959.

Stephanie Lombardi, Ph.D., *Associate in German.*
Edith A. Schulz, M.A., *Associate in German.*



William Melnitz, Ph.D., *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 5.

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, 107, 118A, 118B, and one course from each of the following groups: (1) 105, 108, 119; (2) 109A, 109B; (3) 104A, 104B, 110, 111; (4) 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 70. 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 72. 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

* Not to be given, 1958-1959.

- 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.
- ‡**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.** (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.
Selected readings from nineteenth-century authors. Mr. Robinson
- 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.
106A. Emphasis on composition. Mr. Roertgen
106B. Emphasis on conversation.
- 106C-106D. Grammar, Composition, and Conversation.** (2-2) Yr.
Prerequisite: course 106A-106B. Mr. Roertgen

‡ 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.

107. **Phonetics of the German Language.** (2) I. Mr. Wilbur
Lecture, two hours; laboratory, one hour.
Study of the articulatory basis of the sounds of German and practice in standard pronunciation.
108. **Schiller's Life and Works.** (3) II. Mr. Heitner
Lectures and reading of selected texts.
- 109A. **Introduction to Goethe: The Young Goethe.** (3) I. Mr. Hagge
Intensive study of a selection of Goethe's lyrics to 1786 and of *Götz, Werther, Urfaust*, and *Egmont*. Lectures on the literary background of the Storm and Stress Movement.
- 109B. **Introduction to Goethe: The Classical Goethe.** (3) II. Mr. Hagge
Intensive study of a selection of Goethe's lyrics from 1786 to 1832 and of *Iphigenie, Tasso, Hermann und Dorothea*, and *Novelle*. Lectures on the literary background of the Classical Movement.
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. Jennings
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.
Prose and poetry.
- 114B. **German Literature from 1875 to the Present.** (3) II. Mr. Hoffmann
Prerequisite: 6 units of upper division German or consent of the instructor.
Dramatic literature.
117. **History of the German Language.** (3) II. Mr. Wilbur
Prerequisite: course 106A-106B, 107, 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. Bäuml
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.
199. *Special Studies*. (1-5) I, II. The Staff
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

201. *Bibliography and Methods of Literary History*. (2) I. Mr. Arlt
Required for the M.A. and Ph.D. degrees.
- *208. *The Sixteenth and Seventeenth Centuries*. (3) I. Mr. Sobel
210. *The Age of Goethe*. (3) I. Mr. Hagge
212. *Nineteenth-Century Narrative and Poetry*. (3) II. Mr. Jennings
213. *The Enlightenment and Pre-Romanticism*. (3) II. Mr. Heitner
225. *Nineteenth-Century Drama*. (3) I. Mr. Robinson
- *226. *Naturalism*. (3) II. ———
- *228. *German Literature after 1890*. (3) II. 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. Mr. Bäuml
Prerequisite: course 119 or the equivalent.
Required for the M.A. degree.
251. *Seminar on the Age of Goethe*. (3) II. Mr. Hagge
- *253. *Seminar in Nineteenth-Century Literature*. (3) I. ———
- *254. *Seminar in the Enlightenment and Pre-Romanticism*. (3) I. Mr. Heitner
256. *Seminar in Literature after 1875*. (3) I. Mr. Oswald
- *257. *Seminar in Sixteenth- and Seventeenth-Century Literature*. (3) II. Mr. Arlt
Prerequisite: course 208.
- *259. *Seminar in Germanic Linguistics*. (1 to 3) II. Mr. Dolch
Prerequisite: course 230 and one dialect or the equivalent.
- 298A-298B. *Special Studies*. (1-6; 1-6) Yr. The Staff

* Not to be given, 1958-1959.

PROFESSIONAL COURSE IN METHOD

***370. The Teaching of German. (3) I.**

Prerequisite: graduate standing in the Department of Germanic Languages. Recommended for all candidates for the general secondary credential in German. To be taken concurrently with Education 370.

SCANDINAVIAN LANGUAGES

LOWER DIVISION COURSES

- | | |
|---|--------------|
| 1. Elementary Swedish. (4) I. | Mr. Wahlgren |
| 2. Intermediate Swedish. (4) II.
Prerequisite: course 1 or the equivalent. | Mr. Wahlgren |
| *11. Elementary Danish and Norwegian. (4) I. | Mr. Wahlgren |
| *12. Intermediate Danish and Norwegian. (4) II.
Prerequisite: course 11 or the equivalent. | Mr. Wahlgren |

UPPER DIVISION COURSES

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|---|--------------|
| 141A. Scandinavian Literature in English Translation. (2) I.
No prerequisite; open to all upper division students.
From earliest times to 1750. | Mr. Wahlgren |
| 141B. Scandinavian Literature in English Translation. (2) II.
No prerequisite; open to all upper division students.
From 1750 to the present. | Mr. Wahlgren |

GRADUATE COURSES

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|--|--------------|
| 243. Old Icelandic. (3) I. | Mr. Wahlgren |
| 244. Old Norse-Icelandic Prose and Poetry. (2) II. | Mr. Wahlgren |

GREEK

For courses in Greek, see under Department of Classics.

HEBREW

For courses in Hebrew, see under Department of Classics.

HISTORY

(Department Office, 264 Haines Hall)

Eugene N. Anderson, 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.*
 John S. Galbraith, Ph.D., *Professor of History.*
 Gustave E. von Grunebaum, Ph.D., *Professor of History.*
 Yu-Shan Han, Ph.D., *Professor of History.*
 Clinton N. Howard, Ph.D., *Professor of History.*

* Not to be given, 1958-1959.

- ¹Roland D. Hussey, Ph.D., *Professor of History.*
²George E. Mowry, Ph.D., *Professor of History.*
 Theodore Saloutos, Ph.D., *Professor of History.*
¹Lynn T. White, Ph.D., *Professor of History.*
 David K. Bjork, Ph.D., *Professor of History, Emeritus.*
 Frank J. Klingberg, Ph.D., *Professor of History, Emeritus.*
 Waldemar Westergaard, Ph.D., *Professor of History, Emeritus.*
 Marie Boas, Ph.D., *Associate Professor of History.*
 Robert N. Burr, Ph.D., *Associate Professor of History.*
 Raymond H. Fisher, 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.*
 Robert Wilson, Ph.D., *Associate Professor of History (Acting Chairman of the Department).*
 Mortimer H. Chambers, Jr., Ph.D., *Assistant Professor of History.*
 Mark H. Curtis, Ph.D., *Assistant Professor of History.*
 William R. Hitchcock, Ph.D., *Assistant Professor of History.*
 Harold M. Hyman, Ph.D., *Assistant Professor of History.*
¹Donald B. Meyer, Ph.D., *Assistant Professor of History.*
 Bradford Perkins, Ph.D., *Assistant Professor of History.*
 Trygve R. Tholfsen, Ph.D., *Assistant Professor of History.*
 Eugen J. Weber, M.A., *Assistant Professor of History.*
 Robert W. Winter, Ph.D., *Assistant Professor of History.*
 ———, *Assistant Professor of History.*
 ———, *Assistant Professor of History.*
 Stanley Wolpert, A.M., *Acting Instructor in History.*
 Lucy M. Gaines, M.A., *Assistant Professor of History, Emeritus.*

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 5.

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: 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 stu-

¹ In residence fall semester only, 1958-1959.

² In residence spring semester only, 1958-1959.

dent'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.

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.

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.

Lecture, three hours; quiz, one hour. Mr. Meyer, Mr. Smith

A 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. Saloutos, Mr. Perkins

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, 1958-1959.

† Credit will not be given for both 6A and 7A or for both 6B and 7B.

101. Main Currents in American History. (2) I, II. Mr. Meyer, 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, Mr. Chambers

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, Mr. Chambers

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) _____

117A-117B. History of Ancient Egypt. (3-3) Yr. _____

117A. From early dynastic times to the end of the New Kingdom (ca. 3000 B.C. to 1000 B.C.). The rise of Pharaonic Egypt from tribal beginnings to leading power in the ancient Near East; its peaks of achievement in the Old, Middle, and New Kingdoms.

117B. From the end of the New Kingdom to the Arab conquest (1000 B.C. to 640 A.D.). Break-up of the homogeneous Pharaonic civilization; foreign invasions and occupations (Ethiopian, Assyrian, and Persian); Alexander the Great and the Hellenization of Egypt; the Graeco-Roman period bilingual culture; the rise of the Coptic church; Egypt under Byzantine rule.

121A. The Early Middle Ages. (3) I. Mr. White

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. White

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.

125A-125B. History of Science. (3-3) Yr. Miss Boas

Scientists and scientific thought in relationship to societies from Aristotle to the present.

126. History of Cosmological Thought. (3) I. Miss Boas

Discussion, based on a reading of the sources, of selected scientific cosmological ideas from Aristotle to the present.

* Not to be given, 1958-1959.

- 127. Science and Thought in the Nineteenth Century.** (3) II. Miss Boas
The impact, influence, and conflict of scientific discoveries and upon the ideas of the nineteenth century.
- 130. History of South Africa.** (3) II. 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. Mr. Grunebaum
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. Mr. Grunebaum
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. Mr. Grunebaum
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.
- 137. The Near East in the Nineteenth and Twentieth Centuries.** (3) I. Mr. Grunebaum
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.
- 138A-138B. Jewish History.** (2-2) Yr. Mr. Greenfield
Jewish history from Biblical times to our period.
- *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. Anderson
A general survey of European history, 1500-1914.
- 141A-141B. Europe in Transition, 1450-1610.** (3-3) Yr. Mr. Hitchcock
141A. The Renaissance.
141B. The Reformation.
- *141C. Europe in the Seventeenth Century, 1610-1715.** (3) I. Mr. Lossky
(Former number, 142.)
European culture, institutions, and politics in the seventeenth century.
- *141D. Europe in the Eighteenth Century.** (3) II. Mr. Lossky
(Former number, 143.)
European culture, institutions, and politics from the death of Louis XIV to 1789.

* Not to be given. 1958-1959.

* Courses 141C through 148 have been renumbered. Courses taken for credit under old number may not be repeated under new number.

- 141E. Europe, 1789-1815: The French Revolution and the Napoleonic Empire. (3) I. Mr. Weber
The First Republic and the First Empire: their origins, rise, decline, and fall; their effects in France and Europe.
- 141F. Europe, 1815-1870. (3) I. Mr. King
(Former number, 144.)
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.
- 141G. Europe, 1870-1914. (3) II. Mr. King, Mr. Hitchcock
(Former number, 145.)
The history of Europe from end of the Franco-Prussian War to eve of First World War. A survey covering internal conditions of major European countries, nationalism, neo-imperialism, the rise of socialism, spread of industrial revolution, and diplomatic background of First World War.
- 141H. Europe Since 1914. (3) II. Mr. King
(Former number, 147.)
Political, economic, and cultural developments since the outbreak of the First World War.
- 142A-142B. European Diplomacy and Imperialism. (3-3) Yr. Mr. Hitchcock
(Former number, 148A-148B.)
A study of European international rivalries primarily in the nineteenth and twentieth centuries.
- 142C. Social History of Europe in the Nineteenth Century. (3) I. Mr. Anderson
(Former number, 148C.)
Impact of the rise of industrialism upon the social structure and ideals of Europe; the conflict between the new social forces and those of the Old Regime; emphasis upon the nineteenth century.
- 142D. Social History of Europe in the Twentieth Century. (3) II. Mr. Anderson
(Former number, 148D.)
Impact of war, revolution and the continued expansion of industrialism and of knowledge upon the structure, relations and ideals of the social groups.
- 142E-142F. Cultural and Intellectual History of Europe in Nineteenth and Twentieth Centuries. (3-3) Yr. Mr. Weber
Climates of taste and climates of opinion. The art, thought, and manners of the time in an historical context.
- 143A. France from 1500 to 1789. (3) I. Mr. Lossky
The ancien regime in France from the end of the fifteenth century to its dissolution in the eighteenth century: its institutions, society, and culture.
- 143D. France Since the Founding of the Third Republic. (3) I. Mr. King
(Former number, 149C.)
An intensive study of modern France, emphasizing the nation's search for political and economic stability and for military security in the twentieth century. Recommended preparation: course 1A-1B.

* Courses 141C through 148 have been renumbered. Courses taken for credit under old number may not be repeated under new number.

- *144A. Germany, 1496 to 1806. (3) I.** Mr. Hitchcock, Mr. Anderson
The Holy Roman Empire from the Renaissance to the French revolutionary era. Rise of the German territorial states, especially Prussia. Institutional and cultural developments. Background and origins of modern German nationalism.
- *144B. Germany Since 1806. (3) II.** Mr. Anderson
A political economic, social and cultural analysis of the period of national unification, the Bismarckian Reich, the reign of William II, and the wars and revolutions of the twentieth century.
- *145. The Netherlands in European Affairs, 1555-1830. (3) II.** Mr. Lossky
Emphasis will be on the republican institutions of the Dutch and on the leading role of the Dutch in international affairs, maritime ventures, and the cultural and economic life of Europe, especially in the seventeenth century.
- *146A-146B. History of Russia. (3-3) Yr.** Mr. Fisher
(Former number, 149A-149B.)
146A. History of Russia to 1801. Political, economic, and social developments and the foreign relations of Russia in the Kievan, Muscovite, and imperial periods.
146B. History of Russia, 1801-1917. The agrarian problem, the great reforms, the radical movement, the revolution of 1905; Russia in international politics, especially the Near Eastern question.
- *146C. The Soviet Union. (3) II.** Mr. Fisher
Internal developments and foreign affairs of the Soviet Union from the revolutions of 1917 to the present.
- *148. History of Spain and Portugal. (3) I.** Mr. Hussey
(Former number, 161.)
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.
- 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.
- *152. Constitutional History of England. (3) II.** Mr. Howard
Prerequisite: course 5A-5B or consent of the instructor.
A study of the institutions, social and political forces, and ideas which contributed to the development of the British constitution, especially during the formative period before the Glorious Revolution.
- 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.

* Not to be given, 1958-1959.

* Courses 141C through 148 have been renumbered. Courses taken for credit under old number may not be repeated under new number.

- 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.
- 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) I.** 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
- 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 Díaz.
- 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.

173A. 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.

173H. The United States, 1875-1900. (3) II.

Mr. Hyman

American political, social, and institutional history in a period of great change. Emphasis on the altering concepts of the role of government and the responses to that alteration.

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 13.

A study of the changes in agriculture, industry, labor, banking, transportation, and commerce in a capitalist society, and of some of the prominent personalities who made these changes possible.

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. (3-3) 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, Mr. Wolpert
 China and Japan from the earliest times to the beginning of Westernization.
- 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. Wolpert
 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. White
 Study of the auxiliary sciences. A senior course.

* Not to be given, 1958-1959.

- 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 coordinator for registration in this course. Section 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. White |
| 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 |
| Section 8. Recent United States History. | Mr. Meyer |
| Section 9. Hispanic-American History. | Mr. Burr |
| Section 10. Pacific Coast History. | Mr. Caughey |
| Section 11. The British Empire. | Mr. Galbraith, Mr. Wolpert |
| Section 12. The Far East. | 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.
- 215A-215B. Westernization in the Arabic Speaking World.** (2-2) Yr.
 Prerequisite: History 134A-134B or equivalent. Mr. von Grunebaum
 Impact of the West on the Arabic speaking world including North Africa since 1800 A.D. and the reactions of the various sections of the Arab world, especially in their religious, social, and cultural aspects.
- 251A-251B. Seminar in Ancient History.** (3-3) Yr. Mr. Brown
- 254A-254B. Seminar in Medieval History.** (3-3) Yr. Mr. White
- 255A-255B. Seminar in the History of Science.** (3-3) Yr. Miss Boas
 Studies in the history of science.
- 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. —

* Not to be given, 1958-1959.

- 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 Modern European History. (3-3) Yr.** Mr. Anderson
Studies in European political and cultural history of the nineteenth and twentieth 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.** Mr. Hussey
Studies in the colonial and early national periods.
- 268A-268B. Seminar in Near Eastern History. (3-3) Yr.** Mr. Grunebaum
Studies in the history of the Near East.
- 269A-269B. Seminar in United States History. (3-3)** Mr. Smith
Studies in the colonial period.
- 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 examination for the doctor's degree.
- 298. Directed Study and Readings for Master's Degree Candidates. (1-3)**
I, II. The Staff

* Not to be given, 1958-1959.

HOME ECONOMICS

(Department Office, 1209 Home Economics Building)

- Gladys A. Emerson, Ph.D., *Professor of Home Economics and Nutrition (Chairman of the Department)*.
 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*.
 Frances Obst, Ed.D., *Associate Professor of Home Economics*.
 Greta Gray, Ph.D., *Associate Professor of Home Economics, Emeritus*.
 Marguerite G. Mallon, Ph.D., *Associate Professor of Home Economics, Emeritus*.
 Ada Marie Campbell, Ph.D., *Assistant Professor of Home Economics*.
 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*.
 Edward L. Rada, Ph.D., *Assistant Professor of Family and Consumer Economics*.
 Edith M. Carlisle, Ph.D., *Acting Assistant Professor of Home Economics*.
 Elizabeth Crowe, M.S., *Associate in Home Economics*.
 Myrtle Loehr, M.S., *Associate in Home Economics*.
 Stefania Przeworska Holt, *Lecturer 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*.
 Phyllis R. Rowe, M.S., *Associate in Home Economics*.
 Sondra Scheuer, M.S., *Associate 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, nursery school work, and business. (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 or 157, 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 1, 2, or English 1A and Speech 1; Psychology 1A-1B; Zoology 15.

The Major.—Courses 102, 113 (4 units), 134, 135, 138, 144, 145, 146, 155 or 157, 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 1, 2; Psychology 1A-1B; Zoology 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; Zoology 15. Recommended: Mathematics D.

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, 136, Education 114, Public Health 162, Statistics 131A to total 36 units.

5. Clothing, Textiles, and Related Arts.

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 or 157, 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 45.

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 5.

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.

Lecture, one hour; laboratory, six hours. Miss Crowe, Miss Miller

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. Fizzle

A study of the activities of the family and the functions of the homemaker

* Upper division major credit for Chemistry 5A allowed only if course is taken in upper division.

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, Mrs. Rowe
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 Campbell, 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
Lecture one hour; laboratory, six hours. 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) II. Mrs. McGucken
Lecture, one hour; laboratory, two hours; additional field work. Prerequisite: 111 or equivalent and consent of the instructor.

* Not to be given, 1958-1959.

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. Mrs. Carlisle
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. Mrs. Carlisle
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, II. Mrs. McGucken, Mrs. Schener
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) I, II. Mrs. McGucken, Mrs. Schener
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. Fitzelle
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 of 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: course 11; prerequisite or concurrent: course 145.

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.

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.

* Not to be given, 1958-1959.

- 157. Home Furnishings Workshop.** (2) I, II. Mrs. Petersen
 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. Mrs. Rowe
 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, II. Mrs. Rowe
 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. Mrs. Rowe
 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-171B. History and Design of Headwear.** (2-2) Yr. Mrs. Holt
 Lecture, one hour; laboratory, three hours. Prerequisite: course 16.
 The development and design of head covering as part of apparel design. Study of construction of the modern hat.
- 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, Miss Corey
 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. 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) I, 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

199. Special Studies in Home Economics. (1-3) I, II.

The Staff

Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

227. Physical Analysis of Textiles. (3) I.

Mrs. Rowe

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.

228. Chemical Analysis of Textiles. (3) II.

Mrs. Rowe

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. Fitzelle

A critical discussion of research literature concerning the problems of modern family living.

251. Seminar in Nutrition. (2) I.

Miss Swendsid

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) 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.** _____
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.

HORTICULTURAL SCIENCE

(Department Office, 156 Physics-Biology Building)

- 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; Horticultural Science 2. Recommended courses, or their equivalent: Plant Pathology 130; Irrigation and Soil Science 101A; Entomology 134.

The Major.—Twelve units of upper division courses in the major, which should normally include Horticultural Science 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.

* Not to be given, 1958-1959.

UPPER DIVISION COURSES

- 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. (3) II.** Mr. Ryan
Lecture, one hour; laboratory, six hours. Prerequisite: Botany 1 or the equivalent. Recommended: Botany 6 and 107 (may be taken concurrently).
Principles and practices in plant propagation.
- *111. Plant Metabolism. (2) I.** Mr. Biale
Lecture-discussion, two hours. Prerequisite: Chemistry 8 or the equivalent.
Biochemical approach to major plant processes; metabolic pathways; formation and utilization of energy; composition and enzymatic reactions of cellular constituents.
- *113. Fruit Physiology and Storage Problems. (2) I.** Mr. Biale
Lecture and discussion, 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) I.** 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.
- 199. Special Studies. (2-4) I, II.** The Staff
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 240. Horticultural Experimentation. (3) II.** Mr. Cameron, Mr. Shannon
Lecture and discussion, three hours. Prerequisite: graduate standing and consent of the instructor.
A critical review and analysis of horticultural research in selected fields.
- 255A-255B. Seminar in Horticultural Science. (2-2) Yr.** The Staff
- 281A-281B. Research in Subtropical Horticulture. (2-6; 2-6) Yr.**
The Staff

* Not to be given, 1958-1959.

HORTICULTURE

For courses in horticulture, see under Floriculture and Ornamental Horticulture, page 209, and Horticultural Science, page 254.

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 5.

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. (3-3)

INFECTIOUS DISEASES

A Department of the School of Medicine

(Department Office, 33-241 Medical Center)

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 5.

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 SOIL SCIENCE

(Department Office, 97 Physics-Biology Building)

David Appleman, Ph.D., *Professor of Plant Nutrition.*

Martin R. Huberty, Engr., *Professor of Irrigation.*

Arthur F. Pillsbury, Engr., *Professor of Irrigation (Chairman of the Department).*

Owen R. Lunt, Ph.D., *Associate Professor of Soil Science.*

Johann J. Oertli, Ph.D., *Assistant Professor of Soil Science.*

Completion of the curriculum in irrigation science is possible only on the Davis campus and for the soil science curriculum only on the Berkeley and Davis campuses. See the BULLETIN OF THE COLLEGE OF AGRICULTURE and consult the appropriate advisers.

UPPER DIVISION COURSES

101A-101B. Introduction to Water and Soil. (3-3) Yr.

Mr. Appleman, Mr. Lunt, Mr. Pillsbury

Lecture, two hours; laboratory, three hours. Prerequisite: introductory college chemistry, physics. Course 101A is prerequisite to 101B.

Introduction to water and soil management, including soil morphology, soil physics, soil chemistry, soil-plant-water relations, irrigation practices and design, and reclamation.

*102. Soil Management. (3) I.

Mr. Huberty, Mr. Lunt

Lecture, three hours. Prerequisite: course 101A-101B and Bacteriology 1. Relationships of soil management and conservation practices to the physical, chemical, and microbiological properties of soils.

*108. The Soil as a Natural Resource. (3) I.

Mr. Huberty

Lecture, three hours. Prerequisite: Chemistry 1A or 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. Offered in alternate years.

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.

199. Special Studies. (2-4) I, II.

The Staff

Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSE

280A-280B. Research in Irrigation and Soils. (2-6; 2-6) Yr.

The Staff (Mr. Huberty in charge)

ITALIAN

(Department Office, 342 Royce Hall)

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.*Dante Della Terza, Dottore in Lettere, *Assistant Professor of Italian.*Anna Brahm, Dottore in Lingue Straniere, *Associate 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 5.

* Not to be given, 1958-1959.

Preparation for the Major.—Italian 1, 2, 3, 4, 102A–102B, or the equivalent to be tested by examination; Latin 1 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 70. 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.

Requirements for the Ph.D. Degree.—For the general requirements, see page 72. For specific requirements, see the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION, *The Degree of Doctor of Philosophy in Romance Language and Literature.*

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. Mrs. Brahm in charge
Prerequisite: course 1 or two years of high school Italian.
3. **Intermediate Italian.** (4) I, II. Mrs. Brahm
Prerequisite: course 2 or three years of high school Italian.
4. **Intermediate Italian—Continued.** (4) I, II. Mrs. Soli
Prerequisite: course 3 or four years of high school Italian.
- 8A–8B–8C. **Italian Conversation.** (1–1–1) Yr. Mrs. Brahm, 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.

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 102A–102B, 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.

* Not to be given, 1958–1959.

- 101A-101B. **Composition, Oral and Written.** (3-3) Yr. Mr. Della Terza
- 102A-102B. **Italian Culture and Institutions.** (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.
- *103A-103B. **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.
Prerequisite: course 101A-101B. Mr. Della Terza
152. **Italian Literature in English Translation.** (3) I. Mr. Pasinetti
Master works of Italian literature from Dante to the present.
199. **Special Studies in Italian.** (1-3) I, II. The Staff
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

200. **Bibliography and Methods of Literary Research.** (3) I, II. Mr. Golino
- *222A-222B. **The Renaissance.** (3-3) Yr. Mr. Speroni
225. **The Italian Epic: Ariosto and Tasso.** (3) II. Mr. Speroni
228. **Studies in Eighteenth-Century Italian Literature.** (3) I. Mr. Pasinetti
- *230A-230B. **Modern Italian Literature.** (2-2) Yr. Mr. Pasinetti
- 240A-240B. **Italian Philology.** (2-2) Yr. Mr. Della Terza
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

(Department Office, 11 Building 1H)

- 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.*

* Not to be given, 1958-1959.

** In residence spring semester only, 1958-1959.

- Frederick Clayton, M.A., *Lecturer in Journalism.*
 Darsie L. Darsie, *Lecturer in Journalism.*
 Frank P. Haven, *Lecturer in Journalism.*
 Charles Katzman, M.S., *Lecturer in Journalism.*
 Lewis Rex Miller, M.A., *Lecturer in Journalism (Acting Chairman of the Department, Fall Semester).*
 William J. Stout, *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.—All undergraduate courses in Journalism are included in the Letters and Science List of Courses. For regulations governing this list, see page 5.

LOWER DIVISION COURSES

- 2. Introduction to Journalism.** (3) 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.
- 3A-3B. Basic Newspaper Theory and Practice.** (1-1) Yr. Mr. Innerst
 Prerequisite: permission of the instructor. Not open to students receiving credit for Journalism 2.
 Evaluation and criticism of basic newspaper practices, such as news and feature story structure and writing, lead and headline writing, copyreading, proofreading.

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.
- 103A-103B. Advanced Newspaper Theory and Practice.** (1-1) Yr.
 Prerequisite: permission of the instructor. Mr. Harris, Mr. Rutland
 Investigation into the theory and practice of the press in communicating

to the public, with emphasis on administrative duties of editorial personnel, ethics, standards of taste, placement of news stories, responsibilities of the press.

111. Sources and Methods in Public Relations. (2) I, II. Mr. Clayton
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.

152. Magazine Writing and Editing or Practices. (3) I, II. Mr. Innerst
Writing for magazines, specialized publications, and newspaper feature sections. Magazine publishing practices as they affect the professional writer.

181. Reporting of Public Affairs. (3) I, II. Mr. Harris, Mr. Innerst
Prerequisite: consent of the instructor.
A study of the various approaches to the reporting of governmental functions, particularly at the city and county level.

190. The Press and World Affairs. (3) II. Mr. Miller
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. Mr. Brandt
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.

196. Analysis of International Persuasion Techniques. (3) I, II. Mr. Miller
Prerequisite: senior or graduate standing and consent of instructor.
A study of efforts at international persuasion by governments and private agencies; analysis of media and channels employed; comparisons of methods used to achieve specific objectives, and their effectiveness.

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. Mr. Stout
A discussion and writing course devoted to the preparation of news for radio and television.

250. News Communication. (3) I. Mr. Katzman, Mr. Darsie, Mr. Haven, Mr. Stout
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. Darsie, Mr. Haven, Mr. Stout
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. Mr. Innerst
A workshop integrated with News Communication. Copy editing, headline writing and make-up are featured.

253. Seminar in the Literature and History of Journalism. (2) I.
Mr. Rutland
- 260A-260B. Seminar in Ideas That Changed History. (2-2) Yr.
Mr. Brandt, Mr. Miller, Mr. Clayton
- 262A-262B. Seminar in the Theory and Practice of the Press. (1-1) Yr.
Mr. Innerst
- 268A-268B. Seminar in the Reporter and Society. (2-2) Yr. Mr. Harris
297. Individual Studies for Graduate Students. (1-4) I, II.
Open to students not taking news communications. Mr. Harris and Staff
Supervised research projects in the broad field of mass 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

The following courses pertaining to Latin-American Studies are offered by the departments listed below. For details concerning the Curriculum in Latin-American Studies, see page 15.

- Anthropology and Sociology.* Anthropology 105. American Indians North of Mexico. (3)
Anthropology 107. Indians of South America. (3)
Anthropology 140. Ancient Civilizations of Middle America. (3)
Anthropology 141. Indians of Modern Mexico. (3)
Anthropology 142. Ancient Civilizations of Andean South America. (3)
Anthropology 265A-265B. Cultures of Latin America. (2-2)
Sociology 150. Latin-American Societies. (3)
- Art* 119A. Art of the Americas. (2)
272, Section 7. Problems in Art History (Latin-American Art). (2)
- Geography* 122A. The Geography of Middle America. (3)
122B. The Geography of South America. (3)
199. Special Studies in Geography. (1-4)
257. Seminar in the Geography of Latin America. (3)
- History* 8A-8B. History of the Americas. (3-3)
148. History of Spain and Portugal. (3)
160. History of the Caribbean. (3)
162A-162B. Hispanic America from the Discovery to the Present. (3-3)
163. Argentina, Brazil, and Chile in the Twentieth Century. (3)
166A-166B. History of Mexico. (2-2)
169. History of Inter-American Relations. (3)
199, Section 9. Special Studies in History (Hispanic-American History),
(3)
265A-265B. Seminar in Hispanic-American History. (3-3)

- Political Science* 126. Latin-American International Relations. (3)
 *150A-150B. The Governments of Latin America. (3-3)
 199. Special Studies in Political Science. (1-5)
 *250. Seminar in Governments and International Relations of Latin America. (3)
- Spanish and Portuguese*. Spanish 44. Latin-American Civilization. (3)
 Spanish 104A-104B. Introduction to Spanish-American Literature. From the Beginnings to the Present. (3-3)
 Spanish 108. The Folk Song in Spain and Spanish America. (1)
 Spanish 120. Literary Criticism in Spain and Spanish America. (3)
 Spanish 130. Main Literary Currents in Spanish America. (3)
 Spanish 132. The Spanish-American Novel. (3)
 Spanish 134. The Spanish-American Short Story. (2)
 Spanish 136. The Spanish-American Essay. (2)
 *Spanish 220. The Spanish Chroniclers of the Americas. (2)
 Spanish 240. Studies in the Contemporary Novelists of Spanish America. (2)
 Spanish 241. Studies in the Spanish-American Short Story. (2)
 Spanish 242. Studies in the Contemporary Poets of Spanish America. (2)
 *Spanish 243A-243B. The Modernista Movement in Spanish America. (2-2)
 Spanish 245. The Contemporary Mexican Novel. (2)
 Spanish 246. Argentine Literature. (2)
 Spanish 247. The Gaucho Epic. (2)
 Spanish 248. Studies in Major Figures of Spanish-American Literature. (2)
 Spanish 249. Mexican Literature. (2)
 Portuguese 123. Survey of Brazilian Literature. (3)

LAW

- Richard C. Maxwell, B.S.L., LL.B., *Acting Dean of the School of Law and Professor of Law.*
 James H. Chadbourn, A.B., J.D., *Connell Professor of Law.*
 L. Dale Coffman, A.B., J.D., LL.M., S.J.D., *Professor of Law.*
 Harold Marsh, Jr., B.A., LL.B., LL.M., Jur.Sc.D., *Professor of Law.*
 Addison Mueller, B.A., LL.B., *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 and Assistant Dean.*
 Harold E. Verrall, A.B., M.A., LL.B., J.S.D., *Professor of Law.*
 Kenneth H. York, A.B., LL.B., *Professor of Law.*
 Rollin M. Perkins, A.B., J.D., S.J.D., *Connell Professor of Law, Emeritus.*
 Edgar A. Jones, Jr., A.B., LL.B., *Professor of Law.*
 *John A. Bauman, B.S.L., LL.B., LL.M., *Visiting Associate Professor of Law.*
 Murray L. Schwartz, B.S., LL.B., *Visiting Associate Professor of Law.*
 Edwin F. Franko, A.B., LL.B., *Lecturer in Charge of Legal Aid.*
 William C. Mathes, A.B., LL.B., *Lecturer on Trial Practice and Judge of the Practice Court.*
 Sidney J. Sheinberg, A.B., LL.B., *Associate in Law.*
 Louis Piacenza, *Law Librarian.*

* Not to be given, 1958-1959.

† Absent on leave, 1958-1959.

* In residence spring semester only, 1958-1959.

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.*

Jaen Puhvel, M.A., *Acting Assistant Professor of Classics and Indo-European Linguistics.*

Letters and Science List.—All undergraduate courses in Linguistics and Philology are included in the Letters and Science List of Courses. For regulations governing this list, see page 5.

UPPER DIVISION COURSES

150. **Introduction to Indo-European Linguistics.** (3) I. Mr. Puhvel
A survey of the Indo-European languages from ancient to modern times; their relationships and their chief characteristics.

170. **Introduction to Linguistics.** (3) I. 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.

190. **The Elements of Sanskrit.** (3) II. Mr. Puhvel
Prerequisite: consent of the instructor.
Introduction to the sounds, inflexions, and syntax of Sanskrit, with special attention to its significance for the understanding of other Indo-European languages.

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) II. Mr. Hoijer

English 110. **Introduction to English Language.** (3) I.
Mr. Matthews, Mr. Stockwell

English 111. **The English Language in America.** (3) II.
Mr. Matthews, Mr. Stockwell

French 107A-107B. **French Phonetics.** (2-2) Yr. Mr. Pimsleur

German 107. **Phonetics of the German Language.** (2) I. Mr. Wilbur

* Not to be given, 1958-1959.

- German 117. *History of the German Language.* (3) II. Mr. Wilbur
 German 119. *Middle High German.* (3) I. Mr. Bäuml
 Spanish 119. *Readings in Spanish Literature of the Middle Ages.* (2) I.
 Mr. Andrews
 Spanish 148. *Phonetics.* (1) I, II. Mr. Robe
 Spanish 149. *Introduction to the History of the Spanish Language.* (1) I.
 Mr. Armistead, Mr. Silverman

GRADUATE COURSES

- Anthropology 271A-271B. *Structural and Historical Linguistics.* (2-2) 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 250. *Problems in English Linguistics.* (3) II.
 Mr. Matthews, Mr. Stockwell
 English 260A-260B-260C. *Studies in Old and Middle English. Seminar.*
 Mr. Matthews
 French 201. *History of the French Language.* (3) I, II. Mr. Williams
 French 202. *Old French.* (3) I, II. Mr. Williams
 *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 239. *Readings in Middle High German Literature.* (3) II.
 Mr. Dolch
 German 259. *Seminar in Germanic Linguistics.* (1 to 3) II. Mr. Dolch
 Latin 220. *Vulgar Latin: Introduction to Romance Linguistics.* (3) I.
 Mr. Puhvel
 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
 Semitics 280A-280B. *Seminar in Comparative Semitics.* (3-3) Yr.
 Mr. Leslau
 Spanish 255. *Contemporary Spanish Linguistics.* (2) II. Mr. Bull
 Spanish 256. *Spanish Historical Grammar.* (3) II. Mr. Zeitlin

* Not to be given, 1958-1959.

MATHEMATICS

(Department Office, 6115 Mathematical Sciences Building)

Richard Arens, Ph.D., *Professor of 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.*

Paul G. Hoel, Ph.D., *Professor of Mathematics.*

Ralph S. Phillips, Ph.D., *Professor of Mathematics.*

Leo R. Sario, Ph.D., *Professor of Mathematics.*

I. S. Sokolnikoff, Ph.D., *Professor of Mathematics.*

Angus E. Taylor, Ph.D., *Professor of Mathematics. (Chairman of the Department).*

Charles B. Tompkins, Ph.D., *Professor of Mathematics (Director of Numerical Analysis Research).*

Frederick A. Valentine, Ph.D., *Professor of Mathematics.*

S. E. Warschawski, Ph.D., *Visiting Professor of Mathematics.*

George E. F. Sherwood, Ph.D., *Professor of Mathematics, Emeritus.*

Earl A. Coddington, Ph.D., *Associate Professor of Mathematics.*

Peter Henrici, Ph.D., *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.*

Robert H. Sorgenfrey, Ph.D., *Associate Professor of Mathematics.*

Thomas H. Southard, Ph.D., *Visiting Associate Professor of Mathematics.*

Robert Steinberg, 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.*

A. V. Balakrishnan, Ph.D., *Visiting Assistant Professor of Mathematics.*

C. C. Chang, Ph.D., *Assistant Professor of Mathematics.*

*Philip C. Curtis, Ph.D., *Assistant Professor of Mathematics.*

Thomas S. Ferguson, Ph.D., *Assistant Professor of Mathematics.*

*Basil Gordon, Ph.D., *Assistant Professor of Mathematics.*

*Olavi B. Hellman, Ph.D., *Assistant Professor of Mathematics.*

*Barrett O'Neill, Ph.D., *Assistant Professor of Mathematics.*

Kenneth Rogers, Ph.D., *Assistant Professor of Mathematics.*

Berthold Schweizer, Ph.D., *Visiting Assistant Professor of Mathematics.*

Edwin Weiss, Ph.D., *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.*

Robert J. Blattner, Ph.D., *Instructor in Mathematics.*

Hubertus J. Weinitschke, *Acting Instructor in Mathematics.*

Kotaro Oikawa, Ph.D., *Instructor in Mathematics.*

Edward O. Thorp, Ph.D., *Instructor in Mathematics.*

L. J. Adams, M.A., *Lecturer in Mathematics.*

* Absent on leave, 1958-1959.

Clela Hammond, M.A., *Lecturer in Mathematics.*

Robert Herrera, M.A., *Lecturer in Mathematics.*



Theodore S. Motzkin, Ph.D., *Research Mathematician.*

Richard E. Bellman, Ph.D., *Research Associate.*

Theodore E. Harris, Ph.D., *Research Associate.*

David M. Young, Ph.D., *Research Associate.*

Frederick H. Hollander, M.A., *Associate Research Mathematician.*

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 5.

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 (this examination is given on Tuesday of registration week). Recommended: physics, astronomy, and a reading knowledge of French and German.

The Major.—Courses 108, 119A, and one of 100, 112A, 112B, 113, 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. 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 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. (2) I, II.

Mr. Sorgenfrey in charge

Prerequisite: plane geometry and one and one-half years of high school algebra or course D. Students with one year of high school algebra may enroll

† 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.

** Mathematics 4B may apply toward the teaching minor in lieu of an upper division course in the 100 series.

in course C concurrently with course D. Students taking course C who have had trigonometry in high school will be limited to 1 unit of credit.

Plane trigonometry, with special emphasis on trigonometric analysis.

D. Intermediate Algebra. (3) II.

Mr. Blattner 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. (2) I, II.

Mr. Paige 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.

✓ **3A. Plane Analytic Geometry. (3) I, II.**

Mr. Ferguson in charge

Prerequisite: course C or high school trigonometry, and course D or 1, or satisfactory passing of an entrance 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. Hestenes in charge

Prerequisite: course 3A.

Differentiation of algebraic and transcendental functions with applications.

✓ **4A. Second Course in Calculus. (3) I, II.**

Mr. Horn in charge

Prerequisite: course 3B.

Integration with applications; infinite series.

4B. Third Course in Calculus. (3) I, II.

Mr. Arens in charge

Prerequisite: course 4A. 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.

Infinite series, continued; solid analytic geometry, partial differentiation, multiple integration with applications.

5A. Analytic Geometry and Calculus. (5) I, II.

Mr. Redheffer 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. Sokolnikoff 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. Sorgenfrey 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. Sario in charge

Prerequisite: course 6A. 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.

Solid analytic geometry, partial differentiation and multiple integration, with applications; ordinary differential equations through simple applications involving damped oscillations.

32A. Introductory Mathematical Analysis for Business. (3) I, II.

Mr. Daus in charge

Prerequisite: sophomore standing. Not open for credit to students who have received credit for course D, or 1.

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.

32B. Introductory Mathematical Analysis for Business. (3) I, II.

Prerequisite: course 32A or the equivalent.

Mr. Daus in charge

Elementary differential and integral calculus and curve fitting, with applications to business and economics.

37. Mathematics for Social and Life Sciences. (3) I, II. Mr. Valentine

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 in charge

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.

41. Introduction to Coding for Automatic Digital Computers. (1) I, II.

Prerequisite: one year of college mathematics. Mr. Southard in charge

Binary arithmetic; standard machine operations; coding commands, iterations of most frequent use; applications to computers on campus.

UPPER DIVISION COURSES

100. College Geometry. (3) I.

Mr. Daus

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. Linear Algebra. (3) I, II.**

Mr. Paige

Prerequisite: course 4A.

Vector spaces; linear transformations and matrices; matrix algebra; determinants and solutions of systems of equations.

110A-110B. Advanced Engineering Mathematics. (2-2) I, II.

A year course. See course 110AB for description.

110AB. Advanced Engineering Mathematics. (4) I, II.

Mr. Hellman 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; such students should take course 110C. Students in the engineering curriculum are required to take course 110AB or 110C, depending upon the prerequisite. Students who have credit for 119A will be limited to 2 units of credit.

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. Steinberg 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) I, II.

Mr. Sario

Prerequisite: course 108.

Selected topics in algebra, with particular reference to modern points of view.

112A. Introduction to Higher Geometry. (3) I, II.

Mr. Steinberg

Prerequisite: course 108.

Homogenous point and line coordinate, cross ratio, one- and two-dimensional projective geometry, point and line conics.

112B. Introduction to Metric Differential Geometry. (3) II.

Prerequisite: course 119A or consent of the instructor.

Classical differential geometry of curves and surfaces; special problems.

***113. Synthetic Projective Geometry. (3) II.**

Mr. Steinberg

Prerequisite: course 112A or consent of the instructor.

Axioms of incidence, order and continuity; projectivities, polarities and conics; projective, affine and Euclidean geometry; introduction and use of coordinates.

* Not to be given, 1958-1959.

- 114. Mathematical Ideas. (3) II.** Mr. Rogers
 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) I.** Mr. Paige
 Prerequisite: course 4A 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. Coddington
 Prerequisite: course 4B. Not open to students who have credit for course 110AB or 110C.
- 119B. Differential Equations. (3) II.** Mr. Coddington
 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.
- 122A-122B. Advanced Calculus. (3-3) Yr. Beginning either semester.**
 Prerequisite: course 110C or 119A. Mr. Green
 Fundamentals of calculus from a more advanced point of view. The real number system; continuous functions. General theory and application of partial differentiation. Implicit function theorems. Vector fields. Line and surface integrals. Point set theory. Theory of integration. Infinite series. Uniform convergence. Improper integrals.
- 124. Vector Analysis. (3) I.** Mr. Weinitschke
 Prerequisite: course 4B.
 Vector algebra, vector functions and vector calculus, linear vector functions, field theory, transformations of integrals.
- 125. Analytic Mechanics. (3) I.** Mr. Valentine
 Prerequisite: course 119A or 110C, and one of 122A, 124, or Physics 105.
 Foundations of Newtonian mechanics; kinematics and dynamics of a rigid body; variational principles and Lagrange's equations.
- 126. Potential Theory. (3) II.** Mr. Hestenes
 Prerequisite: course 4B and one year of college physics. Recommended: course 110AB or 110C.
 Brief resume of vector analysis, definition and properties of the Newtonian and logarithmic potential at points on and off the mass, Laplace's equation, Green's theorems and properties of harmonic functions, properties of single and double layers, spherical harmonics, curvilinear coordinates.

* Not to be given, 1958-1959.

127A-127B. Foundations of Mathematics. (3-3) Yr.

Mr. Chang

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. Blattner

Prerequisite: course 119A or consent of the instructor.

135. Numerical Mathematical Analysis. (3) I, II.

Mr. Henrici

Prerequisite: course 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.

136. Numerical Methods in Algebraic Problems. (3) I, II.

Mr. Motzkin

Prerequisite: course 108 and some knowledge† of coding for automatic digital computers, or consent of the instructor.

Spectral theory of finite matrices. Direct and iterative methods for inverting matrices and solving linear equations and inequalities. Various methods for obtaining characteristic values and vectors of matrices. Numerical solution of systems of nonlinear equations.

137. Numerical Methods in Differential Equations. (3) II.

Prerequisite: courses 119A and 135 and some knowledge† of coding for automatic digital computers, or consent of the instructor.

Forward integration; error analysis; Milne, Runge-Kutta, and difference methods; systems of equations; higher order and nonlinear equations; two-point boundary conditions.

138. Numerical Methods of Approximation. (3) I.

Mr. Southard

Prerequisite: course 135 and some knowledge† of coding for automatic digital computers, or consent of the instructor.

Polynomial approximation of functions of one or more variables in the senses of least-squares and least deviation. Orthogonal polynomials. Continued fractions and rational approximation. Approximation by other function families. Gaussian quadrature. Emphasis throughout on numerical methods for use with automatic digital computing machinery.

139. Automatic Digital Computers. (3) I, II.

Mr. Hollander

Prerequisite: course 119A (may be taken concurrently), or consent of the instructor.

Idealized description of electronic components suitable for digital computing; Boolean algebra; organization and logic of large digital computers; coding and other means of applying these components effectively to the solution of extensive problems.

140. Logic of Applications of Automatic Digital Computers. (3) I, II.

Mr. Tompkins

Prerequisite: courses 119A and 139, or consent of the instructor.

The logic of coding automatic digital computers; parts of a code; automatic coding, coding symbolisms and logic; microcoding; iterative routines, approximations, and other techniques for effective exploitation of automatic computers. Examples of codes will be prepared by each student.

† Such knowledge may be obtained by taking either course 41 or course 189 or by suitable experience.

142. Introduction to Linear Programming. (3) I, II.

Prerequisite: courses 4B and 108, or the equivalent.

A basic course in the principles of linear programming together with applications to industry, business and other fields. Simplex methods and alternative methods for solving linear inequality systems will be stressed. Use of electronic computers for linear programming work.

197. Directed Group Studies for Advanced Students. (2-4) I, II.

Prerequisite: consent of the instructor. Mr. Sorgenfrey in charge

199. Special Studies in Mathematics. (1-3) I, II.

The Staff

Prerequisite: senior standing and consent of the department.

GRADUATE COURSES

(Open only to students who have regular graduate status.)

205. Analytic Number Theory. (3) I.

Mr. Straus

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. Taylor

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.

Prerequisite: courses 111A, 112A.

Algebraic preliminaries, projective space, Grassmann coordinates, collineations and correlations.

***215. Non-Euclidean Geometry.** (3) II.

Mr. Daus

Prerequisite: consent of the instructor. Recommended: course 113 or 208.

***220A-220B. Advanced Probability.** (3-3) Yr.

Mr. Ferguson

Prerequisite: course 242A.

Review of essential material in measure and integration. Probability distributions, independence and convergence, characteristic functions, the continuity theorem, central limit theorem, laws of large numbers. The Borel zero-one law, Glivenko-Cantelli theorem and other topics.

221A-221B. Higher Algebra. (3-3) Yr.

Mr. Swift

Prerequisite: course 111A.

***222. Theory of Groups.** (3) I.

Mr. Steinberg

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. Redheffer

Prerequisite: course 122A-122B.

Properties of complex numbers and sets of complex numbers, analytic functions and the Cauch-Riemann equations, complex integration, Cauchy's in-

* Not to be given, 1958-1959.

tegral theorem and its consequences, power series, infinite series and products, conformal mapping, elementary Riemann surfaces and special functions.

***225A-225B. Mechanics of Continua.** (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. Tompkins

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: course 224A and 242A, or consent of the instructor.

Selected topics in Fourier Series, power series, orthogonal polynomials, almost periodic functions, and completeness of sets of functions.

***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. Mr. Arens

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.

* Not to be given, 1958-1959.

242A-242B. Functions of a Real Variable. (3-3) Yr. Beginning second semester. Mr. Hestenes, Mr. Taylor

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.

243A-243B. Ordinary Differential Equations. (3-3) Yr. 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, regular and singular boundary value problems, perturbation theory, Poincare-Bendixson theory, stability, asymptotic behavior, and spectral theory of symmetric differential operators. Will normally be offered every other year.

***244A-244B. Topics in the Theory of Hilbert Space.** (3-3) Yr. _____

Prerequisite: course 242A.

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. _____

246A-246B. Partial Differential Equations of Mathematical Physics.

(3-3) Yr.

Mr. Redheffer

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. Phillips

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. _____

Mr. Henrici

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.

* Not to be given, 1958-1959.

- *253. Computational Aspects of Statistical and Discrete Variable Problems.** (3) II. 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.

- 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. Ferguson 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, measure 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 4B.
 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. Mr. Ferguson
 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.

* Not to be given, 1958-1959.

260. Seminars. Prerequisite: Statistics 231 or 232.

Theoretical Statistics. (3) II.

Mr. Ferguson

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. Hoel

Topics will be selected from those listed under Theoretical Statistics but the emphasis will be on applications.

NUMERICAL ANALYSIS RESEARCH

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

(Department Office, 7127 Mathematical Sciences Building)

Jacob Bjerkmns, Ph.D., *Professor of Meteorology.*

Jürgen 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.*

Morton G. Wurtele, Ph.D., *Associate Professor of Meteorology.*

James G. Edinger, Ph.D., *Assistant Professor of Meteorology.*

W. Lawrence Gates, Sc.D., *Assistant Professor of Meteorology.*



Robert E. Holzer, Ph.D., *Professor of Geophysics.*

Clarence E. Palmer, M.Sc., *Professor of Geophysics.*

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 5.

Preparation for the Major.—Courses 4 and 5 (course 3 will be accepted in place of course 4 for students registered in the University prior to the fall semester, 1957); Physics 1A, 1B, 1C, 1D, or Physics 1A, 1B, 2B, or Physics 2A, 2B; Mathematics 1-3A, 3B, 4A, 4B, or Mathematics 5A, 5B, 6A, 6B. Chemistry 1A is strongly recommended. Meteorology 5 and Mathematics 4B may be taken during the junior year.

The Major.—Courses 101A–101B, 107, 108, 120; and 12 units to be selected with departmental approval from upper division courses in mathematics, statistics, meteorology, and physics, of which at least 3 units must be in mathematics and 3 units must be in meteorology. Courses 100A, 100B, 100C, 100D may be substituted for 101A–101B by students who were registered in the University prior to the fall semester, 1957.

LOWER DIVISION COURSES

- 3. Descriptive Meteorology.** (3) I, II. Mr. Mintz
Not open for credit to students who have credit for Geography 3 or Meteorology 4.
Elementary survey of the causes and regional distribution of weather and climate.
- 4. General Meteorology.** (3) II. Mr. Gates
Prerequisite: Mathematics 1 and Physics 1B or 2A.
The composition, structure, and circulation of the atmosphere, including elementary theory of storms and other weather disturbances.
- 5. Weather Observations.** (3) I. Mr. Edinger
Lecture, two hours; laboratory, three hours. Prerequisite or concurrent: course 3 or course 4.
Technique of synoptic and airways observations; upper-air observations; theory and care of the common meteorological instruments; weather codes.

UPPER DIVISION COURSES

- 101A–101B. Weather Analysis and Forecasting.** (5–5) Yr. Mr. Edinger, Mr. Wurtele
Lecture, two hours; laboratory, demonstration, and quiz, thirteen hours per week. Prerequisite: 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 wind, temperature, clouds, precipitation, fog, icing, turbulence, and severe storms.
- 103. Oceanography.** (2) II. Mr. Wurtele
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) I. Mr. Sekera
Prerequisite: Physics 1A and 1B or 2A; Physics 1C and 1D or 2B. Prerequisite or concurrent: Meteorology 107.
Elementary theory of atmospheric radiation; atmospheric optics; introduction to atmospheric electricity; physics of cloud and precipitation.
- 107. Meteorological Thermodynamics.** (3) I. Mr. Gates
Prerequisite: Physics 1A and 1B, or 2A; prerequisite or concurrent: Mathematics 4B.
Thermodynamic properties of dry air, water substance, and moist air. Meteorological thermodynamic diagrams; atmospheric hydrostatics and stability.
- 108. Physical Climatology.** (3) II. Mr. Mintz
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.** Mr. Edinger
Lecture, two hours; laboratory, three hours. Prerequisite: course 5.
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, sferics; rawins.
- 120. Dynamic Meteorology. (3) II.** Mr. Holmboe
Prerequisite: course 107.
Equations of atmospheric motion; continuity equation. Divergence, vorticity and circulation. Geostrophic, gradient and thermal winds. Simple atmospheric waves.
- 121. Dynamic Meteorology. (3) I.** Mr. Wurtele
Prerequisite: course 120 with grade of C or better.
Students who have credit in course 120C will receive 2 units of credit for course 121.
Kinematics and dynamics of the field of motion, including the determination of the velocity field from its divergence, vorticity and boundary conditions. Applications to simple barotropic waves.
- 130. Introduction to Numerical Weather Prediction. (3) I, II.** Mr. Gates
Prerequisite: courses 107 and 120.
Formulation and analysis of the problem of numerical weather prediction. Study of simple atmospheric models. Numerical errors and integration methods.
- 140. Radiation Processes in the Atmosphere. (3) II.** Mr. Sekera
Prerequisite: course 104 and 107, or Physics 108B and 110.
Radiative transfer in a planetary atmosphere, with application to the solar, sky, and heat radiation of the Earth and atmosphere. Radio wave propagation in the atmosphere; principles and methods of radar meteorology.
- 141. Physics of the Upper Atmosphere. (3) II.** Mr. Sekera
Prerequisite: course 104, or Physics 108B or 113. (Not open to credit for students with credit in course 102.)
Direct and indirect methods of the study of upper atmospheric layers. Physical properties of the upper atmosphere: composition, temperature and pressure; ozone layer; aurora and airglow; ionosphere.
- 199. Special Studies in Meteorology. (1-3) I, II.** Mr. Sekera, Mr. Gates
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

Prerequisite to all graduate courses: courses 100A, 100B, 100C, 100D, 107, 120; or 101A, 101B, 107, 120.

- 201A-201B. Advanced Synoptic Meteorology. (2-2) Yr.**
Mr. Neiburger, Mr. Bjerknæs
- 202. Tropical Meteorology. (2) I.** Mr. Palmer
- 210A-210B. Meteorological Laboratory. (4-4) Yr.**
Mr. Mintz, Mr. Bjerknæs
- 217. Meteorological Hydrodynamics. (3) II.** Mr. Holmboe
Prerequisite: course 121.
- 220. Advanced Dynamic Meteorology. (3) I.** Mr. Holmboe
- 260. Seminar in Meteorology. (2) I, II.** Mr. Neiburger

261. Seminar in Cloud Physics. (2) II. Mr. Neiburger
 262. Seminar in Hydrodynamics. (2) I. Mr. Holmboe
 263. Seminar in Weather Forecasting. (2) II. Mr. Mintz
 264. Seminar in Physical Meteorology. (2) I. Mr. Sekera
 297. Individual Studies for Graduate Students. (1-4) I, II. Mr. Holmboe in charge
 299. Research on Doctoral Dissertation. (1-6) I, II. Mr. Neiburger in charge

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*(Department Office, 127 Men's Gymnasium)*

- William S. Bodner, B.S., Colonel, Infantry, *Professor of Military Science and Tactics (Chairman of the Department)*.
 George D. Ish, M.A., Lieutenant Colonel, Military Police Corps, *Associate Professor of Military Science and Tactics*.
 John E. MacDonough, M.A., Lieutenant Colonel, Quartermaster Corps, *Associate Professor of Military Science and Tactics*.
 Robert P. Morrow, B.S., Lieutenant Colonel, Infantry, *Associate Professor of Military Science and Tactics*.
 William K. Konze, B.S., Major, Ordnance Corps, *Associate Professor of Military Science and Tactics*.
 Alfred J. Cruz, B.A., Major, Corps of Engineers, *Assistant Professor of Military Science and Tactics*.
 Frederick T. Abt, Captain, Infantry, *Assistant Professor of Military Science and Tactics*.
 David W. McNeely, B.S., Captain, Artillery, *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 5.

College of Engineering.—Lower division: 6 units are acceptable toward the baccalaureate. Upper division: 6 units of nonmajor field electives and the 3 units of optional electives, a total of 9, may be applied toward the baccalaureate.

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 (65 Stat. 75; 50 U.S.C. App 451-467) as amended, and as further amended by the Reserve Forces Act of 1955 (PL305, 84th Congress; DA Bul. 12, 1955) 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 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. (1½-1½) Yr. 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, role of the Army in national defense, 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 of 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 entrance into the Advanced Course must have at least two more academic years remaining in either the graduate or undergraduate course 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.

Prerequisite: Basic Course and course 103A-103B. The Staff

Four hours of classwork and one hour of leadership, drill, and exercise of command each week.

Command and staff, military intelligence, estimate of the situation, company orders, the military team, training management, troop movements, supply and evacuation, military administration, military justice, role of the United States in world affairs, leadership, officer indoctrination, school of the soldier and exercise of command.

MUSIC

(Department Office, 2449 Music Building)

Lukas Foss, *Professor of Music.*Boris A. Krementiev, Ph.D., *Professor of 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.**Clarence Sawhill, M.M., *Professor of Music.*John N. Vincent, Jr., Ph.D., *Professor of Music.*———, *Professor of Music.**W. Thomas Marrocco, Ph.D., *Associate Professor of Music.*Raymond Moremen, M.S.M., *Associate Professor of Music.*Feri Roth, Mus.Doc., *Associate Professor of Music.**Robert M. Stevenson, Ph.D., *Associate Professor of Music.*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.*Paul E. Des Marais, M.A., *Acting Assistant Professor of Music.*Roy E. Travis, M.A., *Assistant Professor of Music.*Robert M. Trotter, Ph.D., *Assistant Professor of Music.*Sylvesta Wassum, Ph.D., *Assistant Professor of Music.*Maryo Van Deman, M.M., *Acting Assistant Professor of Music.*Edwin H. Hanley, A.B., *Instructor in Music.*Paul J. Revitt, Ph.D., *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.*Harry E. Myhr, *Lecturer in Music.*Frederick Moritz, *Lecturer in Music.*Alexander Reisman, M.M., *Lecturer in Music.*Magdalena Rivera, *Lecturer in Music.*Leo Smit, *Lecturer in Music.*Erwin Windward, *Lecturer in Music.*Waldo Winger, *Lecturer in Music.*Roger Wagner, Mus.Doc., *Lecturer in Music.*Irving Beckman, M.A., *Associate in Music.*Hugo W. Melchione, M.A., *Associate in Music.*Pauline Turrill, M.A., *Associate in Music.*Helen Chute Dill, 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

* Absent on leave, 1958-1959.

¹ In residence fall semester only, 1958-1959.

² In residence spring semester only, 1958-1959.

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 Examination covering the subject matter of this course during the week prior to his first registration in the University. Placement depends on the results of those 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, 170 to 178, and 199. For regulations governing this list, see page 5.

Preparation for the Major.—Courses 1A-1B-1C, 3A-3B-3C, 5A-5B, 20A-20B, and two semesters from the series 59 to 64. Recommended: a reading knowledge of German, and French or Italian, History 1A-1B, 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 four semesters from the series 159 to 166.

College of Applied Arts

Four 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, $\frac{1}{2}$ unit 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, 28C, 102, 105, 142, 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

All students planning to become candidates for the M.A. or Ph.D. degree in music are required to take a portion of the graduate placement examination as soon as they are admitted to regular graduate status. 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. Given in the fall and spring semester during the week before registration, and also during the summer session, 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. The written part of the examination is normally taken at the beginning of the first semester of regular graduate work; the oral part, at the beginning of the second semester. The former includes dictation, harmony, counterpoint, orchestration, history and literature of music, and stylistic and formal analysis of scores. The latter includes sight singing, keyboard harmony, score reading, conducting, solo performance in the student's principal medium, and piano playing.

As soon as possible after being given regular graduate status and in any case before being assigned a committee to guide his studies for a higher degree, the student must submit to the Department of Music appropriate examples of completed work as evidence of his ability to write with insight on a musical subject in clear English, or to compose music showing definite promise.

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 70. 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 71, 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 it not required for emphasis upon music education and composition.

5. *Course requirements:* all candidates are required to complete course 200A (Research Methods and Bibliography); all candidates save those whose field of specialization is composition must also complete course 200B.

6. *Examinations:* all candidates must take the *Placement Examination* and pass all parts of it before taking the *Final Examinations*.

D. Requirements for the Doctor's Degree.—

1. *General requirements:* candidates for the Ph.D. degree in music must fulfill the general requirements of the Graduate Division (see page 72). These include, as a prerequisite to regular graduate status, the completion of the undergraduate major in music in the College of Applied Arts or the College of Letters and Science, or an equivalent major completed elsewhere.

2. *The placement examination:* passing the placement examination described above is prerequisite to the qualifying examinations.

3. *Foreign language and other tools:* all candidates are expected to have a command of French and German, and of such other languages (Italian, Latin, Russian, Spanish) and skills (notation, statistics) as the field of specialization may require.

4. *Course requirements*: all candidates are required to complete course 200A-200B (Research Methods and Bibliography); a year seminar in the subject most appropriate to the field of specialization, such as course 253A-253B (Historical Musicology), 264A-264B (Ethnomusicology), or 270A-270B (Music Education); and course 299 (Special Problems in Music). Course 299 serves to guide the preparation of the dissertation and should normally be taken for two semesters after the completion of the qualifying examinations.

5. *Qualifying examinations*: before he is admitted to candidacy, the student must pass a series of qualifying examinations, both written and oral. The general written examinations required of all candidates consist of the following: an orchestral composition (the student will use specified musical materials and complete the assignment within one month); an intensive examination in the analysis of musical form and style; two comprehensive examinations in the history and literature of western art music, one on music before 1750 and one on music since that date; an examination to demonstrate a basic knowledge of the music of other cultures; and an examination to demonstrate a basic knowledge of acoustics, aesthetics, and psychology of music. In the field of specialization, further written examinations are required in two areas. Among possible fields of specialization are the following: *the history and theory of western art music*, one area to be selected from ancient, medieval, renaissance, or baroque music, and one from classic, romantic, or twentieth-century music; *the music of other cultures*, two areas, not contiguous, to be selected from Africa, the Americas (exclusive of art music), Europe (exclusive of art music), the Far East, the Near and Middle East, Oceania, and Southeast Asia; *music education*, one area comprising its historical, philosophical, and psychological bases, the other to be selected from music education on the early childhood-elementary, secondary, college-university, or adult level; *systematic musicology*, two areas to be selected from acoustics, psychology of music, aesthetics of music, and physiology of the voice together with construction and technique of instruments. To conclude the qualifying examinations, an oral examination covering all the special and general fields chosen from the above will be given by the entire doctoral committee.

6. *The dissertation*: each candidate will be required to present a dissertation on a subject chosen by the candidate in consultation with his committee, of such a character as to show a thorough mastery of the sources of information and the ability to carry on independent and original research.

7. *The final oral examination*: after the acceptance of the dissertation in its final form the candidate will be required to pass an oral examination covering principally the field within which the dissertation falls. The candidate will be expected to show a mastery of his special field, as well as of any subject which has an immediate bearing upon the dissertation.

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.

Mrs. Turrill

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. Des Marais, Mr. Trotter, Mr. Travis

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. Des Marais, Mr. Trotter, Mr. Travis

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. Hood, Mr. Kremenliev, Mr. Hanley, Mr. Revitt

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, Mr. Hanley

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. Trotter, Mr. Des Marais, Mr. Travis,

No prerequisite. (30A is prerequisite to 30B.) Mr. Hanley, Mr. Revitt

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.

40. Voice. (2) I, II.	Mr. Moremen, Mr. Winger, Mr. Windward
41. Piano. (2) I, II.	Mrs. Turrill
42. Violin. (2) I, II.	Mr. Roth
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
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) I, 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. Beckman, Mr. Melchione
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
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 Chorus. (1) I, II. No audition.	_____
Two one-hour rehearsals each week.	
63. University A Cappella Choir. (2) I, II.	Mr. Wagner
Three 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. Marrocco, Mr. Hanley, Mr. Rubsaman
 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.
- 103A-103B. Advanced Harmony. (2-2) Yr.** Mr. Kremenliev, Mr. Travis
 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.** Mr. Clarke
 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. Clarke, Mr. Kremenliev, Mr. Vincent
 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. Foss
 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. Roth, 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) I.

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.**

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.**

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. Hanley

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.**

Mr. Revitt

Prerequisite: courses 3A-3B-3C, 20A-20B.

The music of the romantic period from Weber and Schubert to the end of the nineteenth century.

* Not to be given, 1958-1959.

- *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. _____
 Prerequisite: courses 3A-3B-3C, 20A-20B.
131. **Beethoven.** (2) I. Mr. Revitt
 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. Mr. Popper
 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
 A survey of the musical cultures of the world (excluding Western art music), the role of music in society and its relationship to other arts; consideration will also be given to scale structure, instruments, musical forms, and performance standards.
- *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) I. 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
 A survey of the literature of music aesthetics from Plato to the present.
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. Mr. Stevenson
 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.

* Not to be given, 1958-1959.

- *173. The Concerto. (2) II.** Mr. Revitt
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.** Mr. Des Marais
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.** _____
Prerequisite: courses 3A-3B-3C, 20A-20B.
A study of the most important symphonic works since Brahms.
- 177. The Art Song. (2) II.** Mr. Trotter
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.
- 179. Musical Literature for Children. (2) II.** Miss Wassum
Study of original sources of folk and art music suitable for children, including piano, vocal, chamber, and orchestral literature of selected periods and countries.

Group Instruction in Applied Music

Courses in this series may be repeated for credit.

Prerequisite: audition for consent of the instructor.

- 140. Advanced Voice. (2) I, II.** Mr. Gerow, Mr. Moremen
Prerequisite: 4 units of course 40.
- 141. Advanced Piano. (2) I, II.** Mr. Smit
- 142. Advanced Violin. (2) I, II.** Mr. Roth, 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. DiVal
- 153. Trombone. (2) I, II.** _____
- 155. Percussion. (2) I, II.** Mr. Myhr

* Not to be given, 1958-1959.

157. Organ. (2) II. Mr. Petran
158. Studies in Accompanying. (1-2) II. Mr. Popper
Pianists enroll for 2 units; other instrumentalists and singers desiring work in repertoire and interpretation may enroll for 1 unit.

Performance Organizations

Courses in this series may be repeated for credit.

Prerequisite: audition for consent of the instructor.

159. Opera Workshop. (1-2) I, II.
Mr. Popper, Mr. Beckman, Mr. Melchione
The study of the musical, dramatic, and language techniques in opera through the performance of representative scenes and acts.
160. University Symphony Orchestra. (1-2) I, II. Mr. Foss
Two two-hour rehearsals each week.
The study and performance of standard symphonic literature.
161. University Band. (1-2) I, II. Mr. Sawhill
Two two-hour rehearsals each week.
162. University Chorus. (1) I, II. No audition. ———
Two one-hour rehearsals each week.
163. University A Cappella Choir. (2) I, II. Mr. Wagner
Three one-hour rehearsals each week.
The study and performance of standard choral works.
164. University Glee Club. (1) I, II. Mr. Gerow
Two one-hour rehearsals each week.
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. Smit
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. Prerequisite: senior standing and consent of the instructor.	The Staff

GRADUATE COURSES

200A-200B. Research Methods and Bibliography. (3-3) Yr.	Mr. Nelson
Course 200A—required of all candidates for the degree of M.A. or Ph.D.	
Course 200B—required of all students writing theses or dissertations.	
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. Ruhsamen
Prerequisite: course 100A-100B or the equivalent and course 200A-200B, which may be taken concurrently.	
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. Kremenliev
*263. Seminar in Music Theory. (2) II.	Mr. Clarke
264A-264B. Seminar in Ethnomusicology. (3-3) Yr.	Mr. Hood
Prerequisite: course 136A-136B or the equivalent and course 200A-200B, which may be taken concurrently.	
*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

* Not to be given, 1958-1959.

PROFESSIONAL COURSES IN METHOD

330. Music Education for Classroom Teachers. (3) I, II.

Mrs. Dill, Miss Van Deman, 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 3 and 4 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, II.

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

(Department Office, 123 Men's Gymnasium)

Anthony H. Dropp, B.S., Captain, U. S. Navy, *Professor of Naval Science (Chairman of the Department).*

John M. Meyer, B.S., Comdr., U. S. Navy, *Associate Professor of Naval Science.*

Harold R. Brown, B.S., Lieut., j.g., U. S. Navy, *Reserve Assistant Professor of Naval Science.*

John F. Half, B.S., Lieut., U. S. Navy, *Assistant Professor of Naval Science.*

Kenneth McLennan, B.S., Major, U. S. Marine Corps, *Assistant Professor of Naval Science.*

William W. Tucker, B.S., Lieutenant, U. S. Navy, *Assistant Professor of Naval Science.*

J. C. Brooks, 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 5.

College of Engineering.—Credit for Naval Science:

Lower Division: 6 units are acceptable toward the baccalaureate.

Upper Division: 6 units of nonmajor field electives and the 3 units of optional electives, a total of 9, may be applied.

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 and laboratory sessions 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.E.O.T.C. Students.—Officer candidates in the N.E.O.T.C. will be of three types:

(a) *Regular N.E.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.E.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, four 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 commencing in early December of the year preceding the student's entrance into the University in the fall.

(b) *Contract N.E.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. Naval Orientation. (3) I.

Mr. Tucker

A course in fundamentals of the naval science, its mission, ideals, standards, traditions, customs and duties required of the midshipman. This orientation is vital in developing a common naval background and in stimulating an interest in the study of sea power.

1B. Evolution of Sea Power. (3) II.

Mr. Tucker

The course in sea power concentrates in six broad and interlocked areas: (1) the influence of sea power on history; (2) the evolution of tactics; (3) the rationale of strategic decisions; (4) the development of ships; (5) the evolution of weapons; and (6) the qualities of character and professional competence which have made great naval leaders.

Sophomore Year

2A. Naval Weapons. (3) I.

Mr. Brown

Physical details of naval guns are examined with some attention to related principles of metallurgy, ballistics, and the chemistry and physics of explosive reactions. Lectures are given on the mathematical model of the fire control problem, gyroscopic principles, synchro-servo systems, and automatic computers.

2B. Naval Weapons. (3) II.

Mr. Brown

Basic principles of radar, sonar, and electronic countermeasures are developed and extended to the operational use of these devices. Air, surface, amphibious, submarine, and antisubmarine operations are launching systems as well as operational employment. Lectures are given on nuclear weapons.

*Junior Year***101A. Naval Engineering. (3) I.**

Mr. Brooks

The first semester deals with naval machinery. Stress is on the basic steam cycle, including auxiliary equipment. Concepts of temperature, heat transfer, flow of fluids, gas turbine cycle, distillation and refrigeration are included. An introduction is made to physics of nuclear power, principles of nuclear reactors and problems of radiation shielding and instrumentation. Principles and application of marine stability.

101B. Navigation. (3) II.

Mr. Brooks

During the second semester, navigation and nautical astronomy are studied. The problems of determining position, direction and distance on the water. Development of methods, use of instruments, tables, and almanacs in problem solving. The field of navigation is studied in its four major divisions: dead reckoning; piloting; electronic navigation and celestial navigation.

***103A-103B. Basic Strategy and Tactics. (3-3) Yr.**

Mr. McLennan

The first year's study within the marine option concerns the evolution of the art of land warfare. Particular attention is given to military and foreign policies of the United States. The student gains a basic insight into the historical and sociological principles of national strategy and modern military tactics.

*Senior Year***102A. Naval Operations. (3) I.**

Mr. Half

Solution of relative movement problems by application of radar and tactical information to the polar coordinate plot using vectors. Maneuvering instructions and tactics. Communication systems and introduction to cryptography. Types of electronics countermeasures. Aerology and typhoon evasion.

102B. Naval Administration. (3) II.

Mr. Half

Military justice: offenses, rules of evidence, rights of accused, courts-martial and review procedures. Standard administration practices. Personnel problems: individual and group relationships within organizations, counseling techniques, the psychoethical aspects of leadership.

***104A-104B. Amphibious Warfare. (3-3) Yr.**

Mr. McLennan

The primary function of the Marine Corps is to conduct amphibious warfare. Attention is given to strategic decision and the tactical employment of amphibious weapons. The midshipman is also given indoctrination in military law, coordinated with the development of administrative and leadership qualities.

NEAR EASTERN STUDIES

The program for the Master of Arts in Near Eastern Studies provides specialized training 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 the 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. Subject to the limitations

* 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.

indicated below, the special course of studies is formulated for each candidate according to his experience and requirements.

Requirements for Bachelor's Degree.—For details concerning the curriculum in Near Eastern Studies leading to the degree of Bachelor of Arts see page 16.

Requirements for the Master's Degree

1. General Requirements (as throughout the Graduate Division). See page 70.
2. Admission to the Program. The degree of Bachelor of Arts in Near Eastern Studies of the University of California, Los Angeles, or its equivalent is required. The Committee on Near Eastern Studies will pass on the application for admission to the program.

3. Plan. The program is offered under both Plan I (Thesis Plan, required of the Hebraist, cf. 5c) and Plan II (Comprehensive Examination Plan). See page 71. The selection of a plan will be decided upon by the candidate and his adviser and approved by the committee.

4. Language Requirements. Candidates for the Degree of Master of Arts in Near Eastern Studies and of Master of Arts in Near Eastern Languages and Literatures will be required to show proficiency in either French or German, in addition to the language or languages of their field of specialization. In view of the scholarly literature in the field, candidates are earnestly advised to acquaint themselves with a second European language in which relevant material for their studies is available.

5. Program. The program of each candidate will be especially prescribed by the Advisory Committee. The program should, wherever possible, be established before the candidate enters his first semester of work. The program will be planned to allow emphasis on one of the following three fields: (a) Arabic (Islamic) Studies; (b) Semitic Studies; and (c) Hebraic Studies. (a) Is intended for the student desiring a broad knowledge of the Arab (Islamic) world or to prepare for an academic career in this field; (b) and (c) are designed primarily for the student wishing to round out a theological degree or desiring to prepare for an academic career.

(a) Program in Arabic (Islamic) Studies.

The program of each candidate in Arabic (Islamic) Studies will, in addition to Arabic, include a full year's course in either Turkish (Oriental Languages 100A-B) or Persian (Oriental Languages 104A-B). The remaining units will be chosen by the Arabist from History 268A-B and History 215A-B, Sociology 236, 237, political science, and at his option, courses in closely related fields, such as Indian history, anthropology or geography of the area.

(b) and (c) Programs in Hebrew and Semitic Languages and Literatures.

The program of both (b) the Semitist and (c) the Hebraist will have to include a full year course in comparative semitics (Semitics 280A-B, 2-2) and a full year course in general linguistics (Anthropology 271A-B, (2-2) and two minor Semitic languages (totaling 4 units), other than those taken in their undergraduate work. The remaining units of (b) the Semitist will generally be Arabic Poetry (Oriental Languages 230A-B) and/or Arab Historians (Oriental Languages 231A-B), Ethiopic (Semitics 211A-B) and Semitics 298A-B (Special Studies).

The program of (c) the Hebraist will include Semitics 280A-B, Hebrew 135 (Ugaritic), Hebrew 131 (Ancient Aramaic), Anthropology 271A-B (General Linguistics) and Semitics 298A-B (Special Studies).

LOWER DIVISION COURSES

Classics. Hebrew 5A-5B. Elementary Hebrew. (4-4)
Oriental Languages 3A-3B. Elementary Arabic. (4-4)

52. Arabic Culture. (2)

UPPER DIVISION COURSES

- Anthropology and Sociology.* *Anthropology 123. Nomadic Societies. (3)
 Sociology 166. Population and Society in the Middle East. (3)
 Sociology 167. Comparative Sociology of the Middle East. (3)
- Art* 121D. Islamic Art. (3)
- Classics.* *Hebrew 101. Hebrew Conversation and Composition. (2)
 Hebrew 105A-105B. Intermediate Hebrew. (3-3)
 Hebrew 110A-110B. Advanced Hebrew. (3-3)
 *Hebrew 120A-120B. Selected Texts of the Bible. (3-3)
 *Hebrew 130. Biblical Aramaic. (2)
 Hebrew 131. Ancient Aramaic. (2)
 Hebrew 182A-182B. A Survey of Hebrew Literature in English. (2-2)
 Hebrew 199. Special Studies. (1-4)
 Hebrew 135. Ugaritic. (2)
- Geography* 127. The Geography of the Middle East. (3)
- History* 134A-134B. Near and Middle East from 600 A.D. (3-3)
 135. Introduction to Islamic Culture. (2)
 136. Islamic Institutions and Political Ideas. (2)
 137. The Near East in the Nineteenth and Twentieth Centuries. (3)
 138A-138B. Jewish History. (2-2)
 *139. Development of Modern Turkey. (3)
- Oriental Languages* 100A-100B. Elementary Turkish. (3-3)
 103A-103B. Intermediate Arabic. (4-4)
 104A-104B. Elementary Persian. (3-3)
 120A-120B. Advanced Arabic. (3-3)
 130A-130B. Arabic Literary Texts. (2-2)
 142A-142B. Arabic Literature. (2-2)
 199. Special Studies in Oriental Languages. (1-4)
- Political Science* 134. International Relations of the Middle East. (3)
 151. Governments of the Middle East. (3)

GRADUATE COURSES

- Anthropology and Sociology.* Anthropology 271A-271B. Structural and Historical Linguistics. (2-2) Yr.
 Sociology 236. Social Change in the Middle East. (2) I.
 Sociology 237. Social Stratification in the Middle East. (2) II.
- Classics.* Semitics 211A-211B. Ethiopic. (2-2) Yr.
 Semitics 280A-280B. Seminar in Comparative Semitics. (2-2) Yr.
 Semitics 298A-298B. Special Studies. (1-4); (1-4) Yr.
- History* 215A-215B. Westernization of the Arabic Speaking World. (2-2) Yr.
 268A-268B. Seminar in Near Eastern History. (3-3) Yr.
- Oriental Languages* 230A-230B. Pre-Islamic Poetry. (2-2) Yr.
 231A-231B. Arab Historians. (2-2) Yr.

NURSING

(Department Office, 12-139C Medical Center)

- Lulu Wolf Hassenplug, R.N., M.P.H., *Professor of Nursing (Chairman of the Department).*
- Harriet M. Coston, R.N., M.A., *Associate Professor of Medical 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*
- Juanita A. Booth, R.N., M.A., *Assistant Professor of Medical Nursing.*

* Not to be given, 1958-1959.

- B. Irene Dalzell, R.N., Ed.D., *Assistant Professor of Pediatric Nursing.*
 Mildred A. Disbrow, R.N., M.Litt., *Assistant Professor of Maternity Nursing.*
 I. Estelle Dunlap, R.N., M.A., *Assistant Professor of Psychiatric Nursing.*
 Mabel Johnson, R.N., M.A., *Assistant Professor of Public Health Nursing.*
 Katherine M. Justus, R.N., M.P.H., *Assistant Professor of Maternal-Child Health Nursing.*
 Margret A. Kaufmann, R.N., Ed.D., *Assistant Professor in Medical-Surgical Nursing.*
 Jeanne C. Quint, R.N., M.S., *Assistant Professor of Surgical Nursing.*
 Esther D. Schulz, R.N., M.S., *Assistant Professor of Public Health Nursing.*
 Martha L. Adams, R.N., M.S., *Instructor in Nursing.*
 Jamella M. Bell, R.N., M.S., *Instructor in Nursing.*
 Dorothy Brown, R.N., M.S., *Instructor in Psychiatric Nursing.*
 Marjorie L. Chun-Hoon, R.N., M.A., *Instructor in Nursing.*
 Betty Jo Hadley, R.N., M.S., *Instructor in Nursing.*
 Ethel L. Kallins, R.N., B.S., *Acting Instructor in Public Health Nursing.*
 M. Elizabeth Laws, R.N., M.S., *Instructor in Maternal-Child Health Nursing.*
 Mary E. Meyers, R.N., M.S., *Instructor in Nursing.*
 Phyllis Nie, R.N., M.S., *Instructor in Pediatric Nursing.*
 Millicent Stein, R.N., M.S., *Instructor in Public Health Nursing.*
 Mary Swartz, R.N., M.S., *Instructor in Medical-Surgical Nursing.*
 Marjorie S. Dunlap, R.N., M.P.S., *Lecturer in Nursing.*
 Charles K. Ferguson, Ed.D., *Lecturer in Nursing.*



- Eleanor Sheldon, Ph.D., *Associate Research Sociologist.*
 Lorraine R. Kaufman, M.A., *Assistant Research Anthropologist.*
 Muriel L. Archambault, R.N., M.S., *Junior Research Nurse.*
 R. Marilyn Folek, R.N., M.S., *Career Teacher.*
 Helen Nakagawa, R.N., *Junior Research Nurse.*
 Ruby A. Palmer, R.N., M.A., *Junior Research Nurse.*
 Miriam Morris, Ph.D., *Russell Sage Foundation Resident.*



- 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.*
 Claire E. Bartholomew, R.N., M.P.H., *Assistant Clinical Professor of Psychiatric Nursing.*
 Clara H. Miller, R.N., B.S., *Assistant Clinical Professor of Medical-Surgical Nursing.*
 Constance L. O'Brien, R.N., M.A., *Assistant Clinical Professor of Public Health Nursing.*
 Lucile Perozzi, R.N., M.A., *Assistant Clinical Professor of Public Health Nursing.*
 Mary E. Ahern, R.N., B.S., *Clinical Instructor in Surgical Nursing.*
 Colleen W. Blair, R.N., B.S., *Clinical Instructor in Medical Nursing.*
 Mildred C. Fehrenbacher, R.N., B.S., *Clinical Instructor in Medical Nursing.*
 Mary S. Harper, R.N., M.S., *Clinical Instructor in Psychiatric Nursing.*
 Eleanor E. Hicks, R.N., B.S., *Clinical Instructor in Psychiatric Nursing.*
 Ferne D. Hood, R.N., M.A., *Clinical Instructor in School Nursing.*
 Mary L. Jarvis, R.N., *Clinical Instructor in Nursing.*

Olive Whitlock Klump, R.N., B.S., *Clinical Instructor in Public Health Nursing.*

Edith A. Mars, R.N., B.S., *Clinical Instructor in Psychiatric Nursing.*

Edith V. Martin, 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.*

Mary McQuillen, R.N., M.A., *Clinical Instructor in Public Health Nursing.*

Jerry G. Peers, R.N., B.S., *Clinical Instructor in Surgical Nursing.*

Edith Pross, R.N., B.S., *Clinical Instructor in Public Health Nursing.*

Theresa C. Ryan, R.N., B.A., *Clinical Instructor in Nursing Service Administration.*

Elizabeth R. Seiler, R.N., B.S., *Clinical Instructor, Psychiatric 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. The Staff Meets once per week for discussion (not every week for all students). 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.

10. **Orientation to Nursing.** (3) I.

Miss Kaufmann

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.

Miss Bell, Miss Nie

Prerequisite: courses 10 and 15. Concurrent with course 30.

A study of the principles and methods of nursing care which meet the inter-related physical, emotional, and social needs of the individual and his family.

30. **Introduction to Maternal and Child Health Nursing.** (8) II.

Mrs. Dalzell, Miss Disbrow, Miss Adams, Mrs. Laws,
Miss Bell, Miss Hadley, Miss Justus, Miss Nie

Lectures, four hours; laboratory and conferences, sixteen hours. Prerequisite:

site: 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.

Mrs. Schulz

Critical analysis of studies in nursing and their relationship to the development of the profession.

*115. History of Nursing. (3) II.

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.

120A-B-C-D. Family Nursing Program. (1-1-1-1) Two years. The Staff

Prerequisite: course 5.

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.

125A. Medical-Surgical Nursing. (8) II.

Miss Booth, Mrs. Chun-Hoon, Miss Coston, Miss Kaufmann,
Miss Meyers, Miss Quint, Miss Swartz

Lecture, four hours; laboratory, sixteen hours. Prerequisite: satisfactory completion of course 130.

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, Mrs. Chun-Hoon, Miss Coston, Miss Kaufmann,
Miss Meyers, Miss Quint, Miss Swartz

Lecture, four hours; laboratory, sixteen hours. Prerequisite: satisfactory completion of course 125A.

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 Adams, Miss Bell, Mrs. Dalzell, Miss Disbrow,
Miss Hadley, Miss Justus, Mrs. Laws, Miss Nie

Lecture, four hours; laboratory and conference, sixteen hours. Prerequisite: satisfactory completion of courses 20 and 30.

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.

144. Community Health Nursing, Including School Nursing. (6) II.

Miss M. Johnson, Miss Kallins, Miss O'Leary, Mrs. Schulz, Mrs. Stein

Lecture, two hours; laboratory, sixteen hours. Prerequisite: Public Health 180 (may be taken concurrently) and/or consent of the instructor. Automobile required.

* Not to be given, 1958-1959.

A study of public health nursing, including school nursing; philosophy; functions; responsibilities, current practices, and their relationship to present and future health needs of people. Guided participation in a community health agency and/or school.

165. Fundamentals of Psychiatric Nursing. (4) II.

Mrs. Folck, Miss Nakagawa, and Staff

Lecture, two hours per week; laboratory, eight hours per week.

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.**

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.**

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.

199. Special Studies in Nursing. (1-3) II.

The Staff

Prerequisite: senior standing and consent of the instructor.

UPPER DIVISION COURSES FOR REGISTERED NURSES

Registered nurses having upper division standing are admitted to all upper division required courses with consent of the instructor or upon completion of prerequisites selected from the areas of physical education, guidance, education, psychology, or sociology, depending upon the goals of the individual student.

108. Nursing in Maternal and Child Health Services. (5) II.

Mrs. Dalzell, Miss Justus

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.

109. Nursing in Adult Health Services. (5) II.

Miss Booth, Mrs. Chun-Hoon, Miss Quint

Lecture, four hours; laboratory, four hours.

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) II.

Mrs. Shulz

(Former number, 116.)

Critical analysis of studies in nursing and their relationship to the development of the profession.

* Not to be given, 1958-1959.

- 122. Survey of Tuberculosis Nursing. (2) II.** Miss Booth
Lecture, one hour; laboratory, four hours.
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 tuberculous patient and his family.
- 144. Community Health Nursing, Including School Nursing. (6) I.**
Miss M. Johnson, Miss O'Leary, Mrs. Schulz, Mrs. Stein
Lecture, two hours; laboratory, sixteen hours. Prerequisite: Public Health 180 (may be taken concurrently) and/or consent of the instructor. Automobile required.
A study of public health nursing, including school nursing; philosophy; functions; responsibilities, current practices, and their relationship to present and future health needs of people. Guided participation in a community health agency and/or school.
- 165. Fundamentals of Psychiatric Nursing. (4) I.**
Miss I. E. Dunn, Mrs. Folck, Miss Nakagawa, and the Staff
Section 2 for graduate students only.
Lecture, two hours; laboratory, eight hours.
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.
- 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.
- 199. Special Studies in Nursing. (1-3) I, II.** The Staff
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 205A-205B. Nursing Research and Statistical Data. (2) I, II.**
Mrs. M. S. Dunlap, Mrs. Sheldon
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.** ———
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. Human Relations in Administration. (2) I, II.** Mr. Ferguson
Prerequisite or concurrent: course 205A.
A systematic study of the principles of human relations in administration, with emphasis upon their application to the field of nursing.
- 230. Curriculum Development in Nursing. (2) I, II.** Mrs. M. S. Dunlap
Prerequisite: course 210.
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.

* Not to be given, 1958-1959.

236. Current Concepts in Pediatric Nursing. (2) I.

Mrs. Dalzell, Miss D. 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.

237A-237B. Psychiatric Concepts in Nursing and Community Health Programs. (2-2) Yr.

Miss I. E. Dunlap 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.

Miss Arndt, 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) 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) 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.

Automobile required.

Miss O'Leary, Mrs. Schulz

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.

Mrs. Dalzell, Miss D. E. 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 I. E. Dunlap and the Staff

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 Diabrow, Miss Justus

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.

299. Research on Thesis. (No credit) I, II.

Mrs. Dalzell

401. Guided Supervision in Nursing Services. (5) I, II.

The Staff

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., Sc.D., *Director of the Scripps Institution of Oceanography and Professor of Oceanography.*

Harold C. Urey, Ph.D., Sc.D., *Professor at Large, of Chemistry.*

Milton N. Bramlette, Ph.D., *Professor of Geology.*

*Adriano A. Buzzati-Traverso, Ph.D., *Professor of Biology.*

Carl Eckart, Ph.D., *Professor of Geophysics.*

Walter M. Elsasser, Ph.D., *Professor of Theoretical Physics.*

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.*

Leonard N. Liebermann, Ph.D., *Professor of Geophysics.*

Walter H. Munk, Ph.D., *Professor of Geophysics.*

Fred B. Phleger, Ph.D., *Professor of Oceanography and Director of the Foraminifera Laboratory.*

Russell W. Raitt, Ph.D., *Professor of Geophysics.*

Norris W. Rakestraw, Ph.D., *Professor of Chemistry.*

Per F. Scholander, M.D., Ph.D., *Professor of Physiology.*

Francis P. Shepard, Ph.D., *Professor of Submarine Geology.*

Hans E. Suess, Ph.D., *Professor of Geochemistry.*

Charles D. Wheelock, M.A., *Professor and Director, Institute of Marine Resources.*

Claude E. ZoBell, Ph.D., *Professor of Marine Microbiology.*

G. F. McEwen, Ph.D., *Professor and Curator of Physical Oceanography, Emeritus.*

Seibert Q. Duntley, Ph.D., *Research Physicist and Director of the Visibility Laboratory.*

Fred N. Spiess, Ph.D., *Research Geophysicist and Director of the Marine Physical Laboratory.*

Victor Vacquier, M.A., *Research Geophysicist.*

James R. Arnold, Ph.D., *Associate Professor of Chemistry.*

Gustaf O. Arrhenius, Ph.D., *Associate Professor of Biogeochemistry.*

Robert S. Arthur, Ph.D., *Associate Professor of Oceanography.*

E. William Fager, Ph.D., D.Phil., *Associate Professor of Biology.*

Edward D. Goldberg, Ph.D., *Associate Professor of Chemistry.*

* Absent on leave, 1958-1959.

- Francis T. Haxo, Ph.D., *Associate Professor of Biology.*
 Douglas L. Inman, Ph.D., *Associate Professor of Geology.*
 John D. Isaacs, B.S., *Associate Professor of Oceanography and Assistant to the Director.*
 Henry W. Menard, Ph.D., *Associate Professor of Geology.*
 Victor C. Anderson, Ph.D., *Associate Research Physicist.*
 Roswell W. Austin, B.S., *Associate Research Engineer.*
 Maurice Blackburn, D.Sc., *Associate Research Biologist.*
 Almerian R. Boileau, M.A., *Associate Research Engineer.*
 Harmon Craig, Ph.D., *Associate Research Geochemist.*
 David H. Davies, Ph.D., *Associate Research Biologist.*
 Gifford C. Ewing, Ph.D., *Associate Research Oceanographer.*
 Jeffrey D. Frautschy, B.S., *Associate Research Engineer.*
 Philip Rudnick, Ph.D., *Associate Research Physicist.*
 Frank E. Snodgrass, M.S., *Associate Research Engineer.*
 James M. Snodgrass, A.B., *Associate Research Biologist.*
 John E. Tyler, B.S., *Associate Research Physicist.*
 Tjeerd H. van Andel, Ph.D., *Associate Research Geologist.*
 Warren S. Wooster, Ph.D., *Associate Research Oceanographer.*
 William L. Belser, Ph.D., *Assistant Research Biologist.*
 George S. Bien, Ph.D., *Assistant Research Chemist.*
 Brian P. Boden, Ph.D., *Assistant Research Biologist.*
 Kenneth A. Clendenning, Ph.D., *Assistant Research Biologist.*
 Charles S. Cox, Ph.D., *Assistant Research Oceanographer.*
 *Frederick H. Fisher, Ph.D., *Assistant Research Physicist.*
 Robert L. Fisher, Ph.D., *Assistant Research Geologist.*
 Gordon W. Groves, Ph.D., *Assistant Research Oceanographer.*
 Robert W. Holmes, B.S., *Assistant Research Biologist.*
 Galen E. Jones, Ph.D., *Assistant Research Microbiologist.*
 Charles D. Keeling, Ph.D., *Assistant Research Chemist.*
 Ronald G. Mason, Ph.D., *Assistant Research Geophysicist.*
 Beatrice M. Merwin, Ph.D., *Assistant Research Biologist.*
 Wheeler J. North, Ph.D., *Assistant Research Biologist.*
 Grace L. Orton, Ph.D., *Assistant Research Biologist.*
 Frances L. Parker, M.S., *Assistant Research Geologist.*
 June G. Pattullo, Ph.D., *Assistant Research Oceanographer.*
 Rudolph W. Preisendorfer, Ph.D., *Assistant Research Mathematician.*
 Joseph L. Reid, Jr., M.S., *Assistant Research Oceanographer.*
 George G. Shor, Jr., Ph.D., *Assistant Research Geophysicist.*
 Chester J. Silvernail, M.A., *Assistant Research Physicist.*
 Herschel R. Snodgrass, Ph.D., *Assistant Research Physicist.*
 John H. Taylor, Ph.D., *Assistant Research Psychologist.*
 William H. Thomas, Ph.D., *Assistant Research Biologist.*
 Theodore J. Walker, Ph.D., *Assistant 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.*
 Elizabeth K. Boden, Ph.D., *Research Associate.*

Courses in oceanography and marine biology are given at the Scripps Institution of Oceanography, La Jolla, California. For further information concerning the Institution, write to the Director.

Letters and Science List.—All undergraduate courses in oceanography and marine biology are included in the Letters and Science List of Courses. For regulations governing this list, see page 5.

* Absent on leave, 1958–1959.

Advanced Degrees.—Two curricula are offered, leading to graduate degrees in oceanography and marine biology, respectively. A limited number of qualified students are accepted under the provisions set forth in the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION. A student must be well trained in the fundamentals before coming to the Scripps Institution and must obtain the approval of both the Director of the Institution and the Dean of the Graduate Division, Southern Section. Resident work at Los Angeles or Berkeley may be required of candidates for advanced degrees.

Requirements for Admission to the Graduate Curricula

In Oceanography:

1. A baccalaureate major in: mathematics, meteorology, engineering, or one of the physical or biological sciences.
2. At least one year course in each of the following: mathematics, physics, chemistry, and one of the biological sciences.
3. Preparation in foreign languages sufficient to pass reading examinations in German and French by the beginning of the second year. (Only one foreign language is required for the master's degree.)
4. Preparation in physical chemistry, organic chemistry, integral calculus, and geology is recommended.

During their first year, graduate students in oceanography will normally take four upper division courses, 110, 111, 112, 113.

In Marine Biology:

1. A baccalaureate major in one of the biological sciences, or the substantial equivalent.
2. One year course in each: English, mathematics, physics.
3. At least 12 semester units of chemistry, including organic chemistry.
4. At least 20 semester units of biology, including basic zoology and botany.
5. Preparation in foreign languages sufficient to pass reading examinations in German and French by the beginning of the second year. (Only one foreign language is required for the master's degree.)

Requirements for Advanced Degrees

(For general requirements see pages 16 to 22 in the ANNOUNCEMENT OF THE GRADUATE DIVISION)

MASTER OF SCIENCE

In Oceanography: Offered under Plan II only, except by special arrangement. Required courses: 110, 111, 112, 113, and 12 units in graduate courses. A reading knowledge of German or a suitable substitute is required.

In Marine Biology: Offered under either Plan I or II. Required courses: 110, 112, 113, 252, two of 225, 226, and 227; additional elective courses may be chosen from those listed in either oceanography or marine biology. A reading knowledge of German, French, or Russian is required.

DOCTOR OF PHILOSOPHY

In Oceanography: Required courses: 110, 111, 112, 113, 299. Foreign languages: German and either French or a suitable substitute. Independent study and research in such fields as those listed in course 299.

In Marine Biology: Required courses: 299 and those required for the M.S. degree. Foreign languages: German, and either French or Russian. Independent study and research in such fields as those listed in course 299.

Advanced Degrees in Other Fields.—Students from other departments of the University may arrange to do their research work at the Scripps Institu-

tion, in fields closely related to oceanography, such as chemistry, geological sciences, meteorology, microbiology, plant science, or zoology. In addition to requirements of their major departments, such students will be expected to complete two of the courses in oceanography 110 to 113.

Any department of the University is invited to send students to the Scripps Institution for special work, either under its own direction or under joint direction with members of the staff of the Institution. The credentials and study programs of such students must be approved by the major department, the Director of the Scripps Institution and the Dean of the Graduate Division, Southern Section.

OCEANOGRAPHY

UPPER DIVISION COURSES

- 110. Introduction to Physical Oceanography. (3) I.** Mr. Revelle, Mr. Arthur
Mr. Shepard, Mr. Inman
- 111. Submarine Geology. (3) I.** Mr. Shepard, Mr. Inman
- 112. Biology of the Sea. (3) I.** Mr. Johnson
- 113. Chemistry of Sea Water. (3) I.** Mr. Rakestraw, Mr. Goldberg
- 116. Principles of Underwater Sound. (2) II.** Mr. Raitt
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. (3) II.** Mr. Fager
Methods of statistical analysis, sampling and design of experiments applicable to marine studies.
- 123. Introduction to Geochemistry. (2) I.** The Staff
Prerequisite: Oceanography 113.
Survey of general topics in geochemistry, with special emphasis on marine geochemical problems. This course, offered from time to time, is designed for oceanographers, geologists, and biologists; it is not a prerequisite for those specializing in geochemistry.
- 199. Special Studies in Oceanography. (1-4) I, II.** The Staff
Prerequisite: senior standing and consent of the instructor.

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.

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.

†223. Beach and Nearshore Processes. (2) II.

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.

230A. Geochemistry. (3) I.

Mr. Goldberg

Prerequisite: physical chemistry; igneous, metamorphic, and sedimentary petrology. Students who have not had course 237 or the equivalent should take course 237 concurrently.

Chemistry of the lithosphere, atmosphere, and oceans; the geochemical balance; marine chemistry; geochemical cycles or major and minor elements; the origin of life, geochronology.

230B. Geochemistry. (3) II.

Mr. Craig

Prerequisites: courses 230A and 237.

A continuation of Geochemistry 230A. General topics in geochemistry including: composition of the earth and meteorites; geochemistry of stable and radioactive isotopes; evolution of the atmosphere; chemical petrology; chemical and phase equilibria of geological importance; geochemistry of volcanic gases.

237. Chemical Thermodynamics. (3) I.

Mr. Craig

Prerequisites: physical chemistry and integral calculus.

Extension of the thermodynamics of Gibbs following the formulation of De Donder and Prigogine and Defay. Fundamental theorems; homogeneous and heterogeneous systems; thermodynamic stability and theorems of moderation; equilibrium displacements and transformations; relaxation phenomena; solutions; indifferent states.

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.

† Offered in alternate years.

- 253. Seminar in Geochemistry. (2) II.** Mr. Arrhenius and the Staff
 Prerequisite: consent of the instructor.
 Oral and written reports on important topics in geochemistry.
 Subjects include; silicate chemistry; geochemistry of specific elements; chemical and phase equilibria; geochronology; climatology; geochemical cycles; nuclear geochemistry.
- †**254. 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.
- †**255. Problems in Submarine Geology. (2) II.** Mr. Bramlette, Mr. Inman, Mr. Menard, Mr. Phleger, Mr. Revelle, Mr. Shepard
 Seminar.
- 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.

MARINE BIOLOGY

UPPER DIVISION COURSES

- 114. Marine Vertebrates. (3) I.** Mr. Hubbs
- 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.
- 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 Marine Biology. (1-4) I, II.** The Staff
 Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 222. Biochromes. (2-3) II.** Mr. Fox, Mr. Haxo
 Prerequisites: course work in organic chemistry and in the biochemistry of physiology of plants or animals.
 Physical and chemical foundations of color manifestation; the chemistry, distribution, metabolism and significance of pigments occurring in the living world.

† Offered in alternate years.

†225. Marine Ecology. (3) II.

Mr. Fager

Behavior, single-species population dynamics, interspecific relationships and environmental factors as they relate to the distribution and abundance of marine organisms.

226. Biochemical Problems in the Sea. (3) II.

Mr. Fox, Mr. Haxo, Mr. ZoBell

Biochemical and physiological processes in marine plants and animals and the influence of these upon kinds and concentration of nonconservative components of the sea. Biochemical cycles in the hydrosphere.

227. Evolution in the Marine World. (2) II.

Mr. Buzzati, Mr. Hubbs

Origin and evolution of the sea and its organisms. Migration from and to the sea. Adaptation and speciation in various habitats.

Experimental studies on evolution of marine forms.

252. Seminar in Experimental and Comparative Biology. (2) I, II.

The Staff

299. Research in Marine Biology (1-6) I, II.

The Staff

Research in such biological fields as: algology, biophysics, genetics, microbiology, vertebrate and invertebrate zoology, comparative biochemistry or physiology of marine animals and plants, evolution and population dynamics. Students must present evidence of satisfactory preparation for the work proposed.

ORIENTAL LANGUAGES

Kenneth K. S. Ch'en, Ph.D., *Professor of Oriental Languages.*

Richard C. Rudolph, Ph.D., *Professor of Oriental Languages (Chairman of the Department).*

Andreas Tietze, Ph.D., *Associate Professor of Turkish and Persian.*

Ensho Ashikaga, M.Litt., *Assistant Professor of Oriental Languages.*

_____, *Assistant Professor of Oriental Languages.*

Irfan Kavar, Ph.D., *Assistant Professor of Arabic.*

Y. C. Chu, M.A., *Associate in Chinese.*

_____, *Associate in Arabic.*

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 5.

Preparation for the Major.—Courses 1A-1B, 9A-9B, and 32 or 42. Recommended: Anthropology 1-2.

The Major.—Required: 24 upper division units of Oriental languages, of which 18 units must be in language courses including course 199; Art 121A, 121B, and History 191A-191B. Recommended: Anthropology 110, and Geography 124B. A reading knowledge of French and German should be acquired by those planning to go on to graduate work.

Requirements for Admission to Graduate Courses.—A candidate for admission to graduate courses in Oriental languages must meet, in addition to the general University requirements, the minimum requirements for an undergraduate major in this department. The candidate must pass a reading examination in French or German during the first semester of graduate study.

Requirements for the Master's Degree.—For the general requirements see page 70. The department favors the Comprehensive Examination plan, but under certain conditions the thesis plan may be approved. For specific depart-

† Offered in alternate years.

mental requirements, see the ANNOUNCEMENT OF THE GRADUATE DIVISION, SOUTHERN SECTION.

LOWER DIVISION COURSES

- 1A-1B. **Elementary Modern Chinese.** (4-4) Yr. Mr. Chu
 Not open to students with previous training. Five hours a week.
 Introduction to the standard or "National Language" (Kuo Yü) of China.
- 3A-3B. **Elementary Arabic.** (4-4) Yr. _____
 Not open to students with previous training.
 A course in standard Arabic.
- 9A-9B. **Elementary Modern Japanese.** (4-4) Yr. Mr. Ashikaga
 Not open to students with previous training. Five hours a week.
- 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. _____
 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. Ch'en
 No knowledge of Chinese is required.
 A survey of the development of the outstanding aspects of Chinese culture from prehistoric to modern times.
- *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

- 100A-100B. **Elementary Turkish.** (3-3) Yr. Mr. Tietze
 Not open to students with previous training.
- 101A-101B. **Intermediate Chinese.** (3-3) Yr. Mr. Chu
 A continuation of 1A-1B.
- 103A-103B. **Intermediate Arabic.** (4-4) Yr. _____
 Prerequisite: course 3A-3B or consent of the instructor.
- 104A-104B. **Elementary Persian.** (3-3) Yr. Mr. Tietze
- 109A-109B. **Intermediate Modern Japanese.** (3-3) Yr. _____
 A continuation of 9A-9B.
112. **Chinese Literature in Translation.** (2) II. _____
 No knowledge of Chinese is required.
 Lectures and collateral reading of representative works—including classics, histories, belles-lettres, and fiction—in English translations.

* Not to be given, 1958-1959.

- 113A-113B. **Intermediate Classical Chinese.** (2-2) Yr. Mr. Rudolph
Further readings in the classics.
- 119A-119B. **Advanced Modern Japanese.** (3-3) Yr. Mr. Ashikaga
A continuation of 29A-29B and 109A-109B.
- 120A-120B. **Advanced Arabic.** (3-3) Yr. _____
Prerequisite: course 103A-103B, or consent of the instructor.
Continuation of 103A-103B, with emphasis on grammar and composition.
- 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
- 130A-130B. **Arabic Literary Texts.** (2-2) Yr. Mr. Kawar
Prerequisite: course 103A-103B, or consent of the instructor.
Readings in representative Arabic prose writers.
132. **Japanese Literature in Translation.** (2) I. _____
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
No knowledge of Arabic is required.
142A. A series of lectures on classical Arabic poetry with emphasis on the culture it reflects.
142B. A study of the Koran both as a literary masterpiece and as a religious document.
- 143A-143B. **Turkish Literature.** (2-2) Yr. Mr. Tietze
- *152A. **Chinese Poetry and Fiction.** (3) I. _____
Prerequisite: A reading knowledge of Chinese.
- 152B. **Japanese Poetry and Fiction.** (3) II. _____
Prerequisite: A reading knowledge of Japanese.
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. Ch'en
170. **Archaeology of China.** (2) II. Mr. Rudolph
No knowledge of Chinese is required.
The important archaeological sites and types of antiquities of ancient China and peripheral regions; the history and development of archaeological work in China.
- 172A-172B. **The Influence of Buddhism on the Far Eastern Cultures.**
(3-3) Yr. Mr. Ch'en
The historical development of Buddhism in China and Japan and its influence on the culture, society and institutions of these areas. No language requirement.
- *173. **Chinese Historical Texts.** (2) II. Mr. Rudolph
Prerequisite: course 113A-113B.

- 179A-179B. **Readings in Japanese.** (3-3) Yr. Mr. Ashikaga
 Prerequisite: course 129B, or consent of the instructor.
199. **Special Studies in Oriental Languages.** (1-4) I, II. The Staff
 Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 213A-213B. **Chinese Buddhist Texts.** (3-3) Yr.
 229A-229B. **Japanese Buddhist Texts.** (3-3) Yr.
 230A-230B. **Pre-Islamic Poetry.** (2-2) Yr.
 231A-231B. **Arab Historians.** (2-2) Yr.
 252A-252B. **Seminar in Japanese Literature.** (3-3) Yr.
 262. **Seminar in Sinological Literature.** (3) I.
 275. **Seminar in Chinese Cultural History.** (3) II.
 295. **Bibliography and Methods of Research.** (2) I.

PATHOLOGY

A Department of the School of Medicine
 (Department Office, 13-267 Medical Center)

PHARMACOLOGY

A Department of the School of Medicine
 (Department Office, 23-267 Medical Center)

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

(Department Office, 3303 Humanities Building)

- ¹Joseph M. Bochenski, O.P., D.D., Ph.D., *Flint Professor of Philosophy.*
 Rudolf Carnap, Ph.D., *Professor of Philosophy.*
 Abraham Kaplan, Ph.D., *Professor of Philosophy.*
 Hans Meyerhoff, Ph.D., *Professor of Philosophy.*
 Ernest A. Moody, Ph.D., *Professor of Philosophy.*
 Donald A. Piatt, Ph.D., *Professor of Philosophy.*
 J. Wesley Robinson, Ph.D., *Professor of Philosophy, Emeritus.*
 Hugh Miller, Ph.D., *Professor of Philosophy, Emeritus.*
 Donald Kalish, Ph.D., *Associate Professor of Philosophy.*
 Robert M. Yost, Jr., Ph.D., *Associate Professor of Philosophy (Chairman of the Department).*
 Richard Montague, Ph.D., *Assistant Professor of Philosophy.*

¹ In residence fall semester only, 1958-1959.

*Herbert Morris, LL.B., D.Phil., *Assistant Professor of Philosophy*.
 ———, *Acting Instructor in Philosophy*.
 Nelson Pike, M.A., *Acting Instructor in Philosophy*.
 Larry E. Travis, A.B., *Acting Instructor in Philosophy*.

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 5.

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:

Group I. 114, 152, 153, 157, 162, 163, 166, 170A, 170B.

Group II. 126, 148, 184A, 184B, 185, 187A, 187B.

Group III. 104, 105, 121, 136, 147, 188, 189, 190.

Group IV. 101, 111, 112, 123, 124, 125, 146, 175, 180, 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 70. 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 72. 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. On petition to the department, one of these may be replaced by another language especially relevant to the candidate's field of specialization.
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 of philosophy, 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.

* Absent on leave, 1958-1959.

3. Logic in Practice. (2) I.

Language and its analysis as an instrument of sound thinking in morals, politics, and everyday life.

4. Short Introduction to Philosophy. (2) I.

Mr. Travis

Not open for credit to students who have completed 6A.

5. Problems of Ethics and Religion. (2) II.

Mr. Travis

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. Kaplan, Mr. Pike, Mr. Kalish, Mr. Meyerhoff, Mr. Travis, Mr. Yost

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. Moody, Mr. Piatt, Mr. Robson

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. Moody, Mr. Piatt, Mr. Robson

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) II.

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. Montague, _____

The use of logic in science and practical life; fallacies; theory of indirect evidence; construction of scientific hypotheses; probability and statistical methods.

31. Deductive Logic. (3) I, II.

Mr. Kalish, Mr. Montague

The elements of symbolic logic; forms of reasoning and structure of language.

UPPER DIVISION COURSES

Upper division courses in philosophy include: (a) *General Studies* (numbered 101 to 148), 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 180 to 190), pursuing a more rigorous analysis of the logical foundations of mathematics, science, and philosophy. Course 199 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. Mr. Yost
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.

104. Ethics. (3) I. Mr. Piatt
The fundamental concepts and theories of morals; the history and development of ethical theory.

105. Ethics and Society. (3) II. Mr. Meyerhoff
Prerequisite: course 5, 25, or 104; or upper division standing in psychology or a social science.
A critical application of ethical theory to contemporary social problems and institutions.

111. Metaphysics. (3) II. Mr. Pike
Prerequisite: course 30 or the equivalent.
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) I. Mr. Pike
The nature and existence of God; the concept of immortality; religious obligation and the question of free will; the systematic nature of theology and its relation to the philosophical enterprise.

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.
Analysis of fundamental political conceptions: the state, sovereignty, political obligation, natural rights, natural law, and others.

123. Existentialist Philosophies. (3) 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. (3) I. Mr. Pike
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

The aesthetic experience; form and expression; the functions of art; bases of art criticism.

146. Philosophy in Literature. (3) II.

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.

147. Social Philosophy. (3) I.

Mr. Travis

Prerequisite: 3 units in group III of the major, or upper division standing in history or a social science.

Examination of theories of history, the sociology of knowledge, the objectivity of the social sciences, the meaning of culture, and other problems in social philosophy.

148. Philosophy of Science. (3) II.

Mr. Montague

Prerequisite: course 30 or 31, or adequate preparation in mathematics or a physical science.

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) I.

Mr. Moody

Prerequisite: course 20A or consent of the instructor.

157A. Medieval Thought from Augustine to Aquinas. (3) I.

Mr. Moody

Prerequisite: course 20A or the equivalent.

The development of the intellectual tradition of western Christendom from the fourth to the thirteenth century, with special attention to the work of St. Augustine and of St. Thomas Aquinas; Byzantine, Moslem, and Jewish influences on a scholastic philosophy.

157B. Medieval and Early Renaissance Thought. (3) II.

Mr. Moody

Prerequisite: course 20A or the equivalent.

The origins and development of major currents of early modern thought in philosophy, religion, science, and political theory, from the late thirteenth to the late sixteenth century.

162. Continental Rationalism. (3) I.

Mr. Yost

Prerequisite: course 20B.

The philosophies of Descartes, Spinoza, and Leibniz.

163. British Empiricism. (3) II.

Mr. Pike

Prerequisite: course 20B.

The philosophies of Locke, Berkeley, and Hume.

* Not to be given, 1958-1959.

166. **Kant.** (3) I. Mr. Meyerhoff
Prerequisite: course 162 or 163.
- 170A. **Contemporary Philosophy.** (3) I. Mr. Kalish
Prerequisite: course 20B. Recommended: course 31.
Analysis of the views of several recent philosophers.
- 170B. **Contemporary Philosophy.** (3) II. Mr. Kalish
Prerequisite: course 20B. Recommended: course 31.
Analysis of the views of several recent philosophers.
173. **Dialectical and Historical Materialism in Soviet Russia.** (3) I. Mr. Bochenski
An historical and critical approach to dialectical materialism in Soviet Russia; its evolution and development up to the present; its application to history, logic, psychology and esthetics.
- *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.

180. **Philosophy of Mind.** (3) II. Mr. Travis
Prerequisite: course 30 or 31, or upper division standing in psychology.
Analysis of psychological concepts.
181. **Theory of Knowledge.** (3) II. ———
Prerequisite: course 30 or the equivalent.
Philosophical problems of perception, memory, belief, and knowledge.
- 184A. **Intermediate Logic.** (3) I. Mr. Kalish
Prerequisite: course 31 or the equivalent.
Symbolic logic; set theory; foundations of mathematics; concept of the infinite.
- 184B. **Advanced Logic.** (3) II. Mr. Montague
Prerequisite: course 31, and either course 184A or consent of the instructor.
Methodology of logic and the deductive sciences; consistency and completeness of formal systems; concepts of truth and logical truth.
- *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. Montague
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. Piatt
 Prerequisite: course 104.
 A systematic study of moral philosophy; right and wrong; good and evil; and some leading theories about these topics.
- *189. **Esthetic Theory.** (3) I. Mr. Kaplan
 Prerequisite: course 20A-20B, 136.
 A survey of the major philosophies of art from Plato to the present.
- *190. **Legal Philosophy.** (3) I. Mr. Morris
 Prerequisite: course 121 or consent of the instructor.
 Analysis of modern legal theories, fundamental legal conceptions, and the foundations of legal institutions.
199. **Special Studies.** (1-5) I, II. The Staff (Mr. Yost in charge)
 Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

Prerequisites for Graduate Courses.—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) I. Mr. Carnap
 Prerequisite: course 148.
240. **Semantics.** (3) II. Mr. Montague
 Prerequisite: course 187B.
241. **Logic.** (3) I. Mr. Kalish
 Prerequisite: course 184A or 184B.
- *242. **Probability and Induction.** (3) I. Mr. Carnap
 Prerequisite: course 185 or consent of the instructor.
251. **Seminar: Metaphysics.** (3) II. Mr. Moody
 Prerequisite: course 111.
252. **Seminar: Naturalism.** (3) I. Mr. Piatt
- *253. **Seminar: Pragmatism.** (3) I. Mr. Piatt
 Prerequisite: course 175.
- *254. **Seminar: Philosophy of History.** (3) II. _____
 Prerequisite: course 147.
255. **Seminar: Theory of Knowledge.** (3) II. Mr. Yost
 Prerequisite: course 181.
- *257. **Seminar: Plato.** (3) I. Mr. Meyerhoff
 Prerequisite: course 152.
- *258. **Seminar: Hume.** (3) I. Mr. Robson
 Prerequisite: course 163.

* Not to be given, 1958-1959.

- *259. Seminar: Leibniz. (3) II. Mr. Yost
Prerequisite: course 162.
- *260. Seminar: Kant. (3) Mr. Kaplan
Prerequisite: course 166.
263. Seminar: History of Formal Logic. (3) I. Mr. Bochenski
Prerequisite: consent of instructor
265. Seminar: General Theory of Value. (3) I. Mr. Robson
- *266. Seminar: Ethical Theory. (3) Mr. Piatt
Prerequisite: course 188.
- *267. Seminar: Legal Philosophy. (3) II. Mr. Morris
Prerequisite: course 190.
- *268. Seminar: Social and Political Philosophy. (3) II. Mr. Meyerhoff
Prerequisite: course 121 or 147.
- *269. Seminar: Philosophy of Art. (3) II. Mr. Kaplan
Prerequisite: course 136.
270. Seminar: Methodology of the Human Sciences. (3) I. 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) II. Mr. Carnap
Prerequisite: course 184A or the equivalent.
297. Individual Studies for Graduate Students. (2-4) I, II.
The Staff (Mr. Carnap in charge)
299. Research on Dissertation. (2-4) I, II.
The Staff (Mr. Carnap in charge)

PHYSICAL EDUCATION

(Department Offices, 206 Men's Gymnasium, 124 Women's Gymnasium)

- Ruth Abernathy, Ph.D., *Professor of Physical Education.*
Rosalind Cassidy, Ed.D., *Professor of Physical Education and Coordinator 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).*
Laurence E. Morehouse, Ph.D., *Professor of Physical Education.*
Raymond A. Snyder, Ed.D., *Professor of Physical Education (Acting Vice-Chairman of the Department).*
Carl Haven Young, Ed.D., *Professor of Physical Education.*
John F. Bovard, Ph.D., *Professor of Physical Education, Emeritus.*
†Camille Brown, Ed.D., *Associate Professor of Physical Education.*
‡Donald T. Handy, Ed.D., *Associate Professor of Physical Education.*

• Not to be given, 1958-1959.

† Absent on leave, 1958-1959.

‡ Sabbatical leave in residence, 1958-1959.

- Alma M. Hawkins, Ed.D., *Associate Professor of Physical Education.*
 *Valerie Hunt, Ed.D., *Associate Professor of Physical Education.*
 †Marjorie E. Latchaw, Ph.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.*
 Wilfred Sutton, Ed.D., *Associate Professor of Physical Education.*
 Serena Arnold, Ed.D., *Assistant Professor of Physical Education.*
 Marguerite Clifton, Ed.D., *Assistant Professor of Physical Education.*
 ———, *Assistant Professor of Physical Education.*
 ———, *Assistant Professor of Physical Education.*
 ———, *Assistant Professor of Physical Education.*
 Charles Nagel, Ph.D., *Assistant Professor of Physical Education.*
 Deane E. Richardson, Ed.D., *Assistant Professor of Physical Education.*
 Hope M. Smith, Ph.D., *Assistant Professor of Physical Education.*
 Earl L. Wullis, Ed.D., *Assistant Professor of Physical Education.*
 ———, *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.*
 Donald K. Park, B.S., *Supervisor of Physical Education.*
 Orsio M. Thomson, M.A., *Supervisor of Physical Education.*
 Paul Frampton, M.A., *Supervisor of Physical Education, Emeritus.*
 †Ethel T. Bell, Ed.D., *Associate Supervisor of Physical Education.*
 Pia Gilbert, *Associate Supervisor of Physical Education.*
 M. Briggs Hunt, Ed.B., *Associate Supervisor of Physical Education.*
 Glen H. Egstrom, M.S., *Assistant Supervisor of Physical Education.*
 Arden J. Johnson, M.Ed., *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.*
 Nanette T. McIntyre, 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.*
 ———, *Junior Supervisor of Physical Education.*
 ———, *Junior Supervisor of Physical Education.*
 Gerald W. Gardner, M.S., *Junior Supervisor of Physical Education.*
 ———, *Junior Supervisor of Physical Education.*
 Kenneth M. Moore, M.S., *Junior Supervisor of Physical Education.*
 Mary E. Weber, M.S., *Junior Supervisor of Physical Education.*
 ———, *Associate in Physical Education.*
 ———, *Associate in Physical Education.*
 Gerald F. Norman, B.S., *Associate in Physical Education.*
 Kenneth V. Pike, M.A., *Associate in Physical Education.*
 Emma V. Spencer, M.S., *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

† Sabbatical leave in residence, 1958-1959.

* In residence fall semester only, 1958-1959.

‡ In residence spring semester only, 1958-1959.

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) reentering 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: Composition, Folk, Social, Modern.....		*	*	*		
Deck Sports.....		*	*	*		
Adapted (by referral only).....	*	*		*		
Fencing.....		*		*		
Games—Fall (Flag football, Volleyball) Spring (Speedball, Softball).....	*				*	
Golf.....	*	*	*	*		*
Movement Survey.....		*	*	*	*	
Relaxation (by referral only).....		*		*		
Skiing—Dry.....			*	*		*
Swimming.....	*	*		*		
Tennis.....	*	*	*	*		*
Track and Field.....	*			*		
Volleyball.....		*	*		*	
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.

Since the place of the first meeting of many classes is not the same as that listed in the class schedule, students should check bulletin boards in the men's and women's gymnasias.

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, 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, 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, 370, 371A-B-C-D.

2. Major in Dance.

Preparation for the Major.—Physical Education 35, 44, 36A-36B, 36C-36D, 38, Integrated Arts 1A-1B, English 1A, Speech 1, Psychology 1A, 33, Zoology 15, 25, and four units (including at least one course with an asterisk) chosen from Art 2A*, 2B*, 6B*, 44*, English 31*, Humanities 1A, 1B, Music 30A, 30B, Theater Arts 24.

The Major.—Physical Education 100, 150A-150B, 151, 152, 153A-153B, 154, six units chosen from Art 108A, 118A, 118B, 119C, English 115, 117J, 133, Folklore 101, 105, Music 121, 136A, 136B, 137, 159, Philosophy 136, Theater Arts 102, 108, 109, 141, 142, 148A, 148B, 163, and electives from Anthropology 102, 124, 125, 127, Sociology 101, 126, Philosophy 101, 146, 147, to bring total to 36 units.

3. 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. School 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 1, or Speech 1-2; Physical Education 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 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 1, or Speech 1-2; Physical Education 1, 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.

4. 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

† 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.

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, 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.

(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. (To terminate in June, 1959.)

Preparation for the Major.—Courses 1, 43, 44; Chemistry 2A; Physics 10 or 2A; Zoology 15, 25. Recommended: Psychology 1A, 1B or 33; Speech 1-2; Sociology 1, 12.

The Major.—Thirty-six units of upper division courses, including Physical Education 100, 102, 103, 104, 190A, Public Health 106, 125; and electives selected from Physical Education 130, 139, 142A, 146, 171, 190B; Education 110, 111, 112, 116, 147, 180; Psychology 108, 110, 112, 113, 161, 168, 169; Anthropology 150; Home Economics 111; Public Health 148G, 170.

5. 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.—Physical Education 1, 7, 23, 27A-27B, 43, 44; Botany 1; English 1A; Music 30A-30B; Psychology 1A, 33; Speech 1; Sociology 1, 12; Life Sciences 1A-1B.

The Major.—At least 36 units of upper division courses, including Physical Education 132, 139, 140, 141, 142A, 143, 144, 155, 190C-190D; and electives selected from Art 330; Business Administration 152; Education 112, 181; Psychology 145A-145B, 147; Sociology 126, 143, 189; Physical Education 138, 330; Theater Arts 108.

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 7, 23, 27A-27B, Sociology 1, Psychology 33, Physical Education 132, 138, 139, 140, 141, 142A, 144, 190C-190D, 199.

Preoccupational Therapy Curriculum

For details concerning this curriculum, see page 46 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 70 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, 150A–150B, 151, and 155 are included in the Letters and Science List of Courses. For regulations governing this list, see page 5.

LOWER DIVISION COURSES

†1. **Physical Education Activities (Men and Women).** (½) I, II. The Staff
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 327 of this bulletin.)

*†6. **Professional Activities (Men).** (1½) I, II. Mr. Egstrom
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. Mr. Pillich
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.

*†8. **Professional Activities (Men).** (1½). I, II. Mr. Hunt
Designed for major and minor students in physical education. Fundamental knowledges in swimming and wrestling.

† 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.

- *19. Professional Activities (Men). (1½) I.** Mr. Hollingsworth
Designed for major and minor students in physical education. Fundamental knowledges and skills in track and field, and tumbling and apparatus.
- 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.
- *27A. Elementary School Physical Education Activities. (1) I, II.**
Prerequisite: sophomore standing. Mr. Caldwell
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 Spencer, 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.** Miss Waltz
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.** Miss Waltz
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.** Miss Smith
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.** Miss Smith
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.
- §134. Stage Movement. (2) II.** Mrs. Scothorn
Four hours, lecture and laboratory.
Study of the principles of physical timing, rhythm, and control in the acting 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.

† This course may be accepted in lieu of the required course, Physical Education 1, with the consent of the adviser.

‡ 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.

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.

36. A-B-C-D. Fundamentals of Creative Dance. (2-2-2-2). The Staff
Open only to students with major or minor in dance. Must be taken in sequence. Study of dance through varied experience in movement including historical and contemporary forms with emphasis on increasing ability to use movement creatively and to relate to dance the principles and elements of other arts.

38. Dance Notation. (1) II. Mrs. Scothorn
Prerequisite: consent of the instructor.
Study of systems of dance notation with experiences in recording and interpreting dance scores.

†§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
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.
Prerequisite: Zoology 15, 25. Miss Hunt
Analysis of human movement based upon the integration of kinesiology and physiology of activity.

102. Adapted Physical Education. (3) I, II.
Prerequisite: course 100. Miss Hunt
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. _____
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.

† Open to nonmajor students only by consent of the instructor.

§ Students may substitute this course for the required course, Physical Education 1, for the semester in which they are enrolled.

130. History and Principles of Physical Education. (2) I, II.

Miss Clifton, Mr. Wallis

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.

Miss Smith, Mr. Wallis

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 Hyde

Section 2. All others.

Miss Martin

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.

135. Evaluation Procedures. (2) I.

Mr. Massey

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. N. Miller

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, Mr. N. Miller

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.

Mr. Johnson

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.

Mr. N. Miller

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.

Organization and administration of the school health program; underlying principles, including legal aspects; administrative divisions of health instruction, health services, and healthful school living; and interrelationships with community health agencies. Emphasis on coordinated functions of the school health team—administrator, teacher, school physician, nurse, and other personnel.

145B. School Health Education. (3) I, II. Mr. Sutton, Mr. Richardson

Prerequisite: courses 44, 145A, or consent of the instructor.

Organization of content, methods, and materials for health teaching in schools and colleges, and plans for in-service education; health instruction as an integral part of the total 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.

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.

150A-150B. Advanced Dance. (3-3) Yr. Mrs. Scothorn, Miss Hawkins

Prerequisite: course 36 A-B-C-D.

A continuing study of dance with emphasis on integration and synthesis of previous dance experience and the creative use of movement in composition.

151. History of Dance. (3) I.

Mrs. Scothorn

Prerequisite: Integrated Arts 1A-1B; or consent of the instructor.

Study of the functions and form of dance in society. Consideration of various cultures—primitive through the present day with emphasis on dance as an art in Western civilization.

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. (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. I, II.**
Observation and practical experiences in public, private, and/or voluntary agency programs.
- 190A-190B. Rehabilitation. (3 units each)** Mr. Young
Prerequisite: course 102 or consent of the instructor.
- 190C-190D. Recreation. (3 units each)** Mr. N. Miller, Mr. Pike, Mrs. Arnold
Prerequisite: course 140 or consent of the instructor.
- 190E-190F. Health Education. (2-4 units each. Maximum of 6 units only allowed.)** Mr. Johns
Prerequisite: Public Health 134 or consent of the instructor.
- 199. Special Studies. (1-4) I, II.** Mr. Massey
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 201. Secondary School Curriculum in Physical Education. (2) I, II.**
Seminar and laboratory assignments. Miss Brown
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) I.** Mrs. Bell
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. Mr. Massey

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, Mr. Morehouse

Prerequisite: consent of the instructor.

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.

Miss Abernathy, 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.

Prerequisite: consent of the instructor.

Mr. Snyder

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.

Prerequisite: consent of the instructor.

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. Miss Hunt

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
Prerequisite: consent of the instructor.
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) II.** Miss Abernathy
Prerequisite: consent of the instructor.
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) I.** Mr. Morehouse
Prerequisite: consent of the instructor.
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
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.** Miss Latchaw
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. Morchouse
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. Massey
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 Clifton
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.

330. Health, Physical, and Recreation Education in the Elementary School.

(3) I, II.

Miss Saurborn, 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. Wallis

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. Norman

371B. Baseball and Volleyball. I, II.

Mr. Moore

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

(Department Office, 100 Physics-Biology Building)

Alfredo Baños, Jr., Dr. Eng., Ph.D., *Professor of Physics.*

Leo P. Delsasso, Ph.D., *Professor of Physics.*

Joseph W. Ellis, Ph.D., *Professor of Physics.*

Robert J. Finkelstein, Ph.D., *Professor of Physics.*

Joseph Kaplan, Ph.D., Sc.D., L.H.D., *Professor of Physics.*

E. Lee Kinsey, Ph.D., *Professor of Physics.*

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.*

Isadore Rudnick, Ph.D., *Professor of Physics.*

* Absent on leave, 1958-1959.

David S. Saxon, 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.*
 Steven A. Moszkowski, Ph.D., *Associate Professor of Physics.*
 Robert A. Satten, Ph.D., *Associate Professor of Physics.*
 Harold K. Ticho, Ph.D., *Associate Professor of Physics.*
 David I. Paul, Ph.D., *Assistant Professor of Physics.*
 Derek J. A. Prowse, Ph.D., *Visiting Assistant Professor of Physics.*
 Donald H. Stork, Ph.D., *Assistant Professor of Physics.*
 Martin Greenspan, B.S., *Lecturer in Physics.*



David T. Griggs, Ph.D., *Professor of Geophysics.*
 Robert E. Holzer, Ph.D., *Professor of Geophysics.*
 Gordon J. F. MacDonald, Ph.D., *Professor of Geophysics.*
 Clarence E. Palmer, M.S., *Professor of Geophysics.*
 Louis B. Slichter, Ph.D., *Professor of Geophysics.*
 Leon Knopoff, Ph.D., *Associate 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 5.

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 124A, 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.—One of the following groups of courses prescribed to give a specialization in some particular field of physics is required.

(a) *Specialisation in electronics:* Physics 105, 107, 107C, 108B, 108C, 110, 112, 114A, 116A, 116B, 116C, 116D, 121, 124A.

(b) *Specialisation in optics and spectroscopy:* Physics 105, 107, 107C, 108B, 108C, 112, 113, 113C, 114A, 116A, 116C, 121.

(c) *Specialisation in acoustics and electronics:* Physics 105, 107, 107C, 108B, 108C, 112, 114A, 114B, 114C, 116A, 116B, 116C, 116D, 121.

(d) *Specialisation in chemical physics:* Physics 105, 107, 107C, 108B, 108C, 112, 113, 113C or 124C, 116A, 121, 124A; Chemistry 8, 110A, 110B, 111.

(e) *Specialisation in nuclear physics:* Physics 105, 107, 107C, 108B, 108C, 112, 113, 113C, 114A, 116A, 116C, 121, 124A, 124B, 124C.

† A mimeographed brochure, giving more detailed information than is contained in this bulletin, is obtainable from the office of the Department of Physics.

(f) *Specialisation in atmospheric physics*: Physics 105, 107, 107C, 108B, 108C, 110, 112 or Meteorology 107, 113, 114A, 116A, 116C, 121, 124A; Meteorology 104.

An average grade of C or higher must be maintained in the above courses. Also required: Mathematics 110AB or 110C. 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.

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, premedicine, pre-optometry, prepublic health, and zoology. 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.

In general, not more than 15 units of credit will be given for any amount of lower division work. Credit in excess of 15 units will be given only in exceptional cases, when approved by the department.

1A. General Physics: Mechanics of Solids. (3) I, II. Mr. Baños, 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. Students who have credit for Physics 2A will be limited to one unit of credit for Physics 1A.

1B. General Physics: Mechanics of Fluids, and Heat. (3) I, II. Mr. Paul

Lecture and demonstration, three hours; laboratory, two hours. Prerequisite: course 1A; Mathematics 5B, or Mathematics 4A taken previously or concurrently. Students who have credit for Physics 2A will be limited to one unit of credit for Physics 1B.

1C. General Physics: Electricity and Magnetism. (3) I, II.

Mr. MacKenzie, Mr. Rudnick

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. Students who have credit for Physics 2B will be limited to 2 units of credit for Physics 1C.

1D. General Physics: Light and Sound. (3) I, II.

Mr. Ellis, Mr. Knopoff, Mr. Satten

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. Students who have credit for Physics 2B will be limited to 2 units of credit for Physics 1D.

2A. General Physics: Mechanics, Heat, and Sound. (4) I, II.

Mr. Ticho, _____

Lecture 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. Students who have credit for Physics 1A or 1B will be limited to 2 units of credit for Physics 2A. Physics 2A is not open for credit to students who have credit for Physics 1A and 1B.

2B. General Physics: Electricity, Magnetism, and Light. (4) I, II.

Mr. Kinsey, Mr. Prowse

Lecture and demonstrations, four hours; laboratory, two hours. Prerequisite: course 2A or 1A. Students who have credit for Physics 1C or 1D will be limited to 2 units of credit for Physics 2B. Physics 2B is not open for credit to students who have credit for Physics 1C and 1D.

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.

105. Analytic Mechanics. (3) I, II.

Mr. Watson

The statics and dynamics of particles and rigid bodies.

107. Electrical Theory and Measurements. (2) I, II.

Mr. Stork, Mr. Knopoff

Lectures on direct and alternating current theory and measurements, and on introductory electronics.

107C. Electrical Measurements Laboratory. (2) I, II.

Mr. Stork, Mr. Ticho

Lecture-discussion and laboratory to accompany course 107.

- 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. Saxon
- 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.**
Prerequisite: course 105. Mr. Rudnick, Mr. Watson
Vibration of particles and elastic bodies; mechanical sound sources; propagation in elastic media.
- 114B. Mechanics of Wave Motion and Sound. (3) II.** Mr. Paul
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. Rudnick
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. Greenspan
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.** _____
Laboratory to accompany 116B.
- *117. Hydrodynamics. (3) I.** Mr. Moszkowski

119. Kinetic Theory of Matter. (3) II.

Mr. Richardson

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. Prowse, Mr. Wright

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.

124A. Nuclear Physics. (3) I.

Mr. Wright

Prerequisite: course 121 or consent of the instructor.

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.

124B. Nuclear Physics. (3) II.

Mr. Wright

Prerequisite: course 124A or consent of the instructor.

Elements of wave mechanics, two nucleon systems, theory of alpha decay, nuclear forces, nuclear spin and magnetism, nuclear models, cosmic rays and subnuclear particles.

124C. Atomic and Nuclear Physics Laboratory. (1) I.

Mr. Wright

Prerequisite: course 121. Laboratory to accompany course 124A.

Electron diffraction. X-ray diffraction. Beta-ray spectroscopy. Neutron absorption. Artificial radioactivity. Rutherford scattering of alpha-particles and other experiments.

198. Special Courses in Physics. (1-6) I, II.

The Staff (Mr. Kinsey in charge)

199. Special Studies in Physics. (1-5) I, II.

The Staff (Mr. Ellis in charge)

Prerequisite: senior standing and consent of the instructor.

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. Saxon

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. Bafios

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. Satten
214. **Advanced Acoustics.** (3) I. Mr. Delsasso
215. **Statistical Mechanics.** (3) II. Mr. Finkelstein
217. **Hydrodynamics.** (3) II. Mr. Baños
Not open for credit to students who have credit for Meteorology 217.
- 220A. **Theoretical Mechanics.** (3) I. Mr. Kinsey
- 220B. **Theoretical Mechanics.** (3) II. Mr. Kinsey
- 220C. **Quantum Mechanics.** (3) II. Mr. Ticho
- 220D. **Quantum Mechanics.** (3) I. Mr. Moszkowski
- 224A. **Nuclear Physics.** (3) I. Mr. Richardson
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. Baños
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.
- *232. **Relativity.** (3) II. Mr. Finkelstein
The special and general theories of relativity with application to elementary particle physics and cosmology.
261. **Seminar in Special Problems in Theoretical Physics.** (1-3) I, II.
Mr. Moszkowski, Mr. Finkelstein
262. **Seminar in Physics of the Solid State.** (1-3) I. Mr. Paul
264. **Seminar in Advanced Acoustics.** (1-3) II.
Mr. Delsasso, Mr. Knudsen
266. **Seminar in Propagation of Waves in Fluids.** (1-3) II.
Mr. Greenspan
- *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. Richardson
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.

GRADUATE COURSES

240. **Theoretical Seismology.** (3) I. Mr. Knopoff
An advanced course treating problems of transient wave motions in elastic solids. The mathematical analysis of wave propagation, boundary value problems, interaction of compression and shear waves, surface waves, plane boundaries, elastic and imperfectly elastic materials.
250. **Seminar in Geophysics.** (8) 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.
290. **Research in Geophysics.** (1-6) I, II. The Staff
This course will include studies relative to exploration geophysics and experimental work in the electromagnetic model laboratory; research relative to gravity-surveying, and to gravity earthtides (Mr. Slichter); theoretical and experimental studies relative to seismology and geophysics (Mr. Knopoff); tectonophysics and properties of matter at high pressure (Mr. Griggs); atmospheric electrical phenomena (Mr. Holzer); meteorological problems (Mr. Palmer); physics of the earth's interior (Mr. MacDonald).

PHYSICAL SCIENCES

PROFESSIONAL COURSE IN METHODS

370. **Methods and Materials for Teaching Physical Sciences.** (3) II.
Prerequisite: graduate or senior standing. Mr. Toon, Mr. Watson
Methods and materials for teaching physical sciences in secondary schools. Solution of special problems which arise in secondary school physical science courses.

PHYSIOLOGICAL CHEMISTRY

A Department of the School of Medicine
(Department Office, 33-257 Medical Center)

PHYSIOLOGY

A Department of the School of Medicine
(Department Office, 23-250 Medical Center)

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

(Department Office, 288 Physics-Biology Building)

Kenneth F. Baker, Ph.D., *Professor of Plant Pathology.*

John G. Bald, Ph.D., *Professor of Plant Pathology.*

John T. Middleton, Ph.D., *Professor of Plant Pathology (Chairman of the Department), Riverside.*

Pierre A. Miller, *Professor of Plant Pathology, Emeritus.*

Donald E. Munnecke, Ph.D., *Assistant Professor of Plant Pathology.*

The Major.—The major is offered on the Berkeley and Davis campuses. See the BULLETIN OF THE COLLEGE OF AGRICULTURE and consult the appropriate adviser for students in agriculture.

UPPER DIVISION COURSES

120. Plant Diseases. (4) I.

Mr. Munnecke

Lecture, 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.

Lecture, 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) II.

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.

199. Special Studies. (2-4) I, II.

The Staff

Prerequisite: senior standing and consent of the instructor.

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

* Not to be given, 1958-1959.

POLITICAL SCIENCE

(Department Office, 160 Haines Hall)

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*.

Robert G. Neumann, 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*.

James S. Coleman, 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*.

Dwaine Marvick, Ph.D., *Associate Professor of Political Science*.

Charles R. Nixon, Ph.D., *Associate Professor of Political Science*.

Vincent Ostrom, Ph.D., *Associate Professor of Political Science*.

Currin V. Shields, Ph.D., *Associate Professor of Political Science*.

†Norman Stamps, Ph.D., *Visiting Associate Professor of Political Science*.

†David T. Cattell, Ph.D., *Assistant Professor of Political Science*.

Douglas H. Mendel, Jr., Ph.D., *Assistant Professor of Political Science*.

†Leonard Binder, Ph.D., *Assistant Professor of Political Science*.

Richard N. Rosecrance, Ph.D., *Assistant Professor of Political Science*.

Peter Woll, A.B., *Acting 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 5.

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 14 and 20.

LOWER DIVISION COURSES

1. Introduction to Government. (3) I, II.

Mr. Farrelly, Mr. Hinderaker, Mr. Marvick,
Mr. McHenry, Mr. Rosecrance, Mr. Woll

An introduction to the principles and problems of government with particu-

† Absent on leave, 1958–1959.

¹ In residence fall semester only, 1958–1959.

² In residence spring semester only, 1958–1959.

lar 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. Mendel, Mr. McHenry, Mr. Neumann,
Mr. Rosecrance, Mr. Woll

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 24 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.

102. Contemporary World Politics. (3) I, II.

Mr. Graham, Mr. Mendel, Mr. Rosecrance

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.

Prerequisite: upper division standing. Mr. Hinderaker, Mr. Marvick

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) II.

Mr. Jenkin, Mr. Shields

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.**

Mr. Coleman

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) II.

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. Rosecrance

A contemporary survey of the foreign policies of the North Atlantic countries and of cooperative efforts to attain political, economic, and military coordination on a regional basis. Replaces Political Science 130A.

131. World Politics and National Policies: Soviet Sphere. (3) II.

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. 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*.

134. International Relations of the Middle East. (3) II. Mr. Binder
 A study of the relations among the countries of the Middle East with special reference to the policies of the Great Powers.

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. Titus
 Prerequisite: consent of the instructor.
 An analysis of political activities, with emphasis on methods of operating, capturing, and creating organizations.

142. Elections. (2) I. Mr. Titus, Mr. Marvick
 An analysis of the history, rules, procedures, techniques, and politics of the American system of elections.

143. Legislatures and Legislation. (3) I.
 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. Marvick
 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. Marvick, 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.
- 151. The Governments of the Middle East. (3) I.** Mr. Binder
 A comparative study of government in the Arab States, Turkey and Iran.
- 152. British Government. (3) I.** Mr. Jenkin, 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, Mr. Rosecrance
 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.
- 155A. The Government of the Soviet Union. (3) II.** Mr. Cattell
 An intensive study of the political and institutional organization of the Soviet Union and its component parts, with special attention to contemporary political issues, as well as party and governmental structures.
- 155B. Governments of Eastern Europe. (3) II.** Mr. Cattell
 Prerequisite: course 155A, or the equivalent.
 A study of the political and governmental organization of the communist countries of Eastern and Central Europe (exclusive of the U.S.S.R.) with special reference to the institutions, practices and ideologies including interregional relations.
- 156. The Governments of Tropical Africa. (3) 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. The Governments of Western Europe. (3) I.** 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.

* Not to be offered, fall, 1958-1959.

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, Mr. Sherwood
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, Mr. Sherwood
Limitations on the federal government and the protection accorded to individual rights under the American constitutional system.
168. **Government and Business.** (3) II. Mr. Farrelly, Mr. Woll
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. Ostrom, 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) I. Mr. Bollens, Mr. Ostrom, Mr. Stewart
Problems of policy, organization, and procedure in selected field 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, II.

Mr. Crouch

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, II.

Mr. Marvick, Mr. Woll

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. Crouch, Mr. Sherwood

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***198. Special Courses. (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, Mr. Ostrom

Section 5. Problems in Comparative Government.

Mr. Graham, Mr. Neumann

Section 6. Problems in Politics and Legislation.

Mr. Hinderaker, Mr. Titus

*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. Stewart

199. Special Studies. (1-5) I, II.

The Staff

Prerequisite: senior standing and consent of the instructor.

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.

* Not to be offered, 1958-1959.

211. Political Theory. (3) I, II.

Mr. Jenkin, Mr. Nixon

An analysis of the central problems of political theory and their relation to allied disciplines.

212. International Relations. (3) I, II.

Mr. Steiner, Mr. Coleman

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) I, II.

Mr. Hinderaker, Mr. Marvick, 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, II.

Mr. McHenry, Mr. Neumann

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.

Mr. Bollens, Mr. Crouch, 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)**

Mr. Fitzgibbon

252. Seminar in Public Law. (3) Mr. Farrelly, Mr. Grant, Mr. Sherwood**253. Seminar in International Relations. (3)**

Mr. Graham, Mr. Neumann, Mr. Steiner, Mr. Coleman

254. Seminar in Public Administration. (3) Mr. Crouch, Mr. Stewart**256. Seminar in Comparative Government. (3)**

Mr. Graham, Mr. McHenry, Mr. Neumann, Mr. Steiner

257. Seminar in Political Theory. (3)

Mr. Jenkin, Mr. Nixon, Mr. Shields

259. Seminar in Political and Electoral Problems. (3)

Mr. Hinderaker, Mr. Marvick, Mr. Nixon, Mr. Titus

* Not to be offered, 1958-1959

262. Seminar in Municipal Government. (3) Mr. Bollens, Mr. Crouch
263. Seminar in Political and Administrative Aspects of Planning. (3)
Mr. Bollens, Mr. Ostrom
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. Woll
- 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 cooperating 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

(Department Office, 209 Franz Hall)

Harry W. Case, Ph.D., *Professor of Engineering and Professor of 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.*

F. Nowell Jones, Ph.D., *Professor of Psychology.*

*Bruno 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 (Physiology).*

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 P. Barthol, Ph.D., *Associate Professor of Psychology.*

* Absent on leave, 1958-1959.

¹ In residence fall semester only, 1958-1959.

- Richard Centers, Ph.D., *Associate Professor of Psychology.*
 James C. Coleman, Ph.D., *Associate Professor of Psychology.*
 Andrew L. Comrey, Ph.D., *Associate Professor of Psychology.*
 John H. Lyman, Ph.D., *Associate Professor of Psychology and Associate Professor of Engineering.*
 Irving Maltzman, 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.*
 Joseph G. Sheehan, Ph.D., *Associate Professor of Psychology.*
 S. Carolyn Fisher, Ph.D., *Associate Professor of Psychology, Emeritus.*
 Norman H. Anderson, *Assistant Professor of Psychology.*
 Richard C. Atkinson, Ph.D., *Assistant Professor of Psychology.*
 William E. Broen, Ph.D., *Assistant Professor of Psychology.*
 Edward C. Carterette, Ph.D., *Assistant Professor of Psychology.*
 *Wendell E. Jeffrey, Ph.D., *Assistant Professor of Psychology.*
 Erwin J. Lotsof, Ph.D., *Assistant Professor of Psychology.*
 Charles Y. Nakamura, Ph.D., *Assistant Professor of Psychology.*
 Allen Parducci, Ph.D., *Assistant Professor of Psychology.*
 Bertram H. Raven, Ph.D., *Assistant Professor of Psychology.*
 Michael J. Goldstein, Ph.D., *Instructor in Psychology.*
 Jaques W. Kaswan, Ph.D., *Instructor in Psychology.*
 Leonore Rice Love, Ph.D., *Instructor in Psychology.*



- Harry M. Grayson, Ph.D., *Clinical Professor of Psychology.*
 Frank J. Kirkner, Ph.D., *Clinical Professor of Psychology.*
 Morse P. Manson, Ph.D., *Clinical Professor of Psychology.*
 J. Arthur Waites, *Clinical Professor of Psychology.*
 Bertram B. Forer, Ph.D., *Associate Clinical Professor of Psychology.*
 F. Harold Giedt, Ph.D., *Associate Clinical Professor of Psychology.*
 Harrington V. Ingham, M.D., *Associate Clinical Professor of Psychology and Neuropsychiatrist, Student Health Service.*
 John R. Schlosser, Ph.D., *Associate Clinical Professor of Psychology.*
 Charlyne T. Seymour, Ph.D., *Associate Clinical Professor of Psychology.*
 Barbara M. Stewart, Ph.D., *Associate Clinical Professor of Psychology.*
 Dorothy V. Anderson, Ph.D., *Assistant Clinical Professor of Psychology.*
 George W. Hohmann, Ph.D., *Assistant Clinical Professor of Psychology.*
 Nicholas Rose, Ph.D., *Assistant Clinical Professor of Psychology.*
 Mathew Ross, M.D., *Assistant Clinical Professor of Psychology and Neuropsychiatrist, Student Health Service.*
 George F. Seacat, Ph.D., *Assistant Clinical Professor of Psychology.*
 James L. Way, Ph.D., *Assistant Clinical Professor of Psychology.*
 Laurence A. Petran, Mus.M., Ph.D., *Professor of Music and University Organist.*
 Gladys M. Jewett, Ph.D., *Lecturer in Psychology and Manager, Student Counseling Center.*
 Warren H. Schmidt, Ph.D., *Lecturer in Psychology.*
 Irving Weschler, Ph.D., *Associate Professor of Personnel Management, Associate Research Psychologist, Institute of Industrial Relations.*
 Frances B. Berres, M.A., *Associate Supervisor in the Clinic School.*
 Elise S. Hahn, Ph.D., *Associate Professor of Speech and Associate in the Psychological Clinic.*
 David Pablo Boder, Ph.D., *Research Associate in Psychology.*
 Evelyn Gentry Hooker, Ph.D., *Research Associate in Psychology.*

* Sabbatical leave in residence, spring semester, 1958-1959.

Margaret Hubbard Jones, Ph.D., *Research Associate in Psychology.*
Gerhart R. Sommer, Ph.D., *Research Associate in Psychology.*

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 5.

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 358.)

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 70.) 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. Raven in charge

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

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

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, 146, 147, 167A-167B, 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. Anderson

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.

106A. Experimental Psychology. (3) I, II.

Mr. Mount, Mr. Parducci

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. Atkinson, 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. Broen
Lectures, two hours; laboratory two hours.
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. Miss Rhulman
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. Mr. Maltzman
The development of psychological theories and research to the end of the nineteenth century.
- 126. Contemporary Psychology.** (2) I, II. Mr. Carterette
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. Mr. Carterette
Intensive study of sense perception, with reference to the structure and functions of sense mechanisms, and experimental findings.
- 134. Motivation.** (2) II. Mr. Gilhousen
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, II. Mr. Seward, Mr. Parducci
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) II. 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.

Lectures two hours; laboratory two hours. 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.

Consideration of the cultural and biological determinants of personality.

149. Group Dynamics. (3) I.

Mr. Raven

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. Gilhausen
General survey of the behavior of the higher forms of animal life.
- *150B. Animal Psychology. (3) II.** Mr. Gilhausen
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.** _____
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) II.** Mr. Sheehan
Recommended: courses 108, 168.
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. (2-4) I, II.** Mr. Coleman
Lecture, one hour; laboratory, five hours. Laboratory course for course 167A.
- 168. Abnormal Psychology. (3) I, II.** Mr. Goldstein, _____
Study of the dynamics and prevention of abnormal behavior, including neuroses, psychoses, character disorders, psychosomatic reactions and other abnormal personality patterns.
- 169. Psychology of the Physically Handicapped. (2) II.** _____
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.
- 180. Psychology of Advertising and Selling. (2) I.** Mr. Comrey
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) II.** Mr. Comrey
The methods of selection, classification, and training of employees.

- 186. Occupational Counseling and Job Classification.** (2) I. Mr. Barthol
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. Barthol
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 Studies in Psychology.** (1-3) I, II. The Staff
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 201A-201B. Proseminar in Psychology.** (2-2) Yr.
Mr. Gilhousen, Mr. Anderson, 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.
Prerequisite: course 107 or the equivalent. Mr. Gengerelli, Mr. Comrey
- 213. Experimental Design in Psychology.** (2) I, II.
Mr. Seward, Mr. Carterette
Prerequisite: courses 106B and 207A, or the equivalent.
Experimental testing of hypotheses; sources of error and methods of control; statistics appropriate to various designs. Students will evaluate and construct designs in preparation for original research.
- 214. Quantitative Analysis in Psychology.** (2) II. Mr. Atkinson
Prerequisite: course 207A, or the equivalent.
Nonstatistical mathematical analysis of psychological data. The theoretical and experimental implications of an analytic approach to psychology with emphasis upon applications of probability theory, Markov processes, linear operators, and set-theoretical methods.
- 215A-215B. Commercial and Industrial Psychology.** (2-2) Yr.
Prerequisite to 215B: course 107 or the equivalent. Mr. Barthol
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, Mr. Nakamura

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. Lehner

A survey of the theoretical views of Freud, Jung, Adler, Rank, and various modern writers, including Allport, Lewin, Murray, and Murphy.

***223. Hypnosis and Its Therapeutic Applications. (2) II.**

Mr. Dorcus

Prerequisite: course 257A, or the equivalent.

This course will acquaint the student with theories, techniques of induction and its applications in therapy.

†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. Rationale and Methods of Research in Projective Techniques. (3) I.

Mr. Klopfer

Prerequisite: course 224A-224B. Recommended: course 213.

Advanced Rorschach interpretation.

***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

Prerequisite: courses 105A-105B, 148, or the equivalents.

* Not to be given, 1958-1959.

† Both 224A and 224B to be given fall semester only.

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 Learning. (3) II.** Mr. Seward
 A consideration of typical models in current learning theory and their implications for research.
- 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
- 256A-256B. Seminar in Group Behavior. (3-3) Yr.** Mr. Raven
 Prerequisite: Psychology 149 or Sociology 161, 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.** Mr. Nakamura
 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. Dorcus
- *259. Seminar in Motivation. (3) II.** Mr. Gilhousen
- 260. Seminar in Comparative Psychology. (3) I.** Mr. Gilhousen
- 261A-261B*-261C*. Seminar in Sensation. (3 units each) II.** 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) I.** 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.

* Not to be given, 1958-1959.

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.

Mrs. Jewett 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. 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

Section 3. Industrial Psychology.

Mr. Barthol

Prerequisite: consent of the adviser.

PUBLIC HEALTH

(Department Office, 100A Building 3T)

John M. Chapman, M.D., M.P.H., *Professor of Epidemiology, Professor of Preventive Medicine and Public Health and Professor of Infectious Diseases.*

Wilfrid J. Dixon, Ph.D., *Professor of Biostatistics and Professor of Preventive Medicine and Public Health.*

Jean S. Felton, M.D., *Professor of Occupational Health.*

Lenor S. Goerke, M.D., M.S.P.H., *Professor of Public Health (Chairman of the Department) and Professor of Preventive Medicine and Public Health (Chairman of the Department).*

Wilton L. Halverson, M.D., Dr.P.H., *Professor of Public Health and Professor of Preventive Medicine and Public Health, Emeritus.*

Paul A. Lembcke, M.D., M.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., Dr.P.A., *Associate Professor of Public Health and Associate Professor of Preventive Medicine and Public Health.*

Frank J. Massey, Ph.D., *Associate Professor of Biostatistics and Associate Professor of Preventive Medicine and Public Health.*

Olive Jean Dunn, Ph.D., *Assistant Professor of Biostatistics.*

Frederick J. Post, Ph.D., *Instructor in Sanitary Science.*

John N. Belkin, Ph.D., *Lecturer in Public Health and Associate Professor of Entomology.*

Fred A. Bryan, M.D., *Lecturer in Public Health and Professor of Medicine.*

Kenneth M. Eastman, B.S., *Lecturer in Hospital Administration.*

Gerald A. Heidbreder, M.D., M.P.H., *Lecturer in Public Health and Assistant Clinical Professor of Infectious Diseases.*

Paul LeVan, M.D., *Lecturer in Venereal Disease Control and Associate Clinical Professor of Medicine.*

Harold Mazur, M.D., M.P.H., *Lecturer in Public Health.*

Byron O. Mork, M.D., M.P.H., *Lecturer in Public Health, Associate Clinical Professor of Pediatrics and Associate Clinical Professor of Preventive Medicine and Public Health.*

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.*

Leo G. Reeder, Ph.D., *Lecturer in Public Health.*

Charles Senn, B.S. (C.E.), M.S. (P.A.), *Lecturer in Public Health.*

George W. Stevenson, M.D., *Lecturer in Public Health and Assistant Professor of Pharmacology.*

Leo Tepper, M.D., *Lecturer in Tuberculosis Control.*

J. Albert Torribio, M.S.S.W., M.S.W., *Lecturer in Health Education.*

Milford G. Wyman, M.D., *Lecturer in Public Health and Assistant Clinical Professor of Preventive Medicine and Public Health.*

Letters and Science List.—Courses 5, 100, 106, 110, 145, 147, 160A† are included in the Letters and Science List of Courses. For regulations governing this list, see page 5.

School of Public Health

Curriculum requirements for the Bachelor of Science degree and the Master of Science degree are described in the ANNOUNCEMENT OF THE SCHOOL OF PUBLIC HEALTH and on pages 64-67 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.

† 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.

- 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
Principles of administration and fundamentals of organization in public health.
- †101G. 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. Lembecke
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. Principles of Sanitary Science—General. (3) I, II.** Mr. Bliss
Prerequisite: chemistry and bacteriology.
The fundamentals of environmental sanitation, including an introduction to the relationship of the physical environment to preventive medicine.
- 112. Principles of Sanitary Science—Physical Environment. (3) I, II.**
Prerequisite: course 110, and consent of the instructor. Mr. Senn
Public Health engineering principles for nonengineers, relating to surveys, review and sanitary control of water supplies, waste disposal, ventilation and air pollution, drainage and buildings design and equipment.
- 113. Principles of Sanitary Science—Foods. (3) I, II.** Mr. Bliss, Mr. Post
Lectures, two hours; laboratory, three hours. Prerequisite: course 110 and senior or graduate standing.
Principles of sanitary science as related to food production, processing and distribution, and to food handling.
- 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 factors pertaining to the health of children from the time of conception to the end of puberty. Community health facilities needed for maternal and child care.
- 131. Health Education Laboratory. (2) I, II.** Mr. Beeston
Lecture, one hour; laboratory, three hours. Prerequisite: course 134, or taken concurrently with 134.
Emphasis will be placed on the methods of teaching adults using the media of mass communication. The course is not designed to develop skills, but laboratory exercises will demonstrate the mechanics of preparing and evaluating these media of communication as well as the problems of their use.

† Primarily for graduate students.

- 134. Community Health Education.** (2) I, II. Mr. Beeston, Mr. Torribio
Primarily for students majoring in some area of health work.
The theory, principles, and practices of promoting health, including consideration of communication, motivation, and community organization.
- 145. Community Control of Communicable Disease.** (3) I, II. _____
Introduction to the epidemiology and community control of communicable disease.
- 147. Principles of Epidemiology.** (3) I, II. Mr. Chapman
Prerequisite: courses 145 and 162, or their equivalents, or consent of the instructor.
Introduction to epidemiologic factors governing the occurrence of disease in the population, including interrelationship of disease agents, host and environment. Laboratory problems illustrative of basic principles of epidemiology.
- †**148G. Epidemiology of Chronic Diseases.** (2) I. Mr. Chapman
Prerequisite: consent of the instructor.
The principles of epidemiology as related to the occurrence of noninfectious diseases.
- *153A. Applied Biology of Sanitation.** (2) I. _____
Lecture, two hours. Prerequisite: Bacteriology 103. Primarily for students in the public health sanitary science 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: course 153A, Bacteriology 103. Primarily for students in the public health sanitary science 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. Prerequisite: courses in biological sciences. Students who have completed courses in statistics may enroll only with the consent of the instructor.
Introduction to the methods of statistical analysis with emphasis on their use in the biological sciences. Sampling, tests of significance, and analysis of variance.
- 160B. Biometry.** (3) I, II. Mr. Massey, Mrs. Dunn
Lecture, two hours; laboratory, three hours. Prerequisite: course 160A or consent of the instructor.
Modern research methods covering topics in regression and correlation, sequential and distribution-free methods, and introduction to bioassay.
- 161A. Biostatistics.** (3) I. Mr. Massey
Lecture, two hours; laboratory, three hours. Statistical methods used in the study of existing human populations. Elements of vital statistics, demography, and life tables. Choice of estimators and best tests in studies of human populations.

* Not to be given, 1958-1959.

† Primarily for graduate students.

- 161B. Biostatistics. (4) II.** Mr. Massey
Lecture, two hours; laboratory, six hours. Prerequisite: course 161A.
Extension of methods introduced in course 161A to more advanced problems. Methods of sampling, multiple classification tables, regression techniques.
- 162. Public Health Statistics. (3) I, II.** Mr. Massey, Mrs. Dunn
Lecture, two hours; laboratory, three hours.
A course in public health statistics designed primarily for students not majoring in biostatistics.
- 170. Industrial Health. (2) I, II.** Mr. Bryan
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.
- 172. Industrial Toxicology. (2) II.** Mr. Stevenson
Prerequisite: Chemistry 1A-1B or Chemistry 2A and 10; Physics 2A-2B or Physics 10 and 21.
The use of chemical and clinical laboratory techniques in the investigation of toxic manifestations of industrial hazards.
- 180. Principles of Public Health. (5) I, II.** Mr. Goerke, Miss O'Leary, and Staff
Lecture, five hours. Prerequisite: R.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. Special Courses. (1-5) I, II.** Mr. Bliss
Field trips are often required. Students will furnish their own transportation.
- 199. Special Studies. (1-5) I, II.** The Staff
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 206A-206B. Biostatistics. (3-3) Yr.** Mr. Dixon, Mr. Massey
Lecture, two hours; laboratory, three hours. Prerequisite: course 160A, 160B, 161A-161B. Mathematics 4A, or consent of the instructor.
Quantitative methods in public health, medicine and the biological sciences, Statistical theory and application of problems in the design and analysis of experiments and surveys.
- 213A-213B. Sanitary Science. (2-2) Yr.** Mr. Bliss, Mr. Belkin
Prerequisite: consent of the instructor.
Advanced study of the relationship of the discipline of biology and physical sciences applied to the environment.

* Not to be given, 1958-1959.

234. Community Health Education. (2) I. Mr. Beeston
Lectures, discussions, guest speakers, field trips. Prerequisite: consent of the instructor.

Problems of social, economic and cultural origin as they apply to sound community organization in the public health field. Examination of the health education activities of professional, voluntary and official health agencies and analysis of their interrelationships.

235. Hospital Health Education. (2) II. Mr. Beeston
Prerequisite: course 234 and consent of the instructor.

Analysis of the role, methods and techniques of health education pertaining to hospitals, clinics, and patient education. Observation and discussion of clinical activities in the medical center in relation to the process of health education.

247. Epidemiology. (3) I. Mr. Chapman
Lecture, two hours; laboratory, three hours. Prerequisite: consent of the instructor.

Study and evaluation of epidemiologic information, analysis of factors governing the occurrence of disease in the human population.

249. Seminar in Epidemiology. (2) II. Mr. Chapman
Prerequisite: consent of the instructor.

259A-259B. Seminar in Health Administration. (2-2) Yr. Mr. Goerke, Mr. Lembcke
Prerequisite: consent of the instructor. An adequate background in business or public administration is required.

The study of administrative theory, principles and practice in providing health services. Special consideration is given to the use of managerial techniques and procedures by the social institution organized to integrate medical programs of prevention, therapy and rehabilitation.

269A-269B. Seminar in Biostatistics. (1-1) Yr. Mr. Dixon, Mr. Massey
Prerequisite: consent of the instructor.

299. Special Study for Graduate Students. (1-5) I, II. The Staff

RADIOLOGY

A Department of the School of Medicine
(Department Office, B5-117 Medical Center)

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

203A-203B. Old Provençal: Reading of Texts. (2-2) Yr. Mr. Williams
A knowledge of Latin is indispensable.

SCANDINAVIAN LANGUAGES

For courses in Scandinavian Languages, see under Department of Germanic Languages.

SLAVIC LANGUAGES

(Department Office, 332 Royce Hall)

Kenneth E. Harper, Ph.D., *Associate Professor of Slavic Languages (Chairman of the Department)*.

Vladimir Markov, *Acting Assistant Professor of Slavic Languages*.

Dean S. Worth, Ph.D., *Assistant Professor of Slavic Languages*.

Fred C. Holling, M.A., *Acting Instructor 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 5.

Preparation for the Major.—Courses 1, 2, 3A-3B, 18A-18B, and History 146A-146B (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.
- 1G. **Elementary Russian—Reading course for graduate students.** (No credit) II. 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 2 or 3A. Open only to students who are taking 2 or 3A.

UPPER DIVISION COURSES

- 103A-103B. **Third-Year Russian.** (3-3) Yr. Mr. Worth
Prerequisite: course 3A-3B.
- 104A-104B. **Fourth-Year Russian.** (3-3) Yr. Mr. Worth
Prerequisite: course 103A-103B.

* Not to be given, 1958-1959.

- 119A-119B. **Intermediate Russian Conversation.** (2-2) Yr. _____
Prerequisite: courses 1, 2, and 18A-18B, or the equivalent.
- 120A-120B. **Advanced Russian Conversation.** (2-2) Yr. _____
Prerequisite: course 119A-119B.
- *122A-122B. **The Russian Language.** (2-2) Yr. Mr. Worth
Prerequisite: course 3A-3B.
Structure and Development.
- 124A-124B. **Advanced Russian Composition.** (2-2) Yr. Mr. Markov
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. Harper
Lectures and reading in English. Open to all upper division students. Course 143A is not prerequisite to 143B.
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. Markov
Selected readings in the major poets from Pushkin to Blok. Conducted in Russian.
199. **Special Studies.** (1-3) I, II. The Staff
Prerequisite: senior standing and consent of the instructor.

SOCIAL WELFARE

(Department Office, 12 Building 1A)

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., *Lecturer in 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 and Assistant Dean.*

Olive M. Stone, Ph.D., *Associate Professor of Social Welfare.*

Harry H. L. Kitano, Ph.D., *Acting Assistant Professor of Social Welfare.*

†Jean A. Shores, M.A., *Assistant Professor of Social Welfare.*

* Not to be given, 1958-1959.

† Absent on leave, 1958-1959.

- Grace L. Duckworth, M.S.W., *Instructor in Social Welfare.*
 Joseph W. Eaton, Ph.D., *Lecturer in Social Welfare.*
 Mildred T. Faris, M.A., *Lecturer in Social Welfare.*
 Eleanor Jaqua, M.S.S., *Lecturer in Social Welfare and Field Work Supervisor.*
 Martin B. Loeb, Ph.D., *Lecturer in Social Welfare.*
 Charles W. Bailey, Ph.D., *Associate in Social Welfare.*
 Mary Alice Kahne, M.S.W., *Associate in Social Welfare.*
 Katherine M. Kolodziejski, M.S.W., *Associate in Social Welfare.*
 Peter L. Sandi, M.A., *Associate in Social Welfare.*
 Eva M. Schindler, *Associate in Social Welfare, and Coordinator, Social Welfare Extension.*
 Ralph F. Wagner, M.S.W., *Lecturer in Social Welfare and Field Work Supervisor.*



Roger O. Egeberg, M.D., *Clinical Professor of Medicine.*

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 81.

SPANISH AND PORTUGUESE

(Department Office, 5303 Humanities Building)

- John A. Crow, Ph.D., *Professor of Spanish.*
 John E. Englekirk, Ph.D., *Professor of Spanish.*
 Ernest H. Templin, Ph.D., *Professor of Spanish.*
 Marion Albert Zeitlin, Ph.D., *Professor of Spanish and Portuguese.*
 Hermenegildo Corbató, Ph.D., *Professor of Spanish, Emeritus.*
 Manuel Pedro González, Ph.D., *Professor of Spanish-American Literature, Emeritus.*
 Anna Krause, 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.*
 Stanley L. Robe, Ph.D., *Associate Professor of Spanish (Acting Chairman of the Department).*
 Anibal Sánchez-Reulet, Ph.D., *Associate Professor of Spanish.*
 James Richard Andrews, Ph.D., *Assistant Professor of Spanish.*
 Samuel G. Armistead, Ph.D., *Assistant Professor of Spanish.*
 Claude L. Hulet, *Assistant Professor of Spanish.*
 Judith Senior, 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.*
 Vernon Chamberlain, 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 5.

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. Spanish 108 may not be counted on the 15 elective units. Although such specialization is not required, 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 will normally take 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 may find it advisable to elect Spanish 115 before graduation.

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 2.75. 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 70. The department normally operates under Plan II, but in exceptional cases, and with the approval of the chairman of the department, Plan I may be followed as described on page 71. 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 72. 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 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 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 Prose Reading. (2-2) Beginning either semester. Mr. Crow, Mr. Chamberlain
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. 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. Armistead
Prerequisite: course 4 or the equivalent. Required of students working for the general secondary credential.

101A-101B. Intermediate Composition and Conversation. (2-2) Yr. Miss Senior, Mrs. Baños
Beginning either semester. May not be taken concurrently with or following 146. May not be counted on the 15 elective upper division units required for the major.

102A-102B. Introduction to Spanish Literature. From the Middle Ages to the Present. (3-3). Beginning either semester. Mr. Barcia, Mr. Silverman, 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. Barcia
Prerequisite: course 102B.

106. Spanish Literature from 1700-1850. Neo-Classicism and Romanticism. (3) II. Mr. Chamberlain
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. Mr. Crow
Class meets two hours weekly. Required of credential candidates. May not be counted on the 15 elective upper division units required for the major.
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
Prerequisite: course 102B.
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.
117. **Spanish Literature of the Siglo de Oro.** (3) I. Mr. Andrews, Mr. Templin
Prerequisite: course 102A.
119. **Readings in Spanish Literature of the Middle Ages.** (3) I, II. Mr. Zeitlin, Mr. Andrews
Prerequisite: course 102A.
120. **Literary Criticism in Spain and Spanish America.** (3) II. Mr. Andrews
130. **Main Literary Currents in Spanish America.** (3) II. Mr. Fogelquist
132. **The Spanish American Novel.** (3) I. Mr. Fogelquist
134. **The Spanish American Short Story.** (2) I. Mr. Sánchez-Reulet
136. **The Spanish American Essay.** (2) II. Mr. Sánchez-Reulet
146. **Advanced Composition and Style.** (3) I, II. Mr. Silverman
Prerequisite: courses 25A-25B, 100, or 101A-101B.
147. **Grammar for Teachers.** (2) I, II. Mr. Bull, Mr. Robe
Prerequisite: course 100.
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, Mr. Armistead
Meets requirement in philology for the general secondary credential and the master's degree.
- 150A-150B. **Spanish and Spanish-American Literature in English Translation.** (2-2) Yr. Mr. Silverman, Mr. Crow
199. **Special Studies in Spanish.** (1-3) I, II. The Staff
Prerequisite: senior standing and consent of the instructor.

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. Mr. Barcia, _____
- *206. **Eighteenth-Century Writers.** (2) II. _____

* Not to be given, 1958-1959.

- *209A-209B. *The Spanish Drama of the Golden Age.* (2-2) Yr.
Mr. Templin
- 210A-210B. *Studies in Contemporary Spanish Literature.* (2-2) Yr.
Mr. Barcia
- 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, Mr. Fogelquist
242. *Studies in the Contemporary Poets of Spanish America.* (2) II.
Mr. Fogelquist
- *243A-243B. *The Modernista Movement in Spanish America.* (2-2) Yr.

245. *The Contemporary Mexican Novel.* (2) II. Mr. Englekirk
246. *Argentine Literature.* (2) I. Mr. Sánchez-Reulet
247. *The Gaucho Epic.* (2) I. _____
248. *Studies in Major Figures of Spanish-American Literature.* (2) II.

249. *Mexican Literature.* (2) II. _____
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
2. *Elementary Portuguese—Continued.* (4) II. Mr. Zeitlin
Prerequisite: course 1 or the equivalent.
3. *Intermediate Portuguese.* (4) I. Mr. Zeitlin
Prerequisite: course 2 or the equivalent.
Grammar, composition, and reading of texts.

* Not to be given, 1958-1959.

- 4. Intermediate Portuguese. (4) II.** Mr. Zeitlin
 Prerequisite: course 3 or the equivalent.
 Grammar, composition, and reading of texts.

UPPER DIVISION COURSES

- 122. Survey of Portuguese Literature. (3) I.** Mr. Zeitlin
 Prerequisite: course 4 or the equivalent.
- 123. Survey of Brazilian Literature. (3) II.** Mr. Zeitlin
 Prerequisite: course 4 or the equivalent. It is advisable that students also offer course 122 as a prerequisite.
- 199. Special Studies in Portuguese. (1-3) I, II.** Mr. Zeitlin
 Prerequisite: senior standing and consent of the instructor.

RELATED COURSES (See pages 217 and 370)

- French 201. History of the French Language. (3) I, II.** Mr. Williams
- French 202. Old French. (3) I, II.** Mr. Williams
- Romance Languages and Literature 203A-203B. Old Provençal: Reading of Texts. (2-2)** Mr. Williams

SPEECH

For courses in Speech, see under Department of English.

SUBJECT A: ENGLISH COMPOSITION

(Department Office, 302 Royce Hall)

Stanley L. Robe, 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, \$35.

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 23 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.

THEATER ARTS

(Department Office, 116 Building 3V)

Walden Boyle, Ph.D., *Professor of Theater Arts.*

*Ralph Freud, *Professor of Theater Arts.*

Walter Kingson, Ed.D., *Professor of Theater Arts.*

William Melnitz, Ph.D., *Professor of Theater Arts (Acting Chairman of the Department).*

*George M. Savage, Ph.D., *Professor of Theater Arts.*

*Samuel Selden, LL.D., *Professor of Theater Arts.*

Kenneth Macgowan, B.S., *Professor of Theater Arts, Emeritus.*

Arthur Friedman, Ph.D., *Associate Professor of Theater Arts.*

Edward Hearn, M.A., *Associate Professor of Theater Arts.*

———, *Associate Professor of Theater Arts.*

———, *Assistant Professor of Theater Arts.*

———, *Assistant Professor of Theater Arts.*

Henry Goodman, Ph.D., *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 Hemen, 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.*

Ernest Rose, M.A., *Assistant Professor of Theater Arts.*

John W. Young, M.A., *Assistant Professor of Theater Arts.*

———, *Assistant Professor of Theater Arts.*

Colin Young, M.A., *Instructor in Theater Arts.*

¹James Allardice, M.F.A., *Lecturer in Theater Arts.*

Rudolf Bretz, *Lecturer in Theater Arts.*

Fred Gerber, M.S., *Lecturer in Theater Arts.*

Jack Morrison, M.A., *Lecturer in Theater Arts.*

Charlotte Motter, M.A., *Lecturer in Theater Arts.*

Arthur Ripley, *Lecturer in Theater Arts.*

J. Palmer Schoppe, *Lecturer in Theater Arts.*

George Seaton, *Lecturer in Theater Arts.*

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.*

Raymond Fielding, M.A., *Associate in Theater Arts.*

———, *Associate in Theater Arts.*

———, *Associate in Theater Arts.*

———, *Associate in Theater Arts.*

College of Applied Arts

The Department of Theater Arts, unique among American universities both in its philosophy and location, bases its training for theater, television-radio, and motion pictures on a solid two-year preparation of general education and specific courses of theater fundamentals. The literature and disciplines of the theater provide the unifying link to the various divisions within the department; through its body of written drama, theater also links the Department of Theater Arts with the humanities and the social sciences. Students

* Absent on leave, 1958-1959.

¹ In residence fall semester only, 1958-1959.

² In residence spring semester only, 1958-1959.

majoring in theater arts may not minor in English. Following are the four specializations offered:

1. Theater.

Preparation for the Major.—Courses 2A, 24, 25, 26, 27, 28A, 28C, 28E; 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, 142, 154, 156A, 159A, 149A, 149B, 149C, 149D, 156A, 165A, 167A, 181A, and electives approved by the departmental adviser.

2. Motion Pictures.

Preparation for the Major.—Courses 2A, 24, 25, 26, 27, 28A, 28C, 28E; English 1A-1B, Humanities 1A-1B.

The Major.—Forty units of coordinated upper division courses, including Theater Arts 105, 149A, 149B, 149C, 149D, 156A, 164A, 164B, 164C, 165A-165B, 166A, 167A, 179A, 181A, Classics 113, English 114C-D-E, and electives approved by the departmental adviser.

3. Television and Radio.

Preparation for the Major.—Courses 2A, 24, 25, 26, 27, 28A, 28C, 28E; 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, 125B, 128A, 139A, 139B, 149A, 149B, 149C, 149D, 156A, 165A, 167A, 181A, and electives approved by the departmental adviser.

4. Language Arts.

Preparation for the Major.—Courses 2A-2B, 24, 28A, 28C, 28E; 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 24, 102, 104, 105, 106, and 169 are included in the Letters and Science List of Courses. For regulations governing this list, see page 5.

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.
3. In the case of a motion picture major, provide the department with a plan for a production or research project, which the candidate intends to complete during his program for the master's degree. The candidate must

secure approval for his project before being admitted to regular graduate status.

Requirements for the Master's Degree

The Department of Theater Arts follows Plan I or Plan II. (See page 70.) 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, television, or radio. Any extensive concentration in one area of study, such as theatrical and dramatic history and literature or playwriting, ordinarily extends the candidate's residency. 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

2A-2B. Acting Fundamentals. (3-3) Yr. Beginning either semester.

Lecture, two hours; laboratory, three hours. Mr. Freud 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.

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.

25. Introduction to Theater. (2) I, II.

A survey of the theories, practices, and social responsibilities of the theater and its relationship to the other theater arts.

26. Introduction to Television and Radio. (2) I, II. Mr. Kingson

A survey of the theories, practices, and social responsibilities of television and radio and their relationship to the other arts of the theater.

27. Introduction to Motion Pictures. (2) I, II. Mr. Fielding

A survey of the theories, practices, and social responsibilities of the motion picture and its relationship to the other arts of the theater.

28A. Theater Arts Crafts. (2) I, II.

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.

28C. Theater Arts Crafts. (2) I, II.

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.

- 28E. Theater Arts Crafts. (2) I, II.** Mr. Hempen
Lecture, two hours; 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.** _____
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. 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-C, 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.** _____
Studies in the principles and methods of developing original dramatizations with children.

† When offered, the three parts of this course must be taken concurrently and constitute a full academic load for one session. Not to be given summer, 1959.

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. Television and Radio Acting. (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. Broadcast Speech. (2) II.

Mr. Kingdon

Lecture, one hour; laboratory, two hours.

Study and practice of microphone technique for announcing, news commentation, and public service programs in television and radio.

116A. Problems in Television and 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 Television and Radio Writing. (3) II.

Prerequisite: course 116A or consent of the instructor. Mr. Gerber

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 Television and Radio. (3) I. Mr. Gerber

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 Television and Radio Direction. (2) I, II.

A lecture course devoted to the theories of television and radio direction, with a comparative study of directional techniques employed in the production of various types of programs. Recommended to be taken concurrently with 125B.

125B. Radio Production. (2) I, II.

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. Television and Radio 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 newcasts, etc., in radio and television.

128A. Television and Radio Programming. (2) I, II.

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. Television and Radio 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.
- *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.
- 139A. Television Workshop.** (3) I, II. The Staff
Lecture, one hour; laboratory, six hours. Prerequisite: upper division standing and consent of the department.
Study of the techniques and tools of live television production. Practice in the use of cameras, microphones, lights, settings, graphics, film inserts and music under studio conditions.
- 139B. Television Workshop.** (3) I, II. The Staff
Lecture, one hour; laboratory, six hours. Prerequisite: course 139A or consent of the department.
Practice in the preparation and production of television programs with emphasis on the remote.
- 139C. Television Workshop.** (3) I, II. Mr. Bretz
Laboratory, eight hours. Prerequisite: course 139B or consent of the instructor.
Advanced practice in preparation and production of television programs for closed circuit or broadcast.
- 140. Advanced Technical Practice.** (2) II. _____
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
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. Scene Painting in the Theater.** (1) I. _____
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.

* Not to be given, 1958-1959.

148B. Scenic Design. (2) II.

Mr. Jones

Prerequisite: course 148A or consent of the instructor.
Advanced study of the problems of stage design.

149A-B-C-D. Training in the Technical Operation of Theater, Motion Picture, or Television-Radio Production. (1-1-1-1) I, II.

Prerequisite: consent of the instructor. Mr. Ripley, _____, Mr. Bretz
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, Mrs. Foulger

Lecture, two hours; laboratory, six hours. Prerequisite: course 2A and consent of the instructor. May be taken twice for credit.

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.

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

Prerequisite: consent of the instructor.
Practice in theater direction.
Section 1—One-act play direction.

159A. Intermediate Theater Workshop. (2) I, II.

Mr. Jones

Prerequisite: courses 28A-B-E.
Practice in theater production for technical workers, designers, writers, dancers, and musicians.

159B. Advanced Theater Workshop. (3) I, II.Mr. Freud, Mr. Boyle, Mr. Helstien, Mr. Jones,
Mr. Goodman, Mr. Melnitz

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.

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.

† 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. Hawkins, Mr. J. Young
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. C. 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. C. 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. J. Young
Prerequisite: course 164A, or 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
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. Mr. Gray
Lecture, two hours; laboratory, three hours.
The history and development of the motion picture until today.
- 170. Motion Picture Animation.** (3) I, II. Mr. Shull
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. Shull
Lecture, three hours; laboratory, three hours. Prerequisite: course 170 and consent of the instructor.
- *172. Motion Picture Animation Workshop.** (3) II. Mr. Shull
Lecture, three hours; laboratory, three hours. Prerequisite: course 170, and consent of the instructor.

* 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. Rose, Mr. Fielding
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) I, 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. Fielding

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.

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. 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, Anseo, Kodachrome, Technicolor, and others.

182B. Color Cinematography. (2) II.

Mr. Fielding

Laboratory, six hours.

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.**

Theory and practice in the preparation of photographic aids in 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.

199. Special Studies in Theater Arts. (1-4) I, II. Mr. Melnitz and the Staff

Prerequisite: senior standing and consent of the instructor.

* Not to be given, 1958-1959.

† 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.

‡ Open to motion picture majors only in fall semester and to non-motion picture majors in spring semester.

GRADUATE COURSES

- 200. Bibliography and Methods of Research in Theater Arts.** (2) I, II.
Mr. Melnitz, Mr. Goodman, 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. Savage
Guided completion of a full-length play, or study and preparation for the writing of a thesis play.
- 220. Policies and Problems of Television and Radio 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.** (3) I, II. Mr. C. Young
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.** (3) I. Mr. Gray
Study and analysis of the film in relation to other art forms.
- 240. Technical Methods and Practices in the Theater.** (3) I, 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) I, II.
Mr. Rose
Analysis of the nonfiction film in relation to the development of documentary and educational film scripts.
- 271. Seminar in the Fiction Film.** (3) II. 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) I, 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 Television or Radio.
- 291. Production Planning in Theater Arts.** (1) I, II. The Staff
Section 1. In Theater.
Section 2. In Motion Pictures.
Section 3. In Television or Radio.

292. Advanced Problems in Nondramatic Television and 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, television 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 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. Fundamentals of Dramatic Writing. (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 Communication as a Social Force. (2) I.	Mr. Fearing

ZOOLOGY

(Department Office, 2203 Life Sciences Building)

- 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 M. Szego (Clara Szego Roberts), Ph.D., *Associate Professor of Zoology.*
 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.*
 Nicholas E. Collias, *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.*
 J. Lee Kavanau, Ph.D., *Assistant Professor of Zoology.*
 Blaine H. Levedahl, Ph.D., *Assistant Professor of Zoology.*
 Otto H. Scherbaum, Ph.D., *Assistant Professor of Zoology.*
 Richard W. Siegel, Ph.D., *Assistant Professor of Zoology.*
 Henry J. Thompson, Ph.D., *Assistant Professor of Botany (Life Sciences).*
 Albert A. Barber, Ph.D., *Instructor in Zoology.*
 Richard A. Boolootian, Ph.D., *Instructor in Zoology.*
 Malcolm S. Gordon, Ph.D., *Instructor in Zoology.*
 Jerome S. Kaye, Ph.D., *Instructor in Zoology.*
 James F. Welsh, M.A., *Acting Instructor of Zoology.*
 Charles H. Baxter, A.B., *Associate in Zoology.*



- Jowett C. Chao, Ph.D., *Assistant Research Zoologist.*
 S. J. Glass, M.D., *Research Associate.*
 Lyle Herbst, M.A., *Lecturer in Life Sciences.*
 John B. Loefer, Ph.D., *Research Associate.*

Letters and Science List.—All undergraduate courses in this department except 136, and 370 are included in the Letters and Science List of Courses. For regulations governing this list, see page 5.

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.—Twenty-two 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 22 upper division units in zoology, at least one course must be taken in each of the following groups.

Group 1: Courses 101A, 109, 142.

Group 2: Courses 100A, 106.

Group 3: Courses 112, 134.

Group 4: Course 130A.

Curriculum for Medical Technologists. For details, see pages 16 and 108.

- 1A. General Zoology.** (4) I, II. Mr. Heyneman, Mr. Boolootian
 Lecture, two hours; laboratory, six hours; field trip.
 Principles of animal biology, with emphasis on the invertebrates. Offered primarily for zoology majors, premedical, and pre dental students.
- 1B. General Zoology.** (4) I, II. Mr. Bartholomew, Mr. Gordon
 Lecture, two hours; laboratory, six hours. Prerequisite: course 1A.
 Principles of animal biology, with emphasis on comparative gross and microscopic anatomy and physiology of the vertebrates.
- 4. Histological Technique.** (2) I, II. Mr. Kaye, Mr. Bloch
 Lecture and laboratory, six hours. Prerequisite: course 1B or the equivalent, or consent of the instructor.

15. **Elementary Zoology and Physiology.** (5) I, II. Mr. Howell, Mr. Barber
Lecture, three hours; laboratory, six hours. Not open to premedical, pre-
dental, or zoology majors.

25. **General Human Anatomy.** (3) I, II. Mr. Welsh
(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 labora-
tory mammals; selected topics on the physiology of the fetus and placental
function.

101A. **Introduction to General Physiology.** (3) I, II. Mr. Crescitelli, Mr. Scherbaum
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. Mr. Crescitelli
Prerequisite: course 101A.

Continuation of course 101A with emphasis on oxidation-reduction sys-
tems, excitation, inhibition, respiration, and muscle contraction.

101C. **Laboratory in General Physiology.** (3) II. Mr. Levedahl
Laboratory, six hours; discussion, one hour. Prerequisite: course 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. Not open to premedical, pre-
dental, or zoology majors.

103. **Experimental Embryology.** (3) II. Mr. Kavanau
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. Kavanau
Prerequisite or concurrent: course 103.

104. **Advanced Histological Technique.** (2) II. Mr. Kaye
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.** _____
 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.** Mr. Kaye
 Lecture, two hours; laboratory, six hours. Prerequisite: course 1B.
 The structure and activities of cells and tissues, with emphasis on the mammals. Designed for zoology majors.
- 108. Comparative Histology of Vertebrates. (2) II.** Mr. Kaye
 Lecture, one hour; laboratory, three hours. Prerequisite: course 107.
 Comparative study of microanatomy of organ systems of fishes, amphibians, reptiles, birds with mammals.
- 109. Comparative Vertebrate Physiology. (3) II.** _____
 Prerequisite: course 1B.
 A survey of the physiology of organ systems of the vertebrates with emphasis on forms other than 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 technologists.
- 112. Invertebrate Zoology. (4) I.** Mr. Boolootian
 Lecture, two hours; laboratory and field, six hours. Prerequisite: upper division standing and general zoology.
 A survey of structure classification, natural history, and ecology of invertebrates.
- 115. Helminthology. (4) II.** Mr. Heyneman
 Lecture, two hours; laboratory, six hours. Prerequisite: upper division standing and general zoology.
 A general course in the helminth parasites of animals.
- 118A. Introductory Endocrinology. (3) I.** Miss Szego
 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.** Miss Szego
 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. Miss Szego
 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, Mr. Barber
 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.

122. Introduction to the Nervous System. (4) I. Mr. Bullock
 Lecture, three hours; laboratory, three hours. Prerequisite: course 1B, 15 or 102.

Structural and functional principles of the nervous system as general biological phenomena.

‡**123. Invertebrate Embryology. (3) I.** Mr. Kavanau
 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 and pre dental students.

A survey of the concepts and facts basic to an appreciation of biologic systems and their evolutionary development.

†**126. Chemical Embryology. (2) I.** Mr. Kavanau
 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.

130A. Introductory Genetics. (2) I. Mr. Siegel
 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 dental and 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.

† Given in alternate years, beginning 1957-1958.

‡ Given in alternate years, beginning 1958-1959.

- 131A. Developmental Genetics. (2) I.** Mr. Hinton
Lecture, two hours. Prerequisite: course 130A or Botany 140.
The interaction of genes, cytoplasm, and environment in the inheritance and determination of cellular characters and 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. Hinton
Laboratory, six hours. Prerequisite or concurrent: course 130C or Botany 140 or the equivalent, 131A or 131B or Botany 142, and consent of the instructor.
Experiments to familiarize the student with the materials and methods of modern genetical research.
- 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 Terrestrial Vertebrates. (4) II.** Mr. Cowles
Lecture, two hours; laboratory, six hours; field trips. Prerequisite: course 134.
The systematics, distribution, physiology, and ecology of amphibians and reptiles.
- 134. Biology of the Vertebrates. (4) I, II.** Mr. Bartholomew, Mr. Collias
Lecture, three hours; laboratory, three hours; field trips. Prerequisite: course 1B.
The adaptations behavior, ecology, and distribution of vertebrates. This course is prerequisite to courses 133, 135, 136, and 141.
- 135. Ichthyology. (4) I.** Mr. Walker
Lecture, two hours; laboratory, six hours; field trips. Prerequisite: course 134.
The evolution, systematics, ecology, and biology of fishes, with special emphasis on local marine forms.
- 136. Fisheries Biology. (4) II.** Mr. Walker
Lecture, two hours; laboratory, six hours. Prerequisite: course 134.
Review of commercial and sport fisheries; methods of study and management.
- 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 Invertebrate Physiology. (4) II.** Mr. Bullock
Lecture, 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, circulatory, receptor, effector, etc.
- 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.
- 199. Special Studies. (1-5) I, II.** The Staff
Prerequisite: senior standing and consent of the instructor.

GRADUATE COURSES

- 201. Advanced Cellular Physiology. (3) II.** Mr. Kavanau
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. (2-2-2) I.**
Prerequisite: courses 101A, 101B. Mr. Crescitelli
Among topics discussed are respiration, enzymes, nerve physiology, vitamins, tracer techniques, and physiology of growth.
- †204. Kinetics of Biological Systems. (2) 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 advanced graduate majors in general physiology. Subjects covered will be phosphate metabolism, energy metabolism, adaptive enzymes, and physiological evolution.

† Each course given every third year, 202A to be given, 1958-1959.

‡ To be given in alternate years, beginning fall, 1957-1958.

***206. Advanced Vertebrate Morphology. (3) I.**

Lecture, one hour; laboratory, six hours. Prerequisite: course 106.

Problems in vertebrate morphology with emphasis on evolution of the skeleton and muscles. Lectures, discussion, 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. Scherbaum

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 immunology and evolution of parasitic protozoa and helminths.

212. Advanced Invertebrate Zoology. (2) I, II.

Mr. Boolootian

Prerequisite: course 112.

Problems in functional adaptations, anatomy, development, and systematics of invertebrates; intraphyletic relationships as illustrated by an intensive study of one phylum.

230. Advanced Genetics. (2) II.

Mr. Siegel

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.

Lecture, one hour; laboratory, three hours.

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.

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.

* Not to be given, 1958-1959.

- 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, Mr. Collias
- 252A-252B. Seminar in Endocrinology. (2-2) Yr. Miss Szego
- 253A-253B. Seminar in Genetics. (2-2) Yr. Mr. Siegel, Mr. Hinton
Prerequisite: course 131A or 131B.
- 254A-254B. Seminar in Physiology of Development. (2-2) Yr.
Mr. Kavanau, 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. _____
- 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, Mr. Scherbaum
- †264. Seminar in Kinetics of Biological Systems. (2) Yr. Mr. Levedahl
- 265A. Seminar in Contractile Tissues and Physiology of Muscle. (2) I.
Mr. Abbott
- 265B. Seminar in Comparative Circulatory Systems. (2) II. Mr. Abbott
266. Seminar in Vertebrate Paleontology. (2) II. _____
- 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 229).

LIFE SCIENCES

- 1A-1B. Fundamentals of the Life Sciences. (3-3) Yr.
Mr. Furgason, Mr. Thompson

Lecture, demonstration, discussion, three hours.

An integrated year-course designed primarily for students who are not majoring in the biological sciences. A nontechnical presentation of the fundamental biological concepts leading to an understanding of living things and man's place in the scientist's view of things. Both semesters must be satisfactorily completed to fulfill the College of Letters and Science requirement of at least 5 units of biological science.

† Given in alternate years beginning spring, 1957-1958.

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, 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) I, II.**

Mr. Cowles, Mr. Collias

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 395). This course is designed for students not majoring in zoology.

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Administrative Bulletins of the University of California, 1958-1959

The administrative bulletins of the University of California present information concerning the colleges, schools, and departments of the University. For copies of the bulletins or other information concerning instruction at Los Angeles, address the Office of Admissions, University of California, Los Angeles 24; for other Bulletins, and for information concerning the departments at Berkeley, address the Registrar of the University of California, Berkeley 4; for information concerning instruction at Davis, address the Registrar, University of California, Davis; for information concerning instruction at Riverside, address the Registrar, University of California, Riverside; for information concerning instruction at Santa Barbara, address the Registrar of Santa Barbara College, Goleta; bulletins of the schools and colleges in San Francisco may be had by addressing the deans in charge.

Bulletins Referring Primarily to the Departments of the University at Los Angeles

- The Circular of Information, Departments at Los Angeles, containing general information about the University, requirements for admission, general regulations, students' fees and expenses, curricular offerings in the several colleges and schools, etc.
- The Announcement of Courses and Curricula, Departments at Los Angeles, containing requirements for the degree of Associate in Arts, and for the bachelor's degree in the Colleges of Letters and Science, Applied Arts, Agriculture, and Engineering, and in the Schools of Business Administration, Education, Law, and Nursing; for the master's and doctor's degrees; and announcements of courses of instruction in the departments at Los Angeles and La Jolla. Price, 20 cents.
- The General Catalogue, Departments at Los Angeles. A combination of the Circular of Information and the Announcement of Courses and Curricula. Price, 25 cents.
- The Announcement of the Graduate Division, Southern Section.
- The Announcement of the College of Applied Arts.
- The Announcement of the Colleges of Engineering.
- The Announcement of the Graduate School of Business Administration, Los Angeles.
- The Announcement of the School of Business Administration, Los Angeles.
- The Announcement of the School of Education, Los Angeles.
- The Announcement of the School of Law, Los Angeles.
- The Announcement of the School of Medicine, Los Angeles.
- The Announcement of the School of Nursing, Los Angeles.
- The Announcement of the School of Social Welfare, Los Angeles.
- The Schedule of Classes, University of California, Los Angeles: containing the time schedule of exercises and an office directory of officers of instruction and administration. Published in February and September of each year for the semester immediately following. Price, 10 cents.
- The Annual Commencement Program (at Los Angeles), containing the list of degrees conferred, scholarships, prizes, and other honors.
- The Bulletins and Circulars of University Extension.

Other Bulletins Referring to Departments of the University at Los Angeles

- The Announcement of the School of Public Health.
- The Bulletin of the College of Agriculture.