UCLA

general catalog

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University of California
Los Angeles

June 1976

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While efforts have been made to assure the accuracy of statements in this Catalog, students must understand that all courses, course descriptions, designations of instructors, and all curricular and degree requirements contained herein are subject to change or elimination without notice. Students should consult the appropriate department, school, college or Graduate Division for current information, as well as for any special rules or requirements imposed by the department, school, college or Graduate Division.

GENERAL INFORMATION

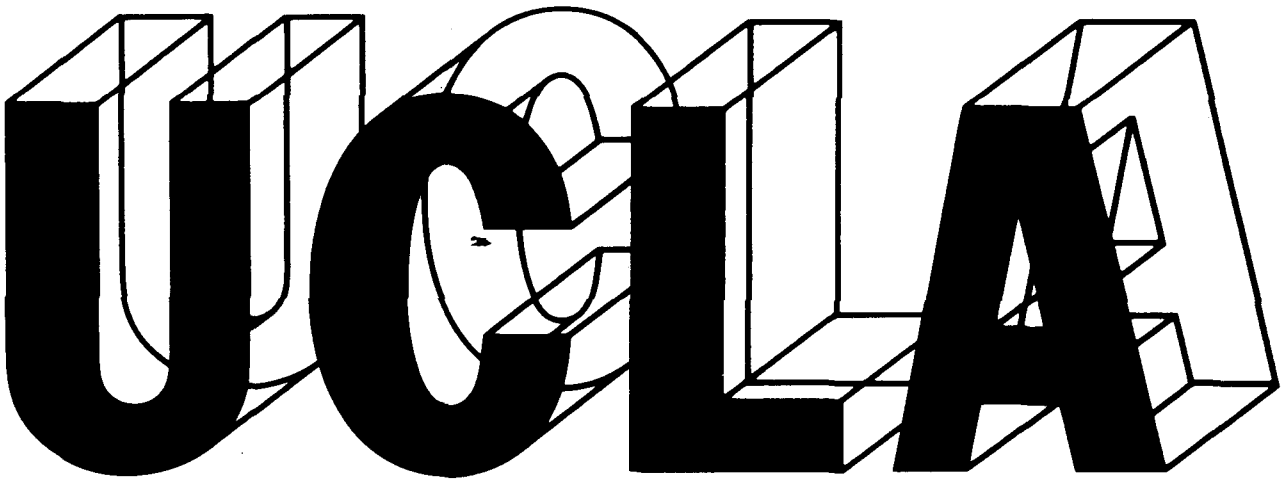
Letters of inquiry concerning the University of California, Los Angeles, should be addressed to the Office of Admissions, University of California, 405 Hilgard Avenue, Los Angeles, California 90024.

Letters of inquiry concerning the University in general should be addressed to the Registrar, University of California, Berkeley, California 94720.

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.



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$1.50

INTELLECTUAL STIMULATION

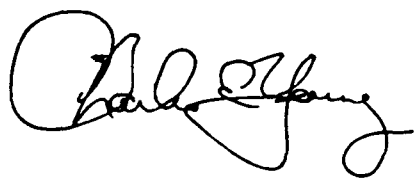
Universal public education is not quite as old as the events being celebrated this year by the Bicentennial, but its roots go back at least that far — Thomas Jefferson, for example, proposed in 1779 that Virginia establish a complete system of public schools.

In any event, it seems undeniable that the broad educational opportunities available in the United States have been largely responsible for the country's present level of scientific and technical achievement and social and economic knowledge.

The University of California, founded in 1868, has provided an extension of the principle of readily available public education by making its facilities accessible to all qualified applicants at the lowest possible fees.

Today, some critics would solve the financial problems of inflation by reducing the University's enrollments, while others would lower its admissions standards and the quality of its instruction. To avoid either this shrinking of educational opportunity on one hand or the lessening of educational quality on the other, UCLA has conducted a continuing study of its offerings, seeking to preserve and strengthen those which are essential to a great university.

As you will see by examining this catalog, the University continues to offer a rich academic fare at both graduate and undergraduate levels. In spite of UCLA's many contributions in research and public service, this depth and variety of intellectual stimulation may be the University's greatest achievement in this Bicentennial year.



Chancellor

Table of Contents

Calendar

	Fall '76	Winter '77	Spring '77
First day to file application with Admissions Office for undergraduate standing. (Last day will depend on the number of applications received.)	November 1, 1976 Monday (For Fall Quarter, 1977)	July 1, 1976 Thursday (Open to inter-campus transfers only)	October 1, 1976 Friday
*Application for admission or readmission to graduate standing, with complete credentials and the application fee, must be filed with Graduate Admissions, on or before this date.	February 16 Monday	October 1 Friday	December 30 Thursday
Registration materials for continuing students are available for pick up at 1134 Murphy Hall.	June 11 Friday	November 15 Monday	February 17 Thursday
In order to register by mail, return the (statement of intention to register, statement of legal residence, payment of (new undergraduate) preliminary deposits to admission (new) or readmission (re-entering) officer.	July 1, 1976 Thursday	November 1 Monday	January 14 Friday
Academic counseling by appointment (weekdays only) begins for students eligible to enroll by mail.	July 2 Friday	November 2 Tuesday	January 17 Monday
Last day to file application with Registrar for readmission in undergraduate standing.	July 30 Friday	November 12 Friday	February 11 Friday
Registration materials are mailed to eligible new and re-entering students by Registrar.	August 16 Monday	November 29 Monday	February 28 Monday
Academic counseling by appointment (weekdays only) begins for students not enrolled by mail.	September 9 Thursday	December 15 Wednesday	March 24 Thursday
Entrance Examination in English as a Second Language.	September 14 Tuesday	January 4 Tuesday	March 29 Tuesday
Subject A English Placement Test.	September 16 Thursday	January 5 Wednesday	March 30 Wednesday
Chemistry 1A Preliminary Examination.	September 20 Monday	January 5 Wednesday	March 30 Wednesday
Mathematics Placement Examination.	September 20 Monday		
Quarter begins.	September 20 Monday	January 5 Wednesday	March 30 Wednesday
†Registration in Person. 8:30 a.m. to 3:30 p.m.	September 20-24 Monday-Friday	January 5-7 Wednesday-Friday	March 30-April 1 Wednesday-Friday
Spanish and Portuguese Placement Examination.	September 23 Thursday	January 6 Thursday	March 31 Thursday
French Placement Examination.	September 22 Wednesday	January 7 Friday	April 1 Friday
Proficiency Examination for English 1A.	September 24 Friday	January 7 Friday	April 1 Friday
Instruction begins.	September 27 Monday	January 10 Monday	April 4 Monday
Late registration in Person, 10:00 a.m. to 2:00 p.m.	September 27 Monday	January 10 Monday	April 4 Monday

*Also last date for renewal of applications to be submitted by graduate students who have applied but who did not previously register for a regular quarter.

†For details: See Registration Circular and Schedule of Classes. A $25.00 late Registration Fee is assessed after these dates.

	Fall '76	Winter '77	Spring '77
Graduate students approved Study List card due in Registrar's Office.	September 29 Wednesday	January 12 Wednesday	April 6 Wednesday
Last day to file with Graduate Division applications for advancement to candidacy for the master's degree to be conferred 1976-1977.	October 4 Monday	January 17 Monday	April 11 Monday
Last day for graduate students to file with Graduate Division petitions for change of major.	October 8 Friday	January 21 Friday	April 15 Friday
Last day to file Study List Card without fee; last day to change (add, drop) courses to study list *without fee*.	October 8 Friday	January 21 Friday	April 15 Friday
Last day for late registration in person with $25.00 fee. Before 2:00 p.m.	October 8 Friday	January 21 Friday	April 15 Friday
Last day for graduate students to file with Graduate Division requests for leaves of absence.	October 8 Friday	January 21 Friday	April 15 Friday
Last day to pay Subject A fee. Before 3:50 p.m.	October 11 Monday	January 24 Monday	April 18 Monday
Last day to file Study List Card with $10 fee; last day to add courses to official study list and to enroll in a course on a Pass/Not Pass or Satisfactory/Unsatisfactory basis. ($3.00 petition fee). Before 3:50 p.m.	October 22 Friday	February 4 Friday	April 29 Friday
Last day for undergraduate students to drop courses from study lists without penalty of Grade F (failure), ($3.00 petition fee). Before 3:50 p.m.	October 22 Friday	February 4 Friday	April 29 Friday
Last day to file notice of candidacy with Registrar for bachelor's degree to be conferred 1976-1977, *without fee*.	October 22 Friday	February 4 Friday	April 29 Friday
Last day to submit final drafts of dissertations to doctoral committees for degrees to be conferred 1976-1977.	November 1 Monday	February 14 Monday	May 9 Monday
Last day to file petition with Registrar for removal of Grade I during the quarter. ($5.00 fee). Before 3:50 p.m.	November 5 Friday	February 11 Friday	May 6 Friday
Last day for graduate students to drop courses from study lists without penalty of Grade F (failure), ($3.00 petition fee). Before 3:50 p.m.	November 8 Monday	February 22 Tuesday	May 16 Monday
§Last day to file (with fee) notice of candidacy with Registrar for bachelor's degree to be conferred 1976-1977.	November 12 Friday	February 25 Friday	May 20 Friday
Last day to submit final drafts of theses to master's committees for degrees to be conferred 1976-1977.	November 15 Monday	February 28 Monday	May 23 Monday
Last day to file with the Graduate Division completed copies of theses for the master's degree and dissertation for the doctor's degree to be conferred 1976-1977.	November 29 Monday	March 14 Monday	June 6 Monday
Instruction ends.	December 4 Saturday	March 19 Saturday	June 11 Saturday
Final examinations.	December 6-10 Monday-Friday	March 21-25 Monday-Friday	June 13-17 Monday-Friday
Quarter ends.	December 10 Friday	March 25 Friday	June 17 Friday
Filing of applications for fellowships and graduate scholarships tenable at Los Angeles for 1977-1978 must be postmarked by:	December 15, 1976 Wednesday		
Last day for continuing students to file applications for undergraduate scholarships for 1977-1978.		January 14 Friday	

§Notice of candidacy will be taken after this date only if degree check can be completed on an emergency basis.

	Fall '76	Winter '77	Spring '77
Academic and Administrative Holidays:	July 5 Monday	February 21 Monday	
	September 6 Monday	March 28 Monday	May 30 Monday
	November 25-26 Thursday-Friday		
	December 24 Friday		
	December 31 Friday		

Note: Anything submitted or requested as an exception to a published deadline will be subject to an additional penalty fee of $10.00.

The University

AN INTRODUCTION

The University of California was established in 1868. Initially located in Oakland, it moved to its first campus, Berkeley, in 1873. Today, along with the Berkeley campus, the University has campuses at Los Angeles, Davis, San Francisco, Santa Barbara, Riverside, San Diego, Irvine (in Orange County) and Santa Cruz.

Instruction on these campuses covers all of the broad and essential areas of human knowledge, including the arts, sciences and literature. Each of the campuses has its own organization, objectives, and style of academic life. Each offers a unique set of programs and facilities; yet each cooperates to insure a maximum of opportunity for the student and a maximum of flexibility in fulfilling his plans.

The University is keeping pace with the growth of the State. Statewide enrollment in the Fall Quarter of 1975 was more than 128,000. Adult education programs are conducted by University of California Extension through classes in approximately 230 communities in the State, and through films, television courses and correspondence. The University maintains an Agricultural Extension Service. And its Education Abroad Program offers opportunities to its undergraduate students to study in universities in other countries.

The University is governed by a Board of Regents. The Regents appoint the President of the University, who is the executive head of the University, and with his advice appoint the Chancellors, directors and deans who administer the affairs of the individual campuses and divisions of the University. The Academic Senate, subject to the approval of the Regents, determines conditions for admission of students, and for the granting of certificates and degrees. It also authorizes and supervises all courses of instruction in the academic and professional colleges and schools, except in professional schools offering work at the graduate level.

UCLA

History and Development

UCLA—The University of California, Los Angeles—is located in the Westwood Hills in western Los Angeles. Academically ranked among the leading universities in the United States, it has attracted distinguished scholars and researchers from all over the world.

UCLA was created on May 23, 1919, when Governor William D. Stephens signed legislation transferring buildings, grounds and records of the State Normal School on North Vermont Avenue to the University of California.

The newly created institution opened its doors to 250 students in September, 1919, as the "Southern Branch" of the University of California. The curriculum included courses in the freshman and sophomore years in letters and science and in teacher-training. In 1922 the teacher-training courses were organized as a Teachers College, and 1923 and 1924, respectively, the third and fourth years of Letters and Science were added.

It soon became evident that a new home would be needed. On March 21, 1925, the present Westwood site—then consisting of 383 acres—was chosen by the Regents. In the spring of 1929, UCLA was moved to its permanent home.

In the 1930's UCLA expanded its educational facilities to include a College of Agriculture (no longer operational), a College of Business Administration (which, renamed in 1950, operated as the School of Business Administration until 1966), a College of Applied Arts (later replaced by a College of Fine Arts), a School of Education (later renamed the Graduate School of Education), and a Graduate Division. Graduate work was authorized in 1933 and the first Ph.D. awarded in 1938. Since 1940 the schools of Architecture and Urban Planning, Dentistry, Engineering and Applied Science, Law, Library and Information Service, Medicine, Nursing, Public Health, Social Welfare, and a Graduate School of Management have been added.

Recognizing the value of an interdisciplinary approach to the search for knowledge, the University of California has also developed research programs and curricula outside the usual departmental structure. Today, along with libraries, UCLA's interdisciplinary research facilities include institutes, centers, projects, bureaus, nondepartmental laboratories, stations, and museums and a wide range of interdisciplinary programs of study are available.

SURVEY OF CURRICULA

The scope of the undergraduate and graduate programs of instruction offered in the colleges and schools of the University on the Los Angeles campus is briefly indicated below. For more details see College of Letters and Science through Graduate Division Programs.

The College of Letters and Science offers curricula leading to the degrees of Bachelor of Arts and Bachelor of Science, and the following preprofessional curricula: predental, predental hygiene, prenursing, preoptometry, prepharmacy, and prephysical therapy.

The College of Fine Arts offers curricula leading to the degree of Bachelor of Arts.

The schools of Engineering and Applied Science, Nursing and Public Health offer curricula leading to the degree of Bachelor of Science.

The School of Dentistry offers a curriculum leading to the degree of Doctor of Dental Surgery.

The School of Law offers a curriculum leading to the degree of Juris Doctor.

The School of Medicine offers a curriculum leading to the degree of Doctor of Medicine.

The Graduate School of Education supervises curricula leading to the Certificate of Completion of the various elementary and secondary credentials, and for the administrative credential.

The Graduate Division, in cooperation with the colleges and schools of the University, supervises advanced study leading to the academic degrees of Master of Arts, Master of Arts in Teaching, Master of Science, Candidate in Philosophy,and Doctor of Philosophy; and the professional degrees of Master of Architecture, Master of Business Administration, Master of Education, Master of Engineering, Master of Fine Arts, Master of Library Science, Master of Nursing, Master of Public Administration, Master of Public Health, Master of Social Psychiatry, Master of Social Welfare, Engineer, Doctor of Education, Doctor of En-

vironmental Science and Engineering, Doctor of Public Health and Doctor of Social Welfare.

STUDY AND RESEARCH FACILITIES

THE UNIVERSITY LIBRARY

The University Library on the Los Angeles campus consists of the University Research Library, the College Library, and a number of specialized libraries. Its collections contain more than 3½ million volumes, and extensive holdings of government publications, pamphlets, manuscripts, maps, microtext editions, music scores, recordings, and slides. The Library regularly receives about 45,000 serial publications. A listing of *Serials Currently Received at UCLA*, published by the University Library, may be consulted at principal service points in campus libraries.

The principal collections in the social sciences and the humanities are in the University Research Library. The card catalog here lists all cataloged books in the Research Library, the College Library, and other campus libraries and in the William Andrews Clark Memorial Library. Biweekly issues of the *Catalog Supplement* on microfiche list recent publications which have not yet been fully cataloged.

The University Research Library provides special study and research facilities, including facilities for reading microtext materials and for the use of typewriters. All students have access to the main book stacks in the Library.

An open-shelf collection of books of interest primarily to undergraduate students is maintained in the College Library, in the Lawrence Clark Powell Library Building.

The Department of Special Collections, in the Research Library, contains rare books and pamphlets, manuscripts, the University Archives, certain subject collections of books, early maps, and files of early California newspapers.

Other collections of rare materials are the Belt Library of Vinciana, in the Art Library, the Benjamin Collection of Medical History, in the Biomedical Library, and the Gross Collection of business and economic history, in the Management Library.

The Public Affairs Service, in the Research Library, provides a coordinated service embracing collections of official publications of governments and international organizations and of other books and pamphlets in the social sciences. It is a depository for the official publications of the United States government, the State of California, California counties and cities, the United Nations and some of its specialized agencies, and a number of other international organizations. Also available are selected publications of the other states and possessions of the United States, publications of foreign governments, books and pamphlets on local government, and reference and pamphlet materials on industrial relations and social welfare. The John Randolph Haynes and Dora Haynes Foundation Collection is administered by the Public Affairs Service. This service provides access to research data which are available on computer tapes.

The Center for Information Services, in the Research Library, offers searches of bibliographical information which is available in computer-readable form from a number of indexing and abstracting services.

The Biomedical Library, in the Center for the Health Sciences, has collections in all of the health and life sciences. Materials for engineering, astronomy, meteorology, and mathematics are kept in the Engineering and Mathematical Sciences Library. Education, Kinesiology, and Psychology are the principal subjects served by the Education and Psychology Library. Other libraries serve the fields of Architecture and Urban Planning, Art, Chemistry, English, Geology-Geophysics, Law, Management, Maps, Music, Oriental Languages, Physics, Theater Arts, and the University Elementary School.

The resources of these libraries are available to all students and members of the faculty and staff of the University. A Library handbook, describing the organization and services of the University libraries and listing their schedules of hours, may be obtained in any of the campus libraries.

The Audio-Visual and Photographic Services, in the Powell Library Building, offers complete documentary photographic service, where photostats, microfilms, slides, ozalid prints, and other photographic work are done. Self-service photocopying machines for copying periodical articles and portions of books are available in most library units on campus.

Supplementing the University Library is the William Andrews Clark Memorial Library of about 75,000 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. The Clark Library sponsors an annual program of summer postdoctoral fellowships. The areas of study are based on the particular strengths of the Library's holdings. Each year a Clark Library Fellowship is granted to a UCLA graduate student working toward a doctorate within one of the Library's fields of interest, and each year also an eminent scholar is brought to the Library as its Senior Research Fellow. A distinguished scholar is appointed each year to the Clark Library Professorship. This Library is not on the University campus, but is situated at 2520 Cimarron Street, at West Adams Boulevard.

The Clark Library is open Monday through Saturday from 8 a.m. to 5 p.m. Leaflets describing the Clark Library are available at the Reference Desk in the Research Library, and information on University transportation to the Clark Library may also be obtained here.

SPECIAL PROGRAMS

Creative Problem Solving (CPS) is an integrated program of interdisciplinary courses which has been developed by faculty members from six of the professional schools (the schools of Architecture and Urban Planning, Education, Engineering and Applied Sciences, Management, Public Health, and Social Welfare) and from the College of Letters and Science and the College of Fine Arts. It is for undergraduate students with professional and other career objectives who want to turn what they know and learn into constructive action.

This option is designed to help prepare future professionals to appreciate and evaluate the opportunities in today's world as well as the problems that increasingly confront professionals and others in positions of authority—problems such as complexity, uncertainty, rapid change, organization, risk, resource limitations, human need, and technology. Its aim is to introduce students to the art and science of problem-solving and decision-making based upon a creative mixture of humanistic, scientific and professional values and methods.

The CPS sequence provides an opportunity for selected students from all disciplines to initiate and take responsibility for a very relevant segment of their education. It includes rigorous classroom and experiential learning, guided study, and practicum or fieldwork projects.

Creative Problem Solving is a valuable supplement to any major in the University, and these courses will count as upper division

electives and in some cases (as stated in the course descriptions) will meet College of Letters & Science breadth requirements.

The CPS courses are existing or newly established in departments and schools throughout the University and are taught by faculty members in the participating professional schools and in the Colleges of Letters and Science, and Fine Arts. Their teaching effectiveness, the relevance of their courses, and their personal interest and willingness to contribute to the goals of this supplementary program-design make them part of a community of students and faculty with common interests and objectives.

Interested applicants should contact the CPS Office, Architecture B-309: CPS Director, Professor Marvin Adelson; CPS Coordinator, Robert Bickner; Program Associate, Lynn Rosenfeld.

Below is a partial list of the CPS courses for 1976-1977, indicating the range of offerings that are available. For course descriptions see the "Courses of Instruction" section; a complete up-to-date list, with course descriptions, is published each quarter in the Registration issue of the Daily Bruin.

Courses to be offered: M140 (same as Architecture and Urban Planning M180); M144 (same as Speech M144); M174A (same as Engineering M174A); M177(same as Education M147); M181 (same as Architecture and Urban Planning M192); M185A (same as Public Health M105A); M190 (same as Architecture and Urban Planning M190); and M191 (same as Management M191).

THE LOWER DIVISION PROGRAM

The Lower Division Program is a two-year undergraduate program organized in a sequence of five study units of one quarter each. Students have the option of entering or leaving the program at the end of each study unit. Those remaining with the program have the advantage of satisfying College of Letters and Science requirements (see Credits). Each LDP Unit approaches a general subject area through the integration of several academic disciplines into one comprehensive "unit" of study.

Each Unit is under the direction of one faculty member with several other distinguished faculty members also contributing their particular field of expertise. Within each Unit, students will participate with faculty in lectures, small discussion groups and seminars where they will be encouraged to express themselves in writings and presentations of individual and/or group papers and projects related to the topics being studied. There will also be tutorial groups, films and some field trips.

Units offered by LDP are listed in the Registration (and subsequent) issues of the Daily Bruin. Additional information may be obtained in 2226 Campbell Hall or by calling 825-7104.

Director: Stanley A. Wolpert, Supervisor: Allen Yarnell

SPECIAL RESEARCH FACILITIES

Recognizing the value of an interdisciplinary approach to the search for knowledge, the University maintains organized research units outside the usual departmental structure. Organized research units aid research and may enhance the teaching of participating members of the faculty, but they do not offer regular academic curricula or confer degrees. They may provide research training to graduate students employed in research programs with faculty supervision. Organized research units are designated as institutes, centers, projects, bureaus, nondepartmental laboratories, stations and museums. While the objectives and fields of study vary widely, an institute is organized around a broad subject area which cuts across department, school, college or even campus boundaries. A center may be an agency established within an institute covering a major area, or it may be separate and provide specialized facilities. A bureau is an academic agency engaged primarily in public service activities and in facilitating research in one or more academic departments related to these activities. The more specialized activities in focal fields are described as programs, laboratories, and projects.

Institutes

The **Institute of Archaeology** was established in the summer of 1973 for the purpose of developing and coordinating all aspects of activities relating to archaeology. Its goal is to contribute to the ideal of a comprehensive interdisciplinary reconstruction of the human past, as evidenced especially from artifactual remains.

The Institute includes faculty members from eleven academic units at UCLA, as well as faculty from various other UC campuses. It provides an intellectual focus for all University of California archaeologists, facilitating the exchange of views on theoretical models and technical developments. It does so by sponsoring lectures, seminars, symposia and arranging for visiting faculty; it also helps support excavation programs of the individual archaeologists active on campus. Through the Archaeological Survey, the Institute serves the needs of California archaeology, especially in the Southern part of the state. Besides occasional publications, the Institute issues a yearly journal, a series of technical monographs and a series devoted to major archaeological reports and investigations. Given the considerable amount of public interest in archaeology, the Institute promotes a variety of activities which serve a broadly based need in the off-campus community, such as an Extension curriculum in archaeology, field trips, public lectures and publications for the interested lay public.

Giorgio Buccellati, Director

The **Institute of Geophysics and Planetary Physics** is engaged in interdisciplinary programs related to studies of the interior of the earth, moon, and other planets, the fluid and gaseous parts of the planets, and interplanetary space. Major research programs being actively explored in the laboratories of the Institute include investigations into the origin of the magnetic field; the configuration of the earth's magnetic field in space; the earth-sun interaction; structure and properties of the lunar surface and interior; meteorites; origin of the earth's magnetic field; the history of the solar system; astrophysical plasmas; ocean-atmosphere interactions; seismology; earthquake control and prediction; internal structure of the earth; earth tides; continental drift and plate tectonics; properties of materials under high pressures and temperatures; mineral synthesis; radiocarbon archaeology; geochronology; glaciology; metamorphism; isotope geochemistry; man's interaction with his environment.

The laboratory facilities of the Institute and its faculty are available to guide the dissertation research of students in the physical sciences, including the Departments of Geology, Geophysics and Space Physics, Physics, Chemistry, Mathematics, Meteorology, Astronomy, Engineering and Anthropology.

Leon Knopoff, Associate Director

The **Brain Research Institute** provides an environment for research in the neurological and behavioral sciences for investigators particularly from the behavioral, health and life sciences fields but also from the physical sciences and engineering. Three principal goals of the Institute are: (1) to support and conduct research which contributes to an understanding of brain mechanisms and behavior; (2) to contribute to the training of predoctoral and postdoctoral students for professional careers in

brain science; (3) to develop and disseminate information about brain function in the interest of the social and scientific communities. Located in the Center for the Health Sciences, the Institute conducts programs which are largely interdisciplinary. General activities include attention to such broad fields of interest as neurophysiology, neurochemistry, neuroanatomy, neuropharmacology, neuroendocrinology, neuropsychiatry, biophysics and communications, neuroimmunology, behavior and neuropathology. **J. D. French, Director**

The Dental Research Institute, located mainly on the 7th floor of the School of Dentistry, involves faculty, graduate and professional students doing original research in six program areas as follows: (1) Immunology/Immunogenetics (2) Oral Ulcerations/Periodontal Disease (3) Chemistry and Structure of Oral Tissues (4) Oral Neurology (5) Craniofacial Anomalies and (6) Restorative Biomaterials. Ph.D. students are sponsored by individual Institute faculty members.

William H. Hildemann, Director

The **Jules Stein Eye Institute** is a comprehensive facility located within the Center for the Health Sciences, devoted to research in the sciences related to vision, the care of patients with eye disease and the dissemination of knowledge in the broad field of ophthalmology. Incorporated in this structure are outpatient, inpatient and operating room facilities for the care of patients with ophthalmic disorders; areas for research in the sciences related to vision; and facilities for scientific reading, lectures and seminars. The Institute affords a unique opportunity for the training of students in the School of Medicine, residents and graduate physicians. A close relationship with graduate and undergraduate research and teaching facilities at UCLA is maintained.

B. R. Straatsma, Director

The **Molecular Biology Institute** was established to serve various interested departments of the biological, medical, and physical sciences in the coordination, support, and enhancement of research and training in molecular biology. Interests and activities of the Institute encompass all approaches which aim to explain biology at a molecular level, with particular emphasis on correlation of structure and function. These include study of structure and function of macromolecules, molecular genetics and virology; bioenergetics, catalysis and control; molecular basis of cellular architecture, development, evolution, neurobiology and oncology. Staff members from departments in biological, physical, and medical sciences participate in Institute programs, and the Institute aids departments in graduate training and postdoctoral programs in the general area of molecular biology.

Most of the Institute staff are housed in the Molecular Biology Institute building completed in 1976. Approximately one-half of the building space is devoted to the Parvin Cancer Research Laboratories. The Institute building is located adjacent to the Chemistry, Biology and Bacteriology Departments and close to the School of Medicine. **P. D. Boyer, Director**

The **Neuropsychiatric Institute (NPI),** located in the UCLA Center for the Health Sciences, is an organized activity of the University of California. The mission of the Institute is threefold: (1) acquiring new knowledge about the factors affecting social, psychological, intellectual and neurological health; (2) training of professionals in mental health, mental retardation and diseases of the nervous system; and (3) developing and utilizing the most effective techniques of diagnosing and treating these disorders. The NPI houses the Department of Psychiatry (including the Division of Biobehavioral Sciences), the Mental Retardation Research Center and the NPI Hospital and Clinics. Educational programs associated with the Institute include psychiatric education of medical students, psychiatry internship and residency programs, residency specializations in child psychiatry and consultation-liaison psychiatry, a clinical internship in medical psychology, research training in psychiatry and biobehavioral sciences and interdisciplinary training in mental retardation and developmental disabilities, psychiatric nursing, psychiatric social work, special education, occupational and recreational therapy, drug abuse and life-threatening behavior. **Louis Jolyon West, M.D., Director**

The **Institute of Rehabilitation and Chronic Diseases,** located on the West Medical Campus, was established to develop basic theory and clinical techniques relevant to chronic disabling disease. Investigative areas include arthritis, audiology, bone and hard tissue metabolism, cardiology, myology, cerebral palsy, kidney function and disease, neurology, physical therapy, and prosthetics. Fellowships are available through the participating divisions. Much of the work involves participation by basic as well as medical scientists. **Eugene V. Barnett, Director**

The **Institute of Industrial Relations,** authorized by the Legislature of the State of California in 1945, is concerned with two principal types of activity. The first is an interdisciplinary research and publishing program directed primarily toward the study of labor-management relations, wages and related problems, economic security programs, the labor market, the impact of technological change, the quality of working life, the problems of poverty and minority groups, human relations, labor law, labor history, comparative studies and manpower problems. Research staff members of the Institute are usually drawn from the regular faculties of the Graduate School of Management, the Departments of Economics, Political Science, and Sociology; and the School of Law. This program affords opportunities to graduate students specializing in personnel management and industrial relations to engage in investigative work under expert guidance. The second main activity consists of community and labor relations programs serving management, unions, the public, and other groups interested in industrial relations activities. The programs consist of public lectures, conferences, symposia and institutes of varying duration, and include a series of courses through University Extension leading to a Certificate in Industrial Relations.

F. Meyers, Acting Director

The **Western Management Science Institute** fosters research and advanced education in the management sciences and operations research. It conducts mathematical and computer-oriented studies on a variety of subjects. These include the construction of optimization models for production and inventory systems, finance and marketing policies, conservation of natural resources, and resource allocation in organizations. Appropriate tools of mathematical, dynamic and combinatorial programming and of simulation are developed and applied. The basic economics of decision and information systems is also being studied.

In addition to its research programs, the Institute is engaged in developing faculty resources and graduate curricula in the management sciences, and sponsors workshops and seminars including the Interdisciplinary Colloquium on Mathematics in the Behavioral Sciences.

Although composed largely of faculty members of the Department of Management, the Institute staff is interdisciplinary. Fruitful collaborative relationships have occurred with the departments of Economics, Engineering, Law, Management, Mathematics, Political Science, and Psychology.

Harold M. Williams, Acting Director

The **Institute of Library Research** was established in September 1963 as a result of the University's recognition of the need for organized research for the satisfactory solution of library and information systems problems. The Institute is a Universitywide agency, originally with offices on both the Berkeley and Los Angeles campuses. At the present time the Los Angeles office is closed, but interested persons may obtain information and also communicate with the Director (whose office is in Berkeley) through the Graduate School of Library and Information Science, Powell Library Building room 120. Areas of concern to the research program of the Institute are: integration into the library of new methods for recording and disseminating knowledge; mechanization of processes in libraries and information centers; improvement of control over the increasing volume and variety of information produced; continuing examination of the role and functions of the research library; integration of individual research libraries into larger systems; development of methodologies for the solution of specific information problems; and the education of appropriate research and professional personnel. The Institute invites the participation of students, faculty members, and research personnel of all departments of the University, since information and the university library system are of almost universal interest. **Charles Bourne (Berkeley), Director**

The **Institute for Social Science Research (ISSR)** undertakes basic and policy studies on a broad spectrum of contemporary sociological, psychological, political and economic problems and other social-related community issues. The Institute encourages collaborative research between faculty in the various social science departments as well as cooperative projects that involve members of the professional schools. The core staff of the Institute provides research consultation and supportive services to University faculty members engaged in research investigations as well as advice on the designing and funding of projects. From time to time, the Institute offers special opportunities for graduate students to gain research experience. As funds permit, the Institute provides seed-funding for project development and pilot studies.

An integral part of the Institute is the Survey Research Center (SRC) which not only serves the UCLA faculty but investigators from other universities and research groups in the local and national social research community. Several times a year, SRC undertakes studies of Los Angeles County residents that provide research information to a number of different investigators. These multi-purpose surveys allow researchers to economically obtain data-sets on large representative samples of Los Angeles County citizens. Also affiliated with the Institute is the Center for Computer-based Behavioral Studies (CCBS). This Center, with its own computer resources, provides an opportunity for faculty and graduate students to undertake investigations requiring sophisticated laboratory facilities and computerized information system access.

The current research program includes studies in medical care, mental health, human development, law, demography, economic resources, gerontology, energy and economic behavior.

Howard E. Freeman, Director

Centers

The **Water Resources Center** is a Universitywide organization charged with coordinating water resources research on the several campuses. Through University research funds and funds from the Office of Water Research and Technology, U.S. Department of the Interior, it supports selected research proposals in such departments as Biology, Engineering, Geography, History, Meteorology, and Political Science. Most of these projects provide research assistantships for the training of graduate students. No research is conducted in the Center itself.

Research interests include water resources systems engineering, desalting of water, political strategy in water resources development, soil mechanics problems in water resources development, the history of water resources development, improvement in methods of forecasting precipitation and runoff, and management of water quality. Graduate students may contact the Center by writing to the Director, Professor J. Herbert Snyder, University of California, Davis, California 95616, for information on current research projects. **J. Herbert Snyder, Director**

The **Mental Retardation Research Center** provides laboratories and clinical facilities for basic and applied research and research training in mental retardation and related aspects of human development. Its interdisciplinary activities range from molecular biology to epidemiology. The Center is closely allied with a Professional Education and Clinical Services Facility, which promulgates interdisciplinary training in the evaluation and treatment of mentally retarded and otherwise disturbed children and their families. Together, these two units comprise a total program directed toward a major public health program.

Nathaniel A. Buchwald, Director

The **Reed Neurological Research Center** is a clinical, teaching and research facility within the Department of Neurology of the School of Medicine. It contains a 12-bed inpatient service and an outpatient clinic. The research program is interdisciplinary and focuses on fundamental problems related to neurological diseases. Among the diseases being studied are: amyotrophic lateral sclerosis, epilepsy, multiple sclerosis, myasthenia gravis, myopathies and Parkinson's disease. **Richard D. Walter, Director**

The **Center for Afro-American Studies** is an organized research unit established on the UCLA campus in 1969. Its basic mission is to encourage and support research that enhances the interpretation of the Afro-American experience. Pursuant to this objective, it provides faculty and graduate student research grants, sponsors in-house research projects, supports interdisciplinary symposia, encourages related curriculum development, and most important, relates these findings to the community at large via lectures, publications, and to a limited extent, cultural programs. Approval for the interdepartmental M.A. degree in Afro-American Studies is pending. **Henry W. McGee, Interim Director (1975)**

The **American Indian Studies Center** acts as an educational catalyst in a variety of ways. It encourages new programs of study, promotes faculty development and systematic research, and develops library materials and curricula related to American Indian studies. In addition, the Program is involved with cultural activities of the Indian community and sponsors lectures, symposia, conferences, and workshops relevant to American Indian development. Special emphasis is upon coordinating the educational needs of the American Indian students with the University and the community. **A. F. Purley, Director**

The **Asian American Studies Center** seeks to provide a deeper understanding of a particular area of study by the development of related human and material resources. It promotes the systematic development of material resources related to Asian American studies through an aggressive library acquisitions program, coordinated interdisciplinary research, and a broad publications program. Human resources are nurtured by vigorous curriculum development efforts, and courses have been designed with degree-granting programs at both the undergraduate and graduate levels. The Center supports and encourages promising graduate students and postdoctoral scholars to pursue their interests in this vital field of study, as well as sponsoring a variety of conferences, lectures, symposia, and cultural events. In addition, the Center supports a wide variety of projects designed to channel the resources of the University and the fruits of the Center's other areas of activity to Asian American communities.

Lucie Cheng Hirata, Acting Director

The five principal objectives of the **Chicano Studies Center** are: 1) To foster faculty conducted multi-disciplinary research on critical issues confronting the Chicano community; 2) To support the multi-disciplinary research training of undergraduate and graduate students; 3) To assist in the development of new curriculum and bibliographical materials dealing with the culture, history and problems of the Chicano; 4) To develop programs that promote greater involvement of the Chicano community in University activity; and 5) To provide an organizational means through which the University can provide educational, cultural, and research services to the Chicano community. The Center publishes Aztlán, the major international journal of Chicano studies research. Its Bibliographic Research and Collection Unit is rapidly becoming known as the major center of reference materials on the Chicano community in the United States.

Juan Goméz-Quiñones, Director

The **African Studies Center** provides a framework for furthering teaching and research on Africa involving social sciences, education, linguistics, humanities, fine arts, law, the health sciences and the natural sciences. The Center participates in an interdisciplinary master's degree program and in an undergraduate program in conjunction with degrees in the social sciences or African languages. The Center has become increasingly involved in special programs which entail the dissemination of knowledge about Africa to the larger community. Through its Research Committee the Center makes grants to assist UCLA faculty members and students with research on Africa. It participates in administering the NDEA Title VI fellowship awards for the study of African languages, and offers a limited number of supplementary grants-in-aid to students both in master's and in doctoral programs whose focal point is Africa. The Center provides information to faculty and students on extramural sources of research support. It also brings Africanists to the University for lectures or as Visiting Professors or Research Associates, and sponsors interdisciplinary colloquia focused on integrative and innovative themes. Other Center activities include the publication of quarterly journals, *African Arts*, UFAHAMU, a student journal, *Studies in African Linguistics*, and *The Journal of African Studies, African Law Studies, The African Studies Center Newsletter, Research in Progress*, as well as occasional papers and books based on the interdisciplinary colloquia. **Boniface I. Obichere, Director**

The **Latin American Center** is an organized research unit which provides research support for individual and cooperative research of the faculty and graduate students in the social sciences, education, humanities, the arts, comparative law, engineering, management, urban planning, library science, and public health. In addition to cooperating with seven colleges and professional schools of the University, the Center conducts systematic multidisciplinary research, implemented by the faculty and graduate students.

The NDEA Latin American Language and Area Studies Center is one of six "centers of excellence" chosen by the U.S. Department of Health, Education and Welfare under the National Defense Education Act (NDEA). The Center supports the B.A. and M.A. degree programs in Latin American Studies. NDEA Title VI fellowships, research assistantships, and grants-in-aid to students in the graduate degree program are available.

Through the Dean's Advisory Committees for Latin American Studies which function in colleges and schools throughout the campus, the Center provides coordination for University programs on Latin America. The Center publishes a series of documentary and scholarly publications, among which are the *Statistical Abstract of Latin America*, the *Latin American Studies Series*, the *Reference Series*, and the *Journal of Latin American Lore*. **J. Wilbert, Director**

The **Center for Medieval and Renaissance Studies** is concerned with understanding the nature, causes, and processes by which, between about A.D. 300 and 1600, European culture in all its aspects built up such a store of energy and competence that it overran the rest of the world. Since during that time the West was an "emerging" society, far less distinct from the Near East and more open to external influences than it has since become, the Center includes within its concept of the Middle Ages and Renaissance not only the Occident but also Byzantium, the Slavic world, Islam, the scattered Jewish communities, and the minor Eastern Christian groups. It fosters research on the interplay between these related societies as well as on problems internal to each.

The Center assists individual and group investigation by conferences, symposia, lectures; issues an annual journal, *Viator*, a graduate student annual journal, *Comitatus;* and its two series of volumes, the *Contributions* and the *Publications*. It annually awards several research assistantships to doctoral candidates; three of these are assigned to byzantine studies.

Fredi Chiappelli, Director

The **Gustave E. von Grunebaum Center for Near Eastern Studies** was established to promote individual and collaborative research and training in this area. The Center encourages the research of individual faculty members and collaborates in the solution of basic research problems which require institutional backing. The Center also sponsors lectures, seminars and conferences on various topics falling within the scope of Near Eastern studies, and actively promotes an extensive publication program.

Speros Vryonis, Jr., Director

The **Center for Russian and East European Studies** was established to promote, assist and coordinate research and training on the countries of Eastern Europe. It furthers the research of individual faculty members and graduate students, sponsors colloquia, seminars and lectures, organizes conferences, and participates, with other universities, in academic exchange programs with the countries of Eastern Europe.

Henrik Birnbaum, Director

The **Center for the Study of Comparative Folklore and Mythology** is the research arm of the University's folklore program and is an interdisciplinary unit designed to coordinate the work of scholars from various fields of study and to stimulate interest in folklore and mythology. Members of the Center, representing various cultural areas of the world and many academic disciplines, keep track of folklore research on an international and multidisciplinary basis and formulate and evaluate specific research projects. The Center has its own reference library of folklore books, a sound laboratory with sophisticated recording equipment, a collection of folklore on records, and it houses the Western Folklore Archive containing approximately one million item-cards of individual popular beliefs and superstitions, legends, customs, folk speech, and folklore indexes and bibliographies. The Center supports field collecting projects on an international basis. Current research projects include compilations of a dictionary of American popular belief and superstition, a work on folk medicine, an international ballad index, a compilation of Irish ballads, an index of legendary, and an annotated bibliography of studies in Indo-European mythology. **D. J. Ward, Acting Director**

Museums and Special Collections

The **Frederick S. Wight Art Gallery,** formerly the UCLA Art Galleries, was established with the support of Edward A. Dickson for whom the Dickson Art Center was named. The permanent holdings include the Franklin D. Murphy Sculpture Garden, 45 sculptures from the 19th-20th centuries including Arp, Calder, Lachaise, Lipchitz, Moore, Noguchi and Smith; The Willitts J. Hole Collection of approximately 50 paintings of the Italian, Spanish, Dutch, Flemish and English schools, from the 15th to 19th centuries; 20th century painting, sculpture and photographic collection.

Twelve exhibitions of painting and sculpture, prints and drawings, architecture and design are presented annually in close conjunction with the (UCLA) Museum of Cultural History and the Grunwald Center for the Graphic Arts. One of these exhibitions is regularly sponsored by the UCLA Art Council, the supporting organization of the Galleries. **Gerald Nordland, Director**

The **Grunwald Center for the Graphic Arts** (formerly the Grunwald Graphic Arts Foundation), which houses the University collection of prints and drawings, is maintained as a study and research center for the benefit of students, scholars and collectors, as well as, the general public. The permanent holdings of the Center include important examples from the 15th century to the present which were selected primarily to complement courses given in the history and connoisseurship of the graphic arts. It is particularly noted for its collection of German Expressionist prints formed by Fred Grunwald as well as for specialized collections in 19th and 20th century lithography (including the Tamarind archive), the history of ornament, Japanese prints (including the Frank Lloyd Wright collection), and comprehensive holdings of Matisse, Picasso and Rouault. Several major exhibitions are organized each year accompanied by the publication of a scholarly catalogue. **E. Maurice Bloch, Director**

The **Museum of Cultural History** (formerly The Museum and Laboratories of Ethnic Arts and Technology) comprises growing collections of objects which represent a wide range of the material culture, and specifically of the arts, of peoples who lived until recently at, or beyond, the margins of the major Oriental and Occidental civilizations. These collections represent the arts and archaeology of Africa, Melanesia, the Americas, the ancient Near East, the circum-Mediterranean cultures, the European, Neolithic and Bronze ages, and the folk arts of Latin America, Europe, and the Orient.

The Museum promotes the study of arts and artifacts as one of the most important avenues toward the understanding of man's cultures. As a resource for UCLA faculty, students, visiting scholars of international repute, and the general public, the Museum offers assistance with instruction, research field work, exhibitions, and seminars, and sponsors exhibitions, lecture programs, symposia, and publications.

In the community the Museum directs a satellite museum program which organizes and mounts exhibitions that are located throughout greater Los Angeles, particularly in culturally disadvantaged areas, and a peripatetic program which is designed to make children familiar with museum objects in a classroom setting. Trained volunteers teach classes in prehistoric archaeology in the Los Angeles City School System.

Christopher B. Donnan, Director

The **Botanical Garden** provides an outstanding collection of specimen plants of the world. The experimental field and lathhouse are also in the Garden. Adjoining is the Plant Physiology Building, with glasshouses and controlled-growth rooms for instructional and research materials. The University maintains a teaching herbarium of specimens representative of the flora of the world. The collection includes the Bonati Herbarium, noteworthy for the specimens of old world Scrophulariaceae, an extensive and comprehensive collection of American Labiatae, and research collections of certain California genera. Special emphasis is placed on subtropical ornamental plants. **Jonathan D. Sauer, Director**

Zoological collections of the Department of Biology include a research collection of marine fishes, primarily from the eastern Pacific and the Gulf of California, and the Dickey Collection of birds and mammals, primarily from the western United States, western Mexico and Central America. The Department also maintains a more limited collection of amphibians, reptiles and fossil vertebrates. Through a cooperative arrangement, the large zoological collections of the Los Angeles County Museum, containing both fossil and recent specimens, are available for research by qualified students.

Laboratories

The **Laboratory of Nuclear Medicine and Radiation Biology** conducts research in the fields of nuclear medicine, biochemistry, developmental biology, radiation biology, radiation measurements, and ecology. It is funded through a contract with the Energy Research and Development Administration (Formerly AEC). Most of the program is conducted in Warren Hall, located on the West Medical Campus.

Warren Hall is well equipped with modern research tools including a cobalt radiation source with an activity of 10,000 curies at the time of installation. The Laboratory also operates a biomedical cyclotron at the Center for the Health Sciences which produces isotopes and is capable of activation procedures in support of its research programs. The laboratory staff consists of about 180 scientists, technicians and supporting personnel representing many disciplines. Graduate student and postgraduate research programs are supervised by the staff in several fields.

O. R. Lunt, Director

The **Cardiovascular Research Laboratory,** sponsored by the Los Angeles County Heart Association, does research and offers research training in the fundamental physiology of the heart. Among the main fields of study are the biophysical definition of the contractile state and the nature of excitation-contraction coupling in the heart, the ionic fluxes associated with this activity and the cellular compartments within which they are contained, and the biochemical, energetic and ultrastructural aspect of the contraction process. **Wilfried F. H. M. Mommaerts, Director**

The **Laboratory for the Study of Life-Threatening Behavior,** established in 1972, is located in the UCLA Neuropsychiatric Institute. The Laboratory is concerned with the study of suicide, suicide prevention, homicide, inimical behavior, subintentioned deaths, and ways, in general, in which lives are threatened both from within or without. The Laboratory is multidisciplinary and is concerned with teaching, research, and service. The present foci of interest include studies of attitudes toward death and euthanasia; how to help dying (cancer) patients come to a "better" death; to work with their close relatives and with their physicians and nurses; also to work with survivor victims of "heavy" deaths—in a process called postvention. The Laboratory is concerned with the problems of suicide prevention in the university community, and with helping survivors of any unusual death.
Edwin S. Shneidman, Director

Special Resources

The **Campus Computing Network** (CCN) is the central computing facility on the UCLA campus. In support of instructional and research activities, CCN provides a broad range of computing services to the UCLA academic community, and, through a nationwide network of computers, to institutions throughout the United States. Time sharing and remote job entry terminals are located throughout the campus.

Computing activities are supported by an extensive software library, consulting and documentation services. The facility's powerful IBM System 360 Model 91 computer with 4 million bytes of high speed core storage enables CCN to support standard batch services of TSO, and a student-oriented fast batch service, as well as the interactive terminal services of TSO, APL and URSA (developed by CCN). Turnaround for jobs run at CCN typically range from under a minute for student jobs to under an hour for jobs requiring extensive setup. **William B. Kehl, Director**

Public Lectures, Concerts, Dance, Theater, Films and Art Exhibits

As opportunity offers, the University presents free public lectures of general and scholarly interest by qualified persons. These lectures are intended to supplement and stimulate the work of all departments of the University, and to offer students and community an opportunity to hear world-renowned authorities in every area of the arts and sciences.

The music program of the University includes many special events. The Committee on Fine Arts Production presents a broad variety of performances by nationally and internationally known artists representing virtually every facet of the performing arts.

During each quarter the Department of Music sponsors evening concerts by the A Cappella Choir, UCLA Men's Glee Club, Symphony Orchestra, Opera Workshop, Chamber Music Ensemble, Collegium Musicum, University Chorus, Symphonic Wind Ensemble, Madrigal Singers, Women's Choir, and the various ethnic study groups of the University. Individual artists, both students and faculty, present weekly Tuesday noon recitals that are free to the public.

The Department of Dance provides a rich variety of performances at all levels, including student workshops, master's thesis concerts, the annual Spring Concert of the UCLA Dance Company, and a student generated undergraduate presentation called UC Movement Theater. Authentic performances by several ethnic dance groups occur throughout the year. In addition, several series are offered through the Committee on Fine Arts Productions, featuring notable professional artists and dance companies. The fields of ethnic and contemporary dance, as well as ballet, are thus generously represented through the various campus programs in dance.

The **Frederick S. Wight Art Gallery,** adjacent to Dickson Art Center, presents a program of changing exhibitions of regional, national, and international significance, including a range of historical, ethnic, and contemporary forms of art. Included in this program are exhibitions assembled by the Museum of Cultural History focusing on non-Western, ancient, and folk art from the extensive collections of the museum. The Grunwald Center for the Graphic Arts maintains a print study collection and gallery, and presents a series of exhibitions related to the Art Department's program of advanced studies in the graphic arts and art history.

In addition to its intramural, experimental production program, the Department of Theater Arts produces a varied selection of significant new and old plays, ranging from the classical repertory to the contemporary, as well as plays never produced before. These are presented in an annual season of six or more plays for the campus and community.

A number of art, documentary, educational and foreign films, including film series, are presented each quarter. During the Spring Quarter, the Motion Picture faculty of the Department of Theater Arts presents several evenings of films written, directed and produced by students. All the events listed are open to the public.

Complete information is available by writing to the Secretary at the above address.

University Extension

University Extension, UCLA, offers more than 4000 classes and special programs each year, many of them innovative and experimental in content, format and teaching methods, with extensive use of media technology. Extension programs are designed to bring to adults in the community, on a part-time basis, the benefits of the talent, research and resources of the University of California. Credit and non-credit courses in nearly every academic discipline and in interdisciplinary areas provide opportunities for professional/career advancement; for expansion of cultural horizons; for development of scientific literacy; for growth in personal awareness and human interrelationships; for enhancement of capability to assess and deal with the great issues of politics and society in this era of fundamental reappraisal of established ideas and values. In the broad social view, Extension has a primary responsibility for the public service functions of the University, including community development programs and the application of University resources toward the solution of crucial statewide and urban problems.

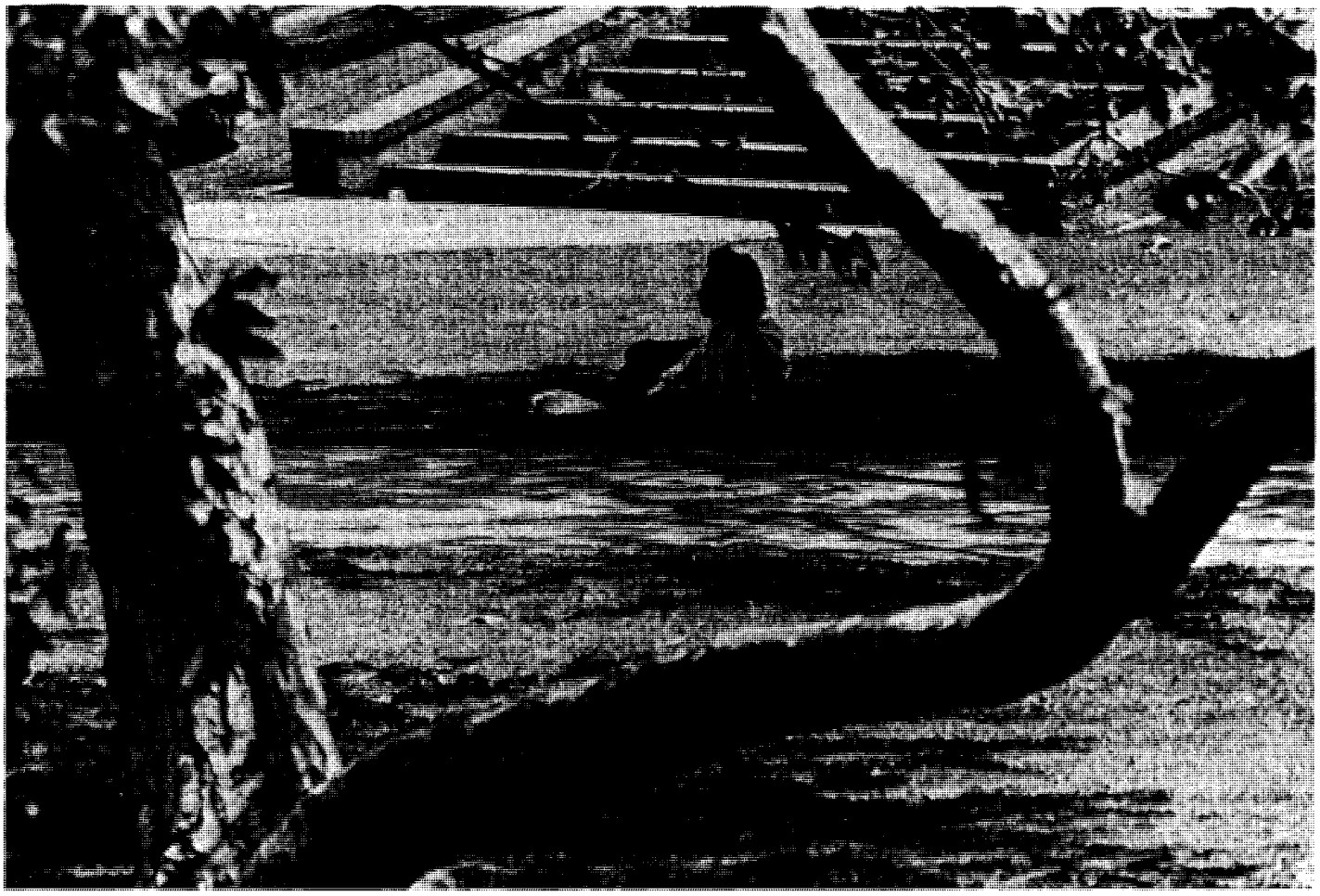
Types of programs include regular campus-equivalent classes; lecture series; discussion groups; conferences, institutes, short courses; community development and other public service pro-

grams; film and television series; correspondence study; residential programs; sequential certificate programs; studio/workshop courses in the creative and performing arts; family field study trips; counseling and testing.

Many Extension non-credit programs offer the opportunity to earn CEU (non-credit Continuing Education Units). One CEU is awarded for each 10 contact hours of instruction. CEU are recorded on the student's transcript. They are widely accepted for relicensure and other professional/career-related purposes.

Veterans may use the educational benefits available to them under Federal and State laws to enroll in University Extension classes, provided the classes are part of their prescribed and recognized objectives approved by the Veterans Administration.

For detailed information, or to obtain the current UCLA Extension catalog, write, telephone, or visit the UCLA Extension offices at the southwest corner of the campus, 10995 Le Conte Avenue, Los Angeles, California 90024. Telephone (213) 825-2401.



Admission to the University

IN UNDERGRADUATE STATUS

The admission requirements of the University of California are founded on two basic assumptions: first, that the best assurance of success in the University is shown by high quality of scholarship in previous work; and second, that the study of certain specified subjects will provide the student not only sound preparation for the range of University courses but also reasonable freedom in choosing his field of specialization.

Fulfilling the requirements stated below, however, may not necessarily assure admission to the campus of first choice. On some University of California campuses, limits have had to be set for the *enrollment of new students;* thus, not everyone who meets the minimum requirements can be admitted. At UCLA, for example, students who are, or who would be, college seniors are discouraged from applying for 1976-1977. Fine Arts students may apply for the Fall Quarter only. The Winter Quarter is restricted to intercampus transfers and re-entrants. If additional enrollment restrictions are necessary, sophomores may be restricted.

Application for Admission

An application form may be obtained at the Office of Undergraduate Admissions, 1147 Murphy Hall, University of California, Los Angeles 90024.

The opening dates for filing applications for the year 1976-1977 are as follows: Fall Quarter 1976, November 1, 1975; Winter Quarter 1977, July 1, 1976; Spring Quarter 1976, October 1, 1976.

A fee of $20 must accompany each application.

Each applicant is responsible for requesting the graduating high school, and each college attended if he applies in advanced standing, to send official transcripts of his record directly to the Office of Undergraduate Admissions.

If admitted he must return a statement of intention to register, together with a nonrefundable fee of $50, which will be applied to the University Registration Fee if the student registers in the quarter for which he applied.

Education Abroad Program

The Education Abroad Program offers opportunities to students of the University of California to study in universities overseas. It is administered for the entire University by the Santa Barbara campus.

In 1976-1977 the University will continue the operation of its study centers in Brazil, France, Germany, Hong Kong, Italy, Japan, Spain, Sweden, Norway, the United Kingdom, Ireland, Israel, Ghana, Kenya, Paris, Mexico and Russia and will open a new center at the American University of Cairo. The Study Centers' primary purpose is to provide a sound academic experience in a different educational system. They also enable the University of California students to become deeply involved in the language and culture of the host country. Eligibility requirements are: upper division standing in the University at the time of participation, an overall B average, seriousness of purpose, and an indication of ability to adapt to a new environment. For the centers in France, Germany, Spain and Mexico, two years of university-level work in the language of the country with a B average (or equivalent thereof) are required. For all other centers, the language requirements are variable. Consult the Education Abroad Program office for specific details.

The participants will spend from nine to eleven months abroad, including a special orientation program, six or seven weeks of intensive language preparation (in all centers except those in Egypt, the United Kingdom, Ghana and Kenya), a full academic year in the university of their choice, and some vacation travel.

Each student will be concurrently enrolled on his home campus and in the host university and will receive full academic credit for courses satisfactorily completed.

Applications for 1977-1978 will be available beginning in September, 1976. Applications for the United Kingdom & Ireland must be completed early in November, 1976. Check with the Education Abroad Program, 2221B Bunche Hall, UCLA for specific deadline dates.

Note: For further information visit the Education Abroad Program, 2221B Bunche Hall, UCLA; or write to the Education Abroad Program, 1205 S. Hall, University of California, Santa Barbara 93018.

Graduate students may, with the approval of the departmental graduate adviser and the Dean of the Graduate Division, participate in the Education Abroad Program at the University's study centers overseas. Such students remain under the academic direction of their home campus graduate adviser but may seek assistance from the Director of the Studies Center when appropriate. Participation in the Education Abroad Program may prove especially valuable to doctoral candidates who have been advanced to candidacy and are engaged in independent study and research directed toward their dissertations. For further information, graduate students should consult the Education Abroad Office, 2221B Bunche Hall, where applications may be obtained. After approval by the department and the Graduate Division, the application should be filed with the Education Abroad Office well in advance of the planned period of study.

Summer Sessions

In 1976 the University will conduct two summer sessions. The first session will begin on June 23; the second session will begin on August 5. For further information phone 825-8355 or write to the Office of the Summer Sessions, Room 1254, Murphy Hall, University of California, Los Angeles, California 90024.

Admission to a Summer Session does not constitute admission to a regular session. Students planning to attend the University in regular session are referred to Admission to the University section of this bulletin.

Foreign Language Training

Research and field work overseas may be facilitated by oral proficiency training in any of twenty-nine languages taught at the Defense Language Institute at the Presidio of Monterey. This unique program is available on a limited basis, to University graduate students and faculty. Regulations and procedures for applicants, and application forms, may be obtained from the Student and Academic Affairs Section, Graduate Division. For further information, write to the Secretary, University of Califor-

nia Language Training Advisory Committee, College Eight, University of California, Santa Çruz, California 95064, or call UC Santa Cruz extension 2054 (message center: 2900).

University of California graduate students (who have completed one quarter of graduate work) and faculty have a unique opportunity to acquire fluency in foreign languages through the cooperation of the U.S. Defense Language Institute (West Coast Branch), Presidio of Monterey.

Courses in twenty-nine languages are available at the Institute.

Each year thirty persons certified by the University of California Language Training Advisory Committee are admitted on a "space available" basis.

If admitted he must return a Statement of Intention to Register, a Statement of Legal Residence, together with a nonrefundable fee of $50 which will be applied to the University Registration Fee if the student registers in the quarter for which he applied. Registration materials will be prepared only after these forms are submitted by the prospective student.

Subject A: English Composition

Every undergraduate entrant must demonstrate an acceptable ability in English composition. There are several ways in which this requirement may be met before the first quarter in residence (see Subject A: English Composition). But students who have not already fulfilled the requirement must, during their first quarter, enroll in the course in Subject A, a noncredit course for which a fee is charged.

Requirements for Admission to Freshman Standing—Resident Applicants

An applicant for admission to freshman standing is one who has not enrolled in any college-level institution since graduation from high school.

The requirements listed below apply to California residents; for special requirements for nonresident applicants, see (Nonresident Requirements).

Graduation from High School Subject Requirements

Courses offered in satisfaction of the following subject requirements must be included on a list submitted to the Director of Admissions of the University by the high school principal, if the school is located in California. This list must have been certified by the principal and then, in turn, have been approved by the Director of Admissions. If the high school is not located in California but is regionally accredited, appropriate courses will be considered acceptable.

A. HISTORY—1 YEAR

This must consist of a year course in United States history, or one-half year of United States history and one-half year of civics or American government.

B. ENGLISH—3 YEARS

These must be university preparatory courses in English composition and literature.

C. MATHEMATICS—2 YEARS

These must consist of university preparatory courses in such subjects as algebra, geometry, trigonometry, calculus, elementary functions, matrix algebra, probability, statistics, or courses combining these topics.

D. LABORATORY SCIENCE—1 YEAR

This must be a year course in one laboratory science.

E. FOREIGN LANGUAGE—2 YEARS

These must be in one language. Any foreign language with a literature is acceptable.

F. ADVANCED COURSE—1 OR 2 YEARS

This must be chosen from one of the following:

Mathematics. A total of 1 year of mathematics beyond the 2 years offered toward the mathematics requirement.

Foreign language. Either an additional year in the same language offered toward the foreign language requirement or 2 units of another foreign language.

Science. A year course in laboratory science completed after the science offered toward the science requirement.

The subject requirements listed above may be satisfied only by courses completed with a grade of C or higher.

Scholarship Requirements

At least a B average is required in courses taken after the ninth year which are used to meet the subject requirements listed above.

In determining the required average, a grade of A in one course will be used to balance a C in another; but an A grade may not be used to compensate for any grade below C. Grades, including those earned in accelerated and advanced courses, are accepted as they appear on the high school transcript.

Courses taken in the ninth year or earlier in which a grade below C is received may be repeated to establish subject credit.

Courses taken after the ninth year in which a grade of D or F is received may be repeated to establish subject credit ad to improve scholarship. Courses may be repeated in an amount not to exceed a total of two semesters of the required subjects. Grades earned in such repetitions will not be counted higher than a C in determining the scholarship average.

Examination Requirement

As a requirement for admission, all freshman applicants must submit scores from the following examinations of the College Entrance Examination Board:

1. The Scholastic Aptitude Test
2. Three Achievement Tests, which must include:
   a. English composition
   b. social studies *or* foreign language
   c. mathematics *or* science

Applicants whose scholarship average in the required high school subjects is 3.00 to 3.09 inclusive must achieve a total score of 2500 or higher on the examinations. The test results of all applicants will be used for purposes of counseling, placement and, when possible, satisfaction of the Subject A requirement.

The verbal and mathematics scores on the Scholastic Aptitude Test must be from the same sitting.

For arrangements to take the tests, see below.

ADMISSION BY EXAMINATION ALONE

An applicant who does not meet the scholarship and subject requirements for admission and who has not registered in any college-level institution (except for a summer session immediately following high school graduation) may qualify for admission by examination alone. For admission of nonresident applicants by this method, see Special Requirements for Nonresident Applicants.

To qualify, the applicant must achieve high scores in the examinations required of all eligible applicants. The total score on the Scholastic Aptitude Test must be at least 1100; the scores on the three Achievement Tests must total at least 1650, and the score on each must be at least 500.

To obtain information about the tests or to make arrangements for taking them, apply to Educational Testing Service, P.O. Box 1025, Berkeley, California 94701, or P.O. Box 592, Princeton, New Jersey 08540. Scores will be regarded as official only if they are received by the Admissions Office directly from Educational Testing Service.

Admission to Advanced Standing—Resident Applicants

The University defines an "advanced standing applicant" as a high school graduate who has been a registered student in another college or university or in college-level extension classes other than a summer session immediately following high school graduation. An advanced standing applicant may not disregard his college record and apply for admission as a freshman.

Advanced Standing Admission Requirements. As you will see below, the requirements for admission in advanced standing vary according to your high school record. If you are a nonresident applicant, you must also meet the additional requirements described at the end of this section. If you have completed less than twelve quarter or semester units of transferable college credit since high school graduation, you must also satisfy the examination requirement for freshman applicants.

The transcript you submit from the last college you attended must show, as a minimum, that you were in good standing and that you had earned a grade-point average* of 2.0 or better. If your grade-point average fell below 2.0 at any one college you attended, you may have to meet additional requirements in order to qualify for admission.

As an advanced standing applicant you must also meet one of the following conditions:†

1. If you were eligible for admission to the university as a freshman, you may be admitted in advanced standing at any time after you have established an overall grade-point average of 2.0 or better in another college or university.

2. If you were not eligible for admission as a freshman only because you had not studied one or more of the required high school subjects, you may be admitted after you have:

a. Established an overall grade-point average of 2.0 or better in another college or university,

b. Completed, with a grade of C or better, appropriate college courses in the high school subjects that you lacked, and

c. Completed twelve or more quarter or semester units of transferable college credit since high school graduation or have successfully passed the CEEB tests required of freshman applicants.

Note: If you choose not to make up subject deficiencies, you may become eligible by the provision which follows.

3. If you were ineligible for admission to the University as a freshman because of low scholarship or a combination of low scholarship and a lack of required subjects you may be admitted after you have earned a grade-point average of 2.0 or better in at least 84 quarter units (56 semester units) of college credit in courses accepted by the University for transfer.

Credit for Work Taken in Other Colleges And by Examination

The University grants unit credit for courses appropriate to its curriculum which have been completed in other regionally accredited colleges and universities. This credit is subject to the restrictions of the senior residence requirement of the University.

As an integral part of the system of public education in California, the University accepts, usually at full unit value, approved transfer courses completed with satisfactory grades in the public junior colleges of the State. Such transfer courses are limited, however, to a maximum of 70 semester units or 105 quarter units. Individual colleges and schools should be consulted concerning additional credit limitations.

Extension courses taken at an institution other than the University may not necessarily be acceptable. The decision regarding their acceptability rests with the Office of Undergraduate Admissions.

In addition, credit is allowed for having completed with high scores certain tests of the College Board. These include Advance Placement Examinations.

Special Requirements for Nonresident Applicants

The regulations below are designed to admit out-of-state applicants whose standing, as measured by scholastic records, is in the upper half of those who would be eligible under the rules for California residents.

ADMISSION TO FRESHMAN STANDING

(See also Requirements for Admission to Freshman Standing—Resident Applicants)

Graduation from High School

The acceptability of records from high schools outside California will be determined by the Office of Undergraduate Admissions.

Subject Requirements

The same subject pattern as for California residents is required.

Scholarship Requirements

The applicant must have maintained a grade-point average of 3.4 or higher on the required high school subjects (grade points are assigned as follows: for each unit of A, 4 points; B, 3 points; C, 2 points; D, 1 point; incomplete and failure, no points).

Examination Requirement

A nonresident applicant must take the same College Entrance Examination Board tests as those required of a resident applicant.

ADMISSION BY EXAMINATION ALONE

A nonresident applicant who is not thus eligible for admission and who has not registered in any college-level institution (except for a summer session immediately following high school graduation) may qualify for admission by examination alone. The re-

*Your grade-point average is determined by dividing the total number of acceptable units you have attempted into the number of grade points you earned on those units. You may repeat courses that you completed with a grade lower than C up to a maximum of 16 quarter units without penalty.

The scholarship standard is expressed by a system of grade points and grade-point averages earned in courses accepted by the University for advanced standing credit. Grade points are assigned as follows: for each unit of A, 4 points; B, 3 points; C, 2 points; D, 1 point; I and F, no points.

†The advanced standing requirements for admission listed here are experimental and will be in effect for applicants applying to terms from the Fall Quarter 1973 through the Spring Quarter 1977.

quirements for a nonresident applicant are the same as those for a resident except that the scores on the three Achievement Tests must total at least 1725.

ADMISSION TO ADVANCED STANDING

In addition to the regular admission requirements (see Admission to Advanced Standing—Resident Applicants), a non-resident applicant for admission to advanced standing must have earned a grade-point average of 2.8 or higher in college subjects attempted and acceptable for transfer credit.

If the applicant did not have at the time of high school graduation an average of 3.4 or higher in courses satisfying the required subject pattern, he must present a minimum of 84 acceptable quarter units or 56 acceptable semester units with a grade-point average of 2.8 or higher.

Applicants From Other Countries

The credentials of an applicant for admission from another country are evaluated in accordance with the general regulations governing admissions. An application, official certificates, and detailed transcripts of record should be submitted to the Office of Undergraduate Admissions early in the appropriate filing period (see Application for Admission). Doing so will allow time for exchange of necessary correspondence and, if the applicant is admitted, will help him in obtaining the necessary passport visa.

Compulsory Health Insurance

As a condition of registration, entering foreign students, except those in the United States on permanent immigration visas, must acquire at the Student Health Service health insurance, tuberculin test, and/or chest X-ray.

Proficiency in English

An applicant from another country whose mother tongue is not English may be admitted only after demonstrating that his command of English is sufficient to permit him to profit by instruction in the University. His knowledge of English will be tested by an examination upon his arrival at the University. Admission of an applicant who fails to pass this examination will be deferred until he has acquired the necessary proficiency in the use of English. The student held for the English as a Second Language requirement who fails to take the test on the date specified will not be permitted to register for the quarter for which admission is approved. An applicant from a non-English speaking country is urged to take the Test of English as a Foreign Language as a preliminary means of testing his ability. Arrangements to take the test may be made by writing directly to TOEFL, Educational Testing Service, P.O. Box 899, Princeton, New Jersey 08540, U.S.A. Results of the test should be forwarded to the University.

Language Credit

A student from a country where the mother tongue is not English will be given college credit in his own language and its literature only for courses satisfactorily completed. Such credit will be allowed only for courses taken in his country at institutions of college level, or for upper division or graduate courses taken in this University or in another English-speaking institution of approved standing.

Engineering

A beginning or intermediate student seeking a bachelor's degree in engineering who is outside the United States must pass, with satisfactory scores, the College Entrance Examination Board Scholastic Aptitude Test (verbal and mathematics sections) and Achievement Examinations in English composition, physics, and advanced mathematics, before a letter of admission to pre-engineering can be issued. (Applicants from countries outside the U.S. who are applying for other than Engineering may select the Engineering pattern as an option to the regular pattern.) Arrangements to take the tests in another country should be made directly with the Educational Testing Service, P.O. Box 592, Princeton, New Jersey 08540, U.S.A. The applicant should request that his scores for the tests be forwarded to the University.

Each advanced undergraduate student applying for admission to the School of Engineering and Applied Science who is outside the United States must pass a special qualifying examination. Arrangements to take this test may be made by writing directly to the Office of Undergraduate Admissions, University of California, Los Angeles (UCLA), 405 Hilgard Avenue, Los Angeles, California 90024, U.S.A.

IN GRADUATE STATUS

An applicant for admission to the Graduate Division is expected to hold a bachelor's degree or its equivalent, comparable in standard and content to a bachelor's degree from the University of California. A minimum average of B, or its equivalent, is required for the last two years of undergraduate and for any postbaccalaureate study. Honors, awards, and experience related to the proposed field of study are important credentials. The Aptitude Test of the Graduate Record Examination is now a University requirement. Individual departments may specify additional requirements and standards for admission, however, including such special examinations as the Advanced Test of the Graduate Record Examination (GRE), the Graduate Management Admissions Test (GMAT), or the Miller Analogies Test. There are no special graduate, limited or unclassified categories of admission at UCLA.

Application

The prospective student may obtain application forms in person or by mail from Graduate Admissions, Graduate Division, 1247 Murphy Hall, University of California, Los Angeles, California 90024, or from the department in which he wishes to study. With the application form the UCLA INFORMATION FOR GRADUATE APPLICANTS pamplet is enclosed. The pamphlet lists the major fields offered, the individual departmental requirements and other pertinent information. The application form for University fellowships or other financial assistance will also be sent on request.

Application for admission to graduate status is limited to the Fall, Winter, and Spring Quarters of the regular academic year. Enrollment in courses in the Summer Sessions does not constitute admission to graduate status (see Enrollment in Summer Session Courses).

Applications and supporting papers should be submitted to Graduate Admissions, Graduate Division, on or before the following dates:

February 15 for the Fall Quarter
October 1st for the Winter Quarter
December 30 for the Spring Quarter

Earlier application deadlines are required for certain departments, and these are stated in the information pamphlet.

The following materials should accompany the application:

1. Application fee of $20.00 (nonrefundable), by check or

money order payable to the Regents of the University of California. 2. Official transcripts of record, *in duplicate*, from *each* college or university at which the applicant has completed work. (Transcripts should accompany or immediately follow the application.) One set of transcripts will become a part of the permanent UCLA file, and the other set will be sent to the major department to assist in the evaluation of his past record and for advisory purposes regarding his graduate studies at UCLA. If the student has graduated from UCLA or from another University of California campus and has there completed the last two years of study for the bachelor's degree and any postbaccalaureate work, transcripts are requested from only that campus. (For detailed information see UCLA INFORMATION FOR GRADUATE APPLICANTS).

If a student is requesting a fellowship or other financial assistance, the application for admission, with transcripts and examination scores, will need to be submitted to Graduate Admissions on or before the published deadlines for competition for these awards. (For information on Fellowships, Traineeships, and Assistantships, see Financial Aids for Students).

FOREIGN APPLICATIONS

The requirements and application dates are the same for foreign applicants and U.S. applicants (see above). Because the evaluation of foreign credentials may take considerable time, however, applicants with credentials from institutions in other countries are advised to submit applications at least four to six months before the quarter in which they wish to register.

Foreign applicants should submit official transcripts of record, *in duplicate*, for all college and university work. College and university transcripts must show subjects studied, examination grades achieved, and award of degrees. If photocopies are submitted rather than original documents, they must bear the seal of the issuing institution and the actual (not photographed) signature of the college or university registrar. Specific instructions are given in the information pamphlet for admission requirements and required credentials. (For detailed information see UCLA INFORMATION FOR GRADUATE APPLICANTS).

Foreign applicants are advised not to come to UCLA until they receive formal notice of admission to the Graduate Division. They are notified by airmail as soon as a decision has been reached, and the I-20 form necessary to secure the student visa is enclosed with the notification of admission. Foreign applicants who have been accepted are encouraged to report to Graduate Admissions as well as to the Office of International Students and Scholars as soon as possible after they arrive at UCLA in order to receive assistance in completing admission and registration procedures.

FOREIGN STUDENTS' ENGLISH EXAMINATION

Since English is the language of instruction at UCLA and success in graduate study depends largely on facility in its use, foreign students whose first language is not English are required to take a proficiency examination before the term in which they are to register. The achievement in this examination determines whether they will be permitted to carry a full or moderate graduate program or will be required to include English courses in their program. If they should be required to take English courses, they should anticipate spending a longer period of time at the University than they normally would require to complete a degree program.

Foreign students are encouraged to take the Test of English as a Foreign Language (TOEFL), if possible, in order to become aware of their level of proficiency in English before undertaking the expense of traveling to the United States. The TOEFL, however, may not substitute for the required examination in English which must be taken at UCLA on arrival.

The TOEFL is administered in more than ninety testing centers throughout the world by the Educational Testing Service, Princeton, New Jersey 08540, U.S.A.

APPLICATION REVIEW AND NOTICE OF ADMISSION

Graduate Admissions screens all applications to determine whether or not they meet University minimum requirements for graduate status. Ordinarily, only the applications of those students who have fulfilled at least the minimum requirements are then referred to the department. There they are subjected to a more specific and intensive review. Although, at this stage, departments may choose to make contact with applicants, Graduate Admissions alone is empowered to make the formal offer of admission, taking the departmental recommendation into full consideration.

To applicants offered admission, Graduate Admissions sends with the formal notification instructions on required registration procedures.

Applicants who are offered admission with work in progress are reminded that their admission is contingent upon receipt of evidence that the work has been satisfactorily completed and the bachelor's degree awarded.

DUPLICATION OF DEGREES

The University of California in general discourages the duplication of advanced degrees. At the same time, it recognizes that a professional degree does not duplicate an academic one, and that the holders of an academic or professional degree may have the pressing need to earn another degree in an area quite different from that of their first endeavors.

All applicants for a *second graduate degree at the same level as, or at a level lower than*, the graduate degree they already hold, will be required to show compelling cause and to file the "Petition to Work for a Second Graduate Degree" for departmental review and recommendation, and action by the Dean of the Graduate Division. All applications for a second doctor's degree, whether academic or professional, following departmental review, will be referred to the Admissions Committee of the Graduate Council for recommendation to the Dean of the Graduate Division.

In all instances presented above, approval will be given only in exceptional cases. If admitted, such applicants will be held to all the usual degree requirements and University regulations pertaining to fees, registration, examinations, advancement to candidacy, etc.

Enrollment in Summer Session Courses

Enrollment of prospective graduate students in Summer Session courses does not constitute admission to graduate status in the University, which is possible only through application for graduate admission during the regular academic year. Students who wish to apply Summer Session courses to their subsequent graduate programs should consult in advance with their departmental graduate advisers concerning this possibility. This is true also for students readmitted to graduate status who wish to resume their study in the Summer Sessions (see Readmission).

Information and applications may be obtained from the Office of Summer Sessions, 1254 Murphy Hall, University of California, Los Angeles, California 90024. The 1976 Summer Session bulletin will be available from that office beginning in February.

Renewal of Application

The offer of admission is valid for a specific quarter only. Applicants who failed to register in the quarter for which they were accepted in graduate status but who wish to reactivate their applications for a later quarter should file a Renewal of Application form. Such forms are obtained from Graduate Admissions, Graduate Division, and should be submitted to that office. Filing dates are the same as those for original applications. The Renewal of Application should be accompanied by official transcripts, *in duplicate*, of any college or university work (including University Extension courses) completed since the former application. Acceptance for admission at any earlier date does not guarantee approval of the Renewal of Application. Only *one* renewal of application will be accepted without the $20.00 (nonrefundable) application fee. The application fee is due with *each* renewal of application filed after the first one.

Applicants seeking admission more than two years after their original application file new applications rather than Renewal of Application forms, since records are not retained more than two years.

UCLA-USC Graduate Cross-Enrollment Program

As an integral part of a Regentally-approved experimental program in Academic Resource Sharing involving UCLA and USC, the UCLA-USC Graduate Student Cross-Enrollment Program has made possible graduate student exchanges in such departments as Biology, Classics, English, Linguistics, Oriental Languages, and Political Science and the School of Library and Information Science in specific courses and under particular instructors. It is not confined to the departments or programs just described, however, but is open to graduate students in departments and programs that indicate interest in such "program-sharing." The program is limited to specialized course offerings which would not otherwise be available to UCLA students.

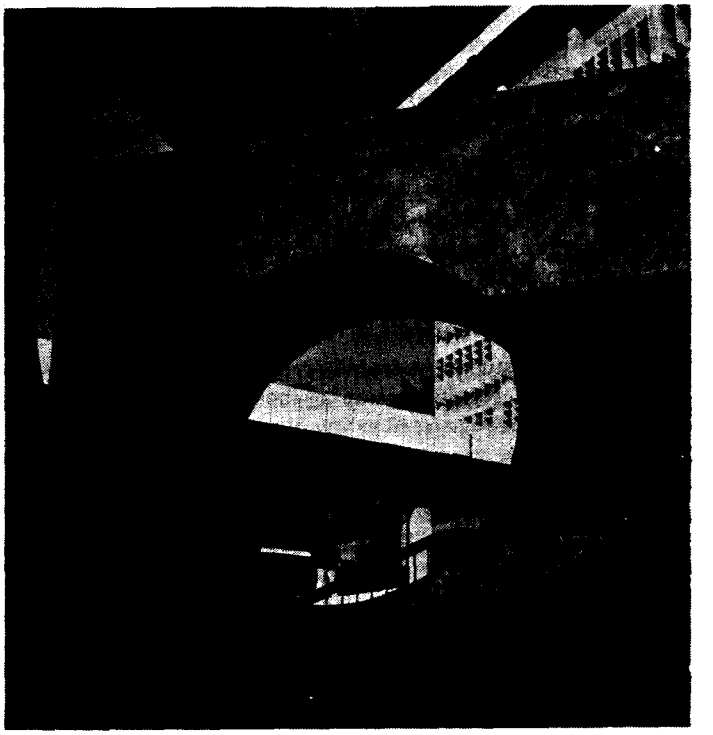
With the approval of the instructor and departmental chairman on the USC campus, the UCLA student signs up for a 501 course with the UCLA graduate adviser and files the completed petition with the Graduate Division (Room 1237, Murphy Hall). It, in turn, will complete the transaction with the Graduate Dean's Office at USC. Upon completion of the semester's study at USC, the student will be evaluated by the USC instructor who will forward the grade to the UCLA graduate adviser, to be recorded against the 501 course and submitted to the UCLA Registrar. There is a credit limit of eight units of such courses applicable toward the requirements for the master's degree.

The UCLA student must have completed at least a year of graduate study here, must make a petition for study at USC in the manner detailed above, and must have registered and paid his other fees *to UCLA* before permission will be granted. Library privileges will be extended at USC but other privileges or services cannot be proffered.

The UCLA student must have completed at least a year of graduate study here, must make a petition for study at USC in the manner detailed above, and must have registered and paid his other fees *to UCLA* before permission will be granted. Library privileges will be extended at USC but other privileges or services cannot be proffered.

Title IX

The University of California does not discriminate on the basis of sex in admission to or employment in the educational programs and activities which it operates. Title IX of the Education Amendments of 1972 prohibits such discrimination and requires that this notice be published. Inquiries concerning Title IX may be directed to the office of Assistant Chancellor-Legal Coordinator, 2248 Murphy Hall, UCLA, phone 825-7777, or to the Director of the Office for Civil Rights, Department of Health, Education and Welfare.



General Regulations

READMISSION

A student who wishes to return to the University after an absence of more than one calendar quarter (three months) must file an Application For Readmission. During the academic year 1976-1977 applications for readmission are required as follows:

For Fall Quarter, 1976. All students returning in the same status (graduate or undergraduate) who did not complete the Spring Quarter, 1976.

For Winter Quarter, 1977. All students returning in the same status (graduate or undergraduate) who were not registered in the Fall Quarter, 1976.

For Spring Quarter, 1977. All students returning in the same status (graduate or undergraduate) who neither completed the Fall Quarter, 1976, nor were registered for the Winter Quarter, 1977.

In Undergraduate Status

Undergraduate students may obtain application forms from the Office of the Registrar, Window A, Murphy Hall. The completed application along with a $20 application fee (nonrefundable) and transcripts of record from other institutions, including University Extension, attended during their absence must be filed with the Registrar on or before July 30 for the Fall Quarter; November 12 for the Winter Quarter; February 11 for the Spring Quarter.

In Graduate Status

Students who have been registered at any time in graduate status at UCLA and wish to return after an absence should file a Graduate Application for Readmission. Forms for this purpose may be obtained by mail or in person from Graduate Admissions, 1247 Murphy Hall, and are submitted to that office. Filing dates are the same as those for original applications for admission to graduate status. Since some schools and departments permit readmission only in specified quarters or may stipulate earlier application deadlines, students should consult their chosen departments for additional information.

Applications for readmission should be accompanied by:

1. Application fee of $20 (nonrefundable), by check or money order payable to The Regents of the University of California.
2. Official transcripts of record, *in duplicate*, for all college and university work (including University Extension courses) completed since last registration at UCLA.

Formal application for readmission is not required of a student returning from an official leave of absence.

INTERCAMPUS TRANSFER

Undergraduate students currently registered on any campus of the University in a regular session (or those previously registered who have not since registered at any other school) may apply for transfer to another campus by filing an Intercampus Transfer Application on their present campus. This application must be obtained and filed at the Office of the Registrar, Information Window A, Murphy Hall. There is a $20 nonrefundable fee. The deadlines are the same as the admission applications deadlines given under Admissions to the University section. Transcripts required for the processing of the application for transfer are provided without additional charge. For details regarding particular campus admission provisions, consult the Intercampus Transfer Clerk at the Registrar's Information Window A.

REGISTRATION

Registration is the payment of fees, enrollment in classes, and the filing of various informational forms. A student's name is not entered on official rolls of the University unless the registration process is completed as published by the Registrar in the "Registration Circular" and the *Schedule of Classes*. Failure to complete and file all forms by established deadlines may delay or even prevent the student from receiving credit for work undertaken.

Registration is divided into two equal, but separate processes. Registration materials (the "registration packet") are issued by the Registrar and include cards for payment of the quarterly fees and a STUDY LIST CARD for requesting enrollment in classes. According to instructions issued with the "registration packet" certain cards are filed with the Registrar while the remaining cards are filed with the Main Cashier when tendering payment of the quarterly fees. When both processes are completed, the student is considered a duly registered and enrolled student for the quarter.

In advance of the quarter, the registration processes may be completed entirely through the mail. All eligible students are encouraged to register by mail. Currently registered students may obtain their "registration packet" for registering by mail at the time (approximately the fifth week of the preceding quarter) and place announced in the campus newspaper, the *Daily Bruin*, and on official campus bulletin boards. New and re-entering students eligible to register by mail (see calendar) will receive the "registration packet" in the mail from the Registrar approximately six weeks before the quarter begins. Complete instructions and envelopes for return of the cards are included with the registration materials. Each student is responsible for purchasing the quarterly *Schedule of Classes* (see Enrollment in Classes).

The Registrar and the Main Cashier process enrollment and fee payment separately—date of payment does not affect enrollment provided such date is "on time" as published in the *Schedule of Classes*. At the completion of the by mail process, materials are returned to all students who participated. Students who requested enrollment will receive results of the enrollment processing (see Enrollment in Classes) while students who paid their quarterly fees will receive the valid Registration Card (proof of student status for University services). These separate mailings are made approximately ten days prior to the beginning of the quarter.

At the beginning of the quarter, in-person processing of fee payment and enrollment in classes is available for all students not processed by mail. Dates and location of registration in person processing are announced in the *Schedule of Classes*, the "Registration Circular," the *Daily Bruin*, and on official campus bulletin boards. Students eligible to register by mail are not issued specific times for registration in person, but are advised to observe the registration time recommended in the Registrar's publications. By observing this suggested time schedule for reporting to register, students will be processed with a minimal delay. New and re-entering students processed for registration in person will be issued an Appointment to Register in Person by the admitting (or re-admitting) officer upon receipt of the student's Statement of Intention to Register and accompanying forms. The Appointment is the student's notice of the date, time, and location that the Registrar will be prepared to issue the individualized materials for the registration process.

While a student may use a combination of both processes (by

mail/in person) to pay fees and enroll in classes, the University requires that the full amount of fees be paid by the Friday before instruction begins. If fees are not paid by that date, all course enrollment is dropped.

Any student allowed to register on or after the first day of instruction is subject to a late fee and may request classes only after payment of fees is completed. Late registration with payment of a late fee is normally accepted during the first ten days of classes; enrollment in classes, however, may be difficult. No student may register after the tenth day of classes without prior written approval of his academic dean and payment of all regular and late fees.

Continuous Registration

Unless granted a formal leave of absence, graduate students are expected to register every quarter, including the quarter in which their degree or certificate is to be awarded. If a student has completed all requirements for the degree except the filing of the thesis or dissertation and/or the formal final examination (master's comprehensive examination or doctoral final oral examination) he may pay the filing fee of $50 instead of registering.

To be eligible to take final examinations, file theses or dissertations, or receive degrees during the summer, students must pay the filing fee unless they are registered in a Summer Session.

Academic Counseling

Academic counseling is available to all students through the offices of the several colleges and schools, and counselors/academic advisers in each department. It is recommended (required by certain colleges/divisions/schools) that every new student meet with an academic adviser prior to enrolling in classes. The adviser will help the student make a long-range plan for his degree objective and for preparation for graduate or professional study. He will acquaint the student with requirements of the University, his college or school, and his major department. Information about college/school/division requirements is issued by the admitting officer prior to scheduled registration processing.

Orientation Program

The Orientation Program offers extensive academic counseling to all new undergraduates entering the University. Working in small groups with peer counselors, students plan their schedules for the upcoming quarter and learn of the educational opportunities open to them. In addition, undergraduates can learn about student services and the University's facilities and activities. Each student also receives individual time with a counselor, fulfilling the academic advising recommended for all students (required by some schools/colleges) for enrolling in classes. Orientation sessions provide opportunities for dealing with the common problems in adjusting to university life.

For further information about the program (including costs and dates), contact the Orientation Office, located in the Dean of Students Office, 2224 Murphy Hall or phone (213) 825-3626.

Enrollment in Classes

A student's name is not entered on official rolls of the University unless the registration process is completed as published in the *Schedule of Classes*. This quarterly publication is available in June for the Fall quarter, in November for the Winter quarter, and in February for the Spring quarter at the Students' Store, Ackerman Union. It is available by mail: write to ATTN: Mail Out, ASUCLA Students' Store, 308 Westwood Plaza, Los Angeles, California 90024 and include $1 for first class postage (1 week delivery). The *Schedule* lists courses, final examination groups, names of instructors, class time and meeting locations, a detailed calendar of deadlines, enrollment restrictions, and full instructions for registration (payment of fees and enrollment in classes). From the *Schedule* and with the aid of academic counseling, the student may assemble a program of courses. Two or three alternate programs should be planned in case the courses of first choice are unavailable. A student may not choose two courses in the same examination group and should choose classes which do not conflict in the class meeting times. If time conflicts are unavoidable, the student should consult with the instructor of each course at the first meeting of the class.

Enrollment requests are processed by the Registrar's Office from the completed Study List Card contained in the "registration packet" issued to each prospective student.

All continuing students (who are eligible to register in the same status without filing applications for readmission) have the opportunity and are encouraged to request their classes by mail.

New and re-entering students who have completed the admission process by the eligibility date to register by mail (see calendar) will receive registration materials from the Registrar approximately six weeks prior to the beginning of the student's first quarter.

Results of enrollment by mail are printed on a Tentative Study List mailed by the Registrar approximately ten days prior to the beginning of the quarter.

For the convenience of undergraduates who wish to enroll in person at computer terminals, an appointment to enroll is printed on the tentative study list. This appointment need not be kept if the student wishes to make no changes in enrollment. Students who did not participate in the by mail process and those eligible for in person processing will receive an enrollment appointment time as a part of the fee payment process.

All graduate students enroll by filing the Study List Card with their major department or school after it has been approved by their adviser. For filing dates refer to the Registrar's publications.

THE STUDY LIST

A student's Official Study List is the list of courses in which he is officially enrolled at the end of the second week of classes, at which time a copy is mailed to him at his college address. This is the official record of work to be undertaken during the quarter indicated. The student is responsible for every course listed, and can receive no credit for courses not entered on it. Unapproved withdrawal from or neglect of a course entered on the study list will result in a failing grade.

Changes in the Official Study List require approval of the Dean of the student's college, school or Graduate Division. Forms for this purpose may be obtained at the office of the student's dean. The approved petition must be filed at the Office of the Registrar. See Calendar for last day to add or drop courses.

Study-List Limits

The minimal program for an undergraduate student to be considered full-time is three courses (12 units). Exception to this regulation requires the approval of the dean of a student's college or school. Senate Regulations limits the undergraduate student to two courses (8 units) of credit per quarter in special independent

study courses. The total number of units allowed in such courses for a letter grade is 16.

The normal program for an undergraduate student is four courses. However, a student on scholastic probation, except in the School of Engineering and Applied Science, is limited to a program of three courses each quarter, to which may be added a physical education activity.

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

School of Engineering and Applied Science: within the limits prescribed in each individual case by the Dean or his representative.

College of Fine Arts: three or four courses per quarter without special permission. After his first quarter, a student may petition to carry a program of not more than five courses if in the preceding term he attained at least a B average in a program of at least three courses included in the grade-point average.

College of Letters and Science: three or four courses for students in the first quarter of the freshman year. All other students who have a C average or better and are not on probation may carry four courses without petition. After the first quarter, a student may petition to enroll in as many as five courses if in the preceding term he attained at least a B average in a program of at least three courses included in the grade-point average. First-quarter 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 terms on the Los Angeles campus.

School of Nursing: three courses. A student must petition to enroll in more courses.

Any course, such as, in Subject A, which does not give credit toward a degree, nevertheless displaces one course from a student's allowable program. These courses are identified in the Schedule of Classes.

A kinesiology performance class may be added to these limits, but other kinesiology classes, all military science, and all repeated courses are to be counted in study-list limits.

Regulations concerning study-list limits for graduate students will be found under Graduate Division Requirements.

Concurrent Enrollment

Concurrent enrollment in resident courses and in courses in University Extension or another institution 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.

Credit by Examination

A student who has completed a minimum of 12 units of work at this University and is in good standing may petition to receive credit by examination in a course regularly offered by the University. He must satisfy conditions stated on the petition and make arrangements in advance both with the instructor who will give the examination and with the dean of his college or school, from whom the required petition form may be secured. There is a fee for such a petition.

The results of such examinations are entered upon the student's record in the same manner as are regular courses and corresponding grade points are assigned.

GRADES AND SCHOLARSHIP REQUIREMENTS*

Grades in courses (graduate or undergraduate) are defined as follows: A, excellent; B, good; C, fair; D, poor (may not be assigned to graduate students); F, failure; IP, in progress; and I, undetermined (work of passing quality but incomplete). The designations P, passed, and NP, not passed, are used in reporting grades for undergraduate students taking courses on a passed/not passed basis. Likewise S and U respectively are used in reporting satisfactory and unsatisfactory work by graduate students taking courses on this basis. For graduate students, the grades A, B and C may be modified by a plus (+) or minus (-) notation.

Grades A, B, C (including plus or minus notations where authorized), D, F, P, NP, S, U are final when filed by an instructor in his end-of-quarter course report, except for the correction of a clerical or procedural error. No term grade except incomplete may be revised by reexamination.

Repetition of courses is subject to the policies of the departments offering the courses and the following conditions: (1) A student may repeat only those courses in which he received a grade D, F, NP, or U; however, the appropriate dean may authorize repetition of courses graded Incomplete. (2) Repetition of a course more than once requires approval by the appropriate dean in all instances. (3) Degree credit for a course will be given only once, but the grade assigned at each enrollment shall be permanently recorded. Courses in which a grade of D or F has been earned may not be repeated on a passed/not passed basis.

The grade Incomplete may be assigned when a student's work is of passing quality, but is incomplete. The student may petition to complete the work in a way authorized by the instructor, and will receive appropriate units and grade points upon such completion. If the Incomplete grade was assigned Fall Quarter 1972 or thereafter and the work is not completed by the end of the next quarter the student is in residence, the grade I will automatically be lapsed to a grade of F, NP or U as appropriate.

Courses Taken Passed/Not Passed

An undergraduate student may take courses on a passed/not passed basis subject to the following regulations:

(A) Except as provided in (C), (D), and (E) below, a student in good standing may enroll in one course each quarter on a passed/not passed basis. Courses thus passed shall be counted in satisfaction of degree requirements.

(B) A grade of passed shall be awarded only for work which would otherwise receive a grade of "C" or better.

(C) A student who has received two "not passed" grades shall be excluded from enrolling in a course on a passed/not passed basis for the next term in residence.

(D) A department or school may designate any course or courses as ineligible for election by its majors on a passed/not passed basis, and may at its option require a student who has received a "passed" in such a course before changing his major to repeat the course for a letter grade.

(E) A student who has not elected the passed/not passed option in a preceding quarter may take two courses passed/not passed.

(F) With the permission of the dean of a student's college or school he may change his enrollment in a particular course from the passed/not passed basis to the regular letter grade basis at any time up to the final date for dropping the course.

*Provided final approval by the University Academic Senate is received, plus (+) or minus (−) notations will go into use with undergraduate grades beginning Fall Quarter 1976.

GRADE POINTS

For purposes of computing scholarship standing, a full course is counted as equivalent to 4 quarter units. Partial or multiple courses are counted proportionally.

Grade points per unit are assigned as follows: A—4, B—3, C—2, D—1, F—none and, prior to Fall Quarter 1972, I—none. For graduate students, the plus (+) notation adds 0.3 grade points per unit when applied to the grades B and/or C; the minus (-) notation subtracts 0.3 grade points per unit when applied to the grades A, B and/or C. Beginning Fall Quarter 1972, units attempted and grade points for work graded I (Incomplete) are excluded from grade-point computations for the quarter in which the I is assigned. Upon removal of grade I, units and grade points are included in subsequent accumulated grade-point summaries. An I assigned Fall Quarter 1972 or thereafter, but not removed by the end of the next quarter the student is in residence, will be lapsed to F, NP or U and so included in subsequent unit and grade-point summaries.

The grade-point average is determined by dividing the number of grade points earned by the number of units attempted. A 2.0 (C) grade-point average on all work undertaken in the University—all campuses—is required for satisfactory standing as an undergraduate; a 3.0 (B) average for a graduate.

Courses taken on a passed/not passed or satisfactory/unsatisfactory basis are disregarded in determining a student's grade-point average. In computing the grade-point average of an undergraduate who repeats courses in which grades of D or F were assigned, only the most recently earned grade and grade points shall be used for the first 16 units repeated. In the case of further repetitions, the grade-point average shall be based on all grades assigned and total units attempted. Courses in which a grade of D or F has been earned may not be repeated on a passed/not passed basis.

MINIMUM SCHOLARSHIP REQUIREMENTS

Students in all undergraduate colleges and schools are expected to maintain a grade-point average of 2.0 (C average) on all work undertaken in the University—all campuses. Failure to maintain this level normally results in probation. The following provisions apply to all undergraduate students at Los Angeles.

Probation

A student shall be placed on probation if, while in good standing, he fails to maintain at least a grade "C" average for all courses included in the grade-point average in a quarter.

The probationary status of the student can be ended only at the close of a regular quarter and then only if a C average has been attained both on the term's work and on all work taken in the University of California— all campuses.

Dismissal

A student shall be subject to dismissal from the University (a) if his grade-point average falls below 1.5 for any quarter, or (b) if after two quarters on probation he has not achieved a grade-point average of 2.0 (C average) for all courses undertaken in the University, or (c) if while on probation his grade-point average for work undertaken during any quarter falls below 2.0 (a C average).

Grade-point averages shall be computed on the basis of all courses undertaken in the University (all campuses), including courses graded I (Incomplete), prior to Fall Quarter, 1972, but not including noncredit courses, courses taken in University Extension, or courses taken on a passed/not passed basis.

A student who fails to meet minimum scholarship requirements is subject to such supervision as the faculty of his college or school may determine. The faculty or its designated representative may dismiss a student subject to dismissal; may suspend his dismissal, continuing him on probation; or may readmit on probation a dismissed student.

Minimum Progress

Undergraduate students in the College of Fine Arts and the College of Letters and Science are expected to complete satisfactorily at least 36 units during three consecutive quarters in residence. A student shall be placed on probation if he fails to pass at least 36 units over three consecutive regular quarters in residence. A student shall be subject to dismissal if he fails to pass at least 32 units in three consecutive regular quarters in residence.

In Graduate Status

Scholarship regulations for graduate students will be found in the STANDARDS AND PROCEDURES FOR GRADUATE STUDY AT UCLA.

Final Examinations

If a final examination is one of the regular requirements in a course, there can be no individual exemptions. Final written examinations shall not exceed three hours duration and shall be given only at the times and places established by departmental chairmen and the Registrar.

Re-examinations are permitted only for the purpose of raising grade I to passing.

Degree Requirements

In working toward a degree, the student should keep in mind the various levels on which he is to satisfy requirements. College or school and department requirements are discussed fully later in the sections *Colleges and Schools* and *Courses of Instruction*. The following are general University requirements for the bachelor's degree.

COURSE CREDIT

The grades A, B, C and P in acceptable courses denote satisfactory progress toward a bachelor's degree. The grade D gives unit credit toward the degree, but must be offset by grades of B or better in other courses. The grades A, B, and S in acceptable courses denote satisfactory progress toward a higher degree. The grade C gives unit credit toward the degree but must be offset by grades of B+ or better in other courses.

SCHOLARSHIP

In order to qualify for a bachelor's degree* the student must earn at least a C (2.0) average on all courses undertaken in the University of California—all campuses.

SUBJECT A: ENGLISH COMPOSITION

Every undergraduate entrant must demonstrate an acceptable ability in English composition. This requirement may be met by

1. Achieving a grade of 5, 4, or 3 in the College Entrance Examination Board (CEEB) Advanced Placement Examination in English, *or*

2. Achieving a satisfactory score (600 or better) in the CEEB Achievement Test in English Composition, *or*

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

3. Being exempted from the requirement by the Office of Admissions because of completion at another institution of an acceptable college-level course in English composition, *or*

4. Passing a Subject A Placement Test offered only to freshmen who have scored between 450 and 599 in the CEEB Achievement Test in English Composition and to transfer students entering the University with 12 or more quarter units of college credit.

Any student not meeting the requirement in one of the ways described above must, during his first quarter of residence in the University, enroll in a course of instruction, four hours weekly for one quarter, 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 quarter of his residence in the University.

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.

No student will be granted 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.

Students from other countries whose native language is not English will be instructed by the Office of Admissions to take the Entrance Examination in English as a Second Language. Those who have been authorized to take this special examination may meet the English as a Second Language requirement by passing the examination or by satisfactorily completing the advanced course (English 33C) in English as a Second Language. Students who are directed by the Office of Admissions into the English as a Second Language program are not required to meet the regular Subject A requirement.

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 met by one of the following methods:

1. By the completion of any of the following courses with a grade of C or better or a grade of pass: Economics 10, 183; English 80, 85, 104, 115, 170, 171, 172, 173, 174, 190; Geography 144; History 6A, 6B, 6C, 171A, 171B, 171C, 171D, 171E, 172A, 172B, 173A, 173B, 174A, 174B, 175A, 175B, 176A, 176B, 177A, 177B, 177C, 178A, 178B, 179A, 179B, 180A, 180B, 180D, 180E, 180F, 180G, 180H, 180J, 180K, 181, 182, 183, 184, 185A, 185B, 186A, 186B, 187, 188, 189A, 189B; Political Science 1, 114, 143, 144, 145, 171, 172A, 172B, 180, 186.

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

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

3. Satisfactory completion with a grade of "B" or better, of a year's course in high school of American history or American government or a one-year combination of the two effective with students entering UCLA Spring 1972 or later.

Candidates for a teaching credential, but not for a degree, must take one of the courses listed above under history or political science.

An alien attending the University on an "F-I or J-1" student visa may, by showing proof of his temporary residence in the United States, petition for exemption from this State requirement.

Further information regarding the requirement may be obtained from Room 6248, Ralph Bunche Hall.

SENIOR RESIDENCE

Of the last 45 units which a student offers for a bachelor's degree 35 must be earned in residence in the college or school of the University of California in which the degree is to be taken. When translated to the course structure at UCLA this normally implies that nine of the last 11 courses a student offers for a bachelor's degree must be earned in the college or school in which the degree is to be taken. Not more than 18 of the 35 units may be completed in Summer Session on the campus of residence.

CANDIDACY FOR A DEGREE

A student should notify the Registrar at least three quarters before he expects to receive the bachelor's degree by completing and filing the Degree Candidate (DC) Card and the Student Data Card in the quarterly "registration packet". The completed DC and Student Data cards must be filed (even though one or more DC cards were filed at earlier registrations) no later than the tenth day of classes of the quarter in which the student expects to complete work for the degree.

DC cards accepted after the tenth day of classes are subject to a late fee.

Change of College or Major

A change of college (or major) by an undergraduate student requires the approval of the college (or department) to which admission is sought. Applications are made by petition, which may be obtained from the college or school office. No student is permitted to change his major after the opening of the last quarter of his senior year.

A graduate also makes applications for a change in major by petition, which may be obtained at the Graduate Division, 1225 Murphy Hall.

WITHDRAWAL FROM THE UNIVERSITY

Prior to the first day of classes, a student may cancel registration by submitting a written notice, together with the current Registration Card, to the Registrar's Office, 1134 Murphy Hall.

A student withdrawing from the University within the course of a quarter must file with the Registrar's Office an acceptable Notice of Withdrawal. Failure to do so will result in nonpassing grades in all courses, thus jeopardizing his eligibility to re-enter the University of California or his admission by transfer to another institution. Forms containing complete instructions are issued at the office of the dean of the student's college, school or Graduate Division or Window A, Office of the Registrar. The completed form must be filed at the Registrar's Office Information Window after necessary clearances are obtained. Current Registration Card, UCLA Student Identification Card, and tuition and registration fee receipts must be turned in with the completed Notice of Withdrawal. Failure to attend classes, neglect of courses, or stopping payment on checks tendered for registration do not constitute notice of withdrawal.

A student who withdraws within the course of a quarter must file an Application for Readmission (see General Regulations) for the quarter in which he proposes to return to the University provided a quarter—three months, including the period between the Spring

and Fall quarters—has intervened since the withdrawal. Such application is necessary in order that the Registrar may be prepared to register the student. The deadlines for filing applications for readmission will be found in the Calendar of this catalog.

Transcript of Record

Upon formal application to the Registrar a student may have issued on his behalf transcripts of his record of work taken at UCLA in either regular or summer sessions. A fee* of $2 is charged for the first copy (and $1 for each additional copy ordered at the same time) of each transcript, undergraduate, graduate, or Summer Session. Transcripts required for the intercampus transfer of undergraduate students within the University are provided without charge.

STUDENT CONDUCT AND DISCIPLINE

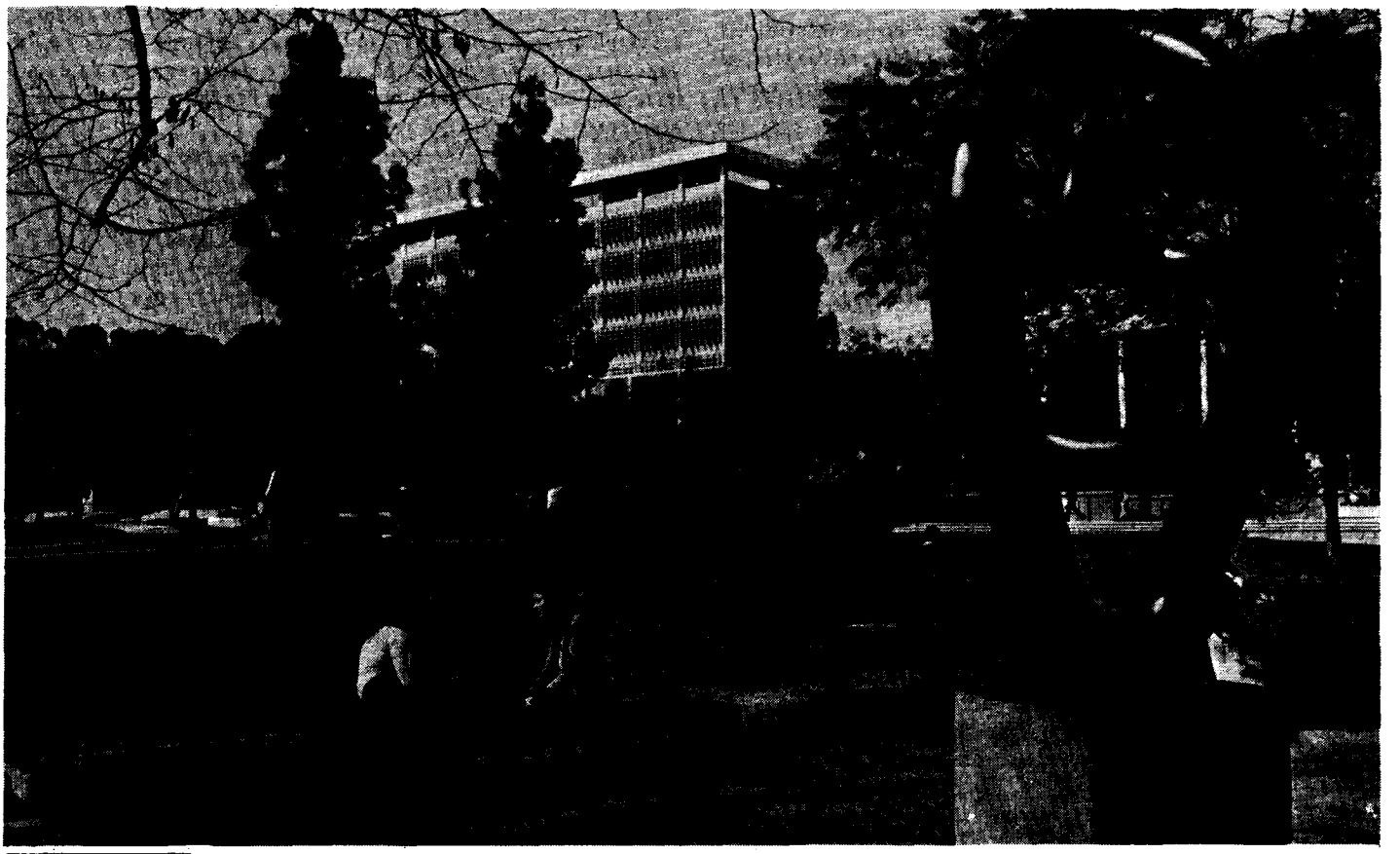
A student enrolled in the University assumes an obligation to conduct himself in a manner compatible with the University's function as an educational institution. Rules concerning student conduct, student organizations, use of University facilities and related matters are set forth in both University policies and campus regulations, copies of which are available upon request at the office of Dean of Students, 2224 Murphy Hall and the Campus Programs and Activities Office, 161 Kerckhoff Hall.

Particular attention is called to the booklets UNIVERSITY OF CALIFORNIA POLICIES RELATING TO STUDENTS AND STUDENT ORGANIZATIONS, USE OF UNIVERSITY FACILITIES, AND NONDISCRIMINATION and UCLA ACTIVITY GUIDELINES, *and* to the standards of conduct set forth therein.

The Dean of Students Office coordinates student discipline and provides broad counseling of student educational needs and problems. It is responsible for Panhellenic and Interfraternity matters. The Dean of Students also supervises Special Services/Veteran Affairs, Student Legal Services, and the Center for Health Sciences outpost for Student and Campus Affairs.

COMMENCEMENT

Commencement exercises honoring candidates for undergraduate and graduate degrees are held in mid-June—either one or two days following the end of final examinations. During the early part of Commencement Day, individual departments, schools, and colleges hold small, informal gatherings at which prizes and honors are awarded, and students and their families meet faculty members. In mid-afternoon, all students, faculty, parents, and friends gather in Drake Track and Field Stadium for formal exercises and the conferring of degrees. This academic pageant is a colorful affair—planned by the Committee on Public Ceremonies—featuring music, degree banners, student speakers, and the wearing of gold fourrageres by undergraduate candidates who have achieved high academic distinction (upper 15 percent of the seniors graduating each quarter).



*Fees are subject to change without notice.

Expenses, Financial Aids, Housing

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 thirty 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.

An estimated budget for the academic year is given under Principal Items of Expense.

Fees and deposits are payable preferably in cash. If a check is presented the face amount should not exceed all the fees to be paid and must be made payable to The Regents of the University of California.

Nonresident Tuition Fee

Students who have not been residents of California for more than one year immediately prior to the residence determination date for each term in which they propose to attend the University are charged, along with other fees, a nonresident tuition fee of $635 for the quarter or $952.50 for the semester. The residence determination date is the day instruction begins at the last of the University of California campuses to open for the quarter, and for schools on the semester system, the day instruction begins for the semester.

GENERAL

California residence is established by an adult who has relinquished his or her prior residence and is physically present within the state with the intent to make California the permanent home. California residence must be established more than one year prior to the term for which resident classification is requested. Indicia of California residence include, but are not limited to: registering and voting in California elections; designating California as the permanent address on all school and employment records, including military records if one is in the military service; obtaining a California I.D. card or drivers license; obtaining California vehicle registration; paying California income taxes as a resident; establishing an abode where one's permanent belongings are kept; licensing for professional practice in California, etc. Conduct inconsistent with the claim of California residence includes, but is not necessarily limited to: maintaining voter registration and voting in person or by absentee in another state; obtaining a divorce in another state; attending an out-of-state institution as a resident; obtaining a loan requiring residence in another state; maintaining out-of-state drivers license and vehicle registration, etc.

A student who is within California for educational purposes only does not gain the status of resident regardless of the length of his or her stay in California.

The residence of the parent with whom an unmarried minor (under age 18) child maintains his or her place of abode is the residence of the unmarried minor child. When the minor lives with neither parent his or her residence is that of the parent with whom he or she maintained his or her last place of abode. The minor may establish his or her residence when both parents are deceased and a legal guardian has not been appointed. The residence of an unmarried minor who has a parent living cannot be changed by his or her own act, by the appointment of a legal guardian, or by relinquishment of a parent's right of control.

A man or woman establishes his or her residence. A woman's residence shall not be derivative from that of her husband, or vice versa.

EXCEPTIONS

1. A student who remains in this state after his or her parent, who was theretofore domiciled in California for at least one year prior to leaving and has, during the student's minority and within one year immediately prior to the residence determination date, established residence elsewhere, shall be entitled to resident classification until the student has attained the age of majority and has resided in the state the minimum time necessary to become a resident so long as, once enrolled, he or she maintains continuous attendance at an institution.

2. Nonresident students who are minors or 18 years of age and can evidence that they have been totally self-supporting through employment and actually present within California for the entire year immediately prior to the residence determination date and have evidenced the intent to make California their permanent home may be eligible for resident status.

3. A student shall be entitled to resident classification if immediately prior to the residence determination date he or she has lived with and been under the continuous direct care and control of any adult or adults other than a parent for not less than two years, provided that the adult or adults having such control have been California residents during the year immediately prior to the residence determination date. This exception continues until the student has attained the age of majority and has resided in the state the minimum time necessary to become a resident student, so long as continuous attendance is maintained at an institution.

4. Exemption from payment of the nonresident tuition fee is available to the natural or adopted child, stepchild or spouse who is a dependent of a member of the United States military stationed in California on active duty. Such resident classification may be maintained until the student has resided in California the minimum time necessary to become a resident. If a student is enrolled in an institution and the member of the military is transferred on military orders to a place outside the United States immediately after having been on active duty in California, the student is entitled to retain resident classification under conditions set forth above.

5. A student who is a member of the United States military stationed in California on active duty, except a member of the military assigned for educational purposes to a state-supported institution of higher education, shall be entitled to resident classification until he or she has resided in the state the minimum time necessary to become a resident.

*All fees are subject to change without notice. Payment of registration fee is a part of registration. Other fees are payable at Cashier's Office which is open from 8:30 a.m. to 4 p.m. daily.

6. A student who is an adult alien is entitled to resident classification if the student has been lawfully admitted to the United States for permanent residence in accordance with all applicable provisions of the laws of the United States and has thereafter established and maintained residence in California for more than one year immediately prior to the residence determination date.

7. A student who is a minor alien should be entitled to resident classification if the student and the parent from whom residence is derived have been lawfully admitted to the United States for permanent residence, provided that the parent has had residence in California for more than one year after acquiring a permanent resident visa prior to the residence determination date for the term.

8. Children of deceased public law enforcement or fire suppression employees, who were California residents and who were killed in the course of law enforcement or fire suppression duties, may be entitled to resident status.

New and returning students are required to complete a Statement of Legal Residence. The student's status is determined by the Attorney in Residence Matters' Deputy who is located in the Registrar's Office.

The student is cautioned that this summation is not a complete explanation of the law regarding residence. The student should also note that changes may have been made in the rate of nonresident tuition and the residence requirements between the time this catalog statement is published and the relevant residence determination date. Regulations have been adopted by The Regents, a copy of which is available for inspection in the Registrar's Office of the campus.

Those classified incorrectly as residents are subject to reclassification as nonresidents and payment of all nonresident fees. If incorrect classification results from false or concealed facts, the student is subject to University discipline and is required to pay all fees he or she would have been charged as a nonresident. Resident students who become nonresidents must immediately notify the Attorney in Residence Matters' Deputy.

Inquiries from prospective students regarding residence requirements for tuition purposes should be directed to the Attorney in Residence Matters, 590 University Hall, 2200 University Avenue, Berkeley, California 94720. No other University personnel are authorized to supply information relative to residence requirements for tuition purposes. Any student, following a final decision on residence classification by the Residence Deputy, may make written appeal to the Attorney in Residence Matters at the above address within 120 days after notification of the final decision by the Residence Deputy.

Fees Assessed All Regular Students*

A Registration Fee of $100 and the Student Union Fee of $4 must be paid by all undergraduate and graduate students when registering each quarter. In addition to the above fees all undergraduate students must pay each quarter an Educational Fee of $100 and an Associated Students Fee of $6, while all graduate students must pay each quarter an Educational Fee of $120 and a Graduate Students Association Fee of $4. The Registration Fee covers certain expenses of students for counseling service, for athletic and gymnasium facilities and equipment, for lockers† and washroom, for registration and graduation, for such consultation, medical advice, and hospital care or dispensary treatment as can be furnished on the campus by the Student Health Service, and for all laboratory and course fees. Membership in the Associated Students or Graduate Students Association (the Associated Students section) is covered by the Associated Student and Graduate Students Association fees respectively. 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 of the quarter, a part of these fees will be refunded. Any refund for a withdrawal will be based on the date the completed notice for withdrawal is actually submitted. No claim for refund will be considered unless presented within the fiscal year to which the claim is applicable.

*Extended University participants may be eligible for reduced fees.

†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.

PAYMENT OF FEES ON BEHALF OF STUDENT

The University assumes no contractual or other obligation to any third party who pays any University fees on behalf of a student, unless the University has expressly agreed thereto in writing. In this regard, no request for a refund of fees by such third party will be honored, and if the student withdraws from the University with a fee refund due, such refund will be paid to the student.

REFUND PROCEDURES§

New Undergraduate Students

Prior to Day 1 Registration Fee paid is refunded except for the $50 Acceptance of Admission Fee, and other fees paid are refunded in full.

Day 1 and after The $50 Acceptance of Admission Fee is withheld from the Registration Fee, and the Schedule of Refunds is applied to the balance of fees assessed.

All Continuing and Readmitted Students and New Graduate Students (Except Medical and Dentistry)

There is a service charge of $10.00 for cancellation of registration or withdrawal before the first day of instruction. Beginning with the first day of instruction the Schedule of Refunds is applied to the total of fees assessed.

Medical and Dentistry Students‡

Prior to first day of instruction, fees paid are refunded in full, except for the Deposit.

Day 1 and after the Deposit is withheld from fees assessed and the Schedule of Refunds is applied to the balance of fees assessed.

Continuing students, the Schedule of Refunds is applied to the total of fees assessed.

SCHEDULE OF REFUNDS‡

1—14 days	15—21 days	22—28 days	29—35 days	36 days and over
80%	60%	40%	20%	0%

§The Schedule of Refunds refers to Calendar days, beginning with the first day of instruction (Day 1). Percentages listed (days 1-35) should be applied respectively to each Tuition, Educational Fee, University Registration Fee, and other student fees. The effective date for determining a refund of fees is the date the student files his official notice of withdrawal with the University, and it is presumed that no University services will be provided to the student after that date.

‡If no credit for courses is received, a full refund of the Registration Fee of the regular session will be granted to all students entering the armed forces prior to the sixth week of the quarter. No refund thereafter.

FOR REDUCED PROGRAMS

Fee assessment is based on total units enrolled as of the 15th day of classes.

For *graduate* students the non-resident tuition is $635 per quarter regardless of the number of courses undertaken. There is no reduction in Registration, Educational, Student Union, or Graduate Students Association fees for less than full-time programs.

For the *undergraduate* student with college/school approval for enrollment in less than 12 units, the non-resident tuition fee is $168 per course ($53 per unit). File a "Request for Fee Reduction" with academic dean's office by tenth day of classes for the applicable quarter. Refunds for courses dropped from the Official Study List are made according to the Schedule of Refunds.

Certain qualified undergraduate students, when properly approved by the dean of their college/school for enrollment in less than 9 units, may be eligible for a $50 reduction in their Educational Fee. The dean's verification and approval of the "Request for Fee Reduction" must be secured by the tenth day of instruction. Except for these qualified and approved part-time students, there is no reduction in the Registration, Educational, Student Union or ASUCLA fees.

Other Fees

Application fee, $20. This nonrefundable fee is charged every undergraduate applicant for admission, readmission, or intercampus transfer to the University and every graduate applicant for admission and readmission to the University.

Acceptance of admission fee, $50. For undergraduates only. The fee is non-refundable, but is applied toward the University Registration Fee.

Returned check collection, $5.

Late registration, $25. When permitted.

Duplicate registration and /or other cards in registration packet, $3 each order.

Change in Official Study list after the tenth day of instruction, $3 each petition, when dropping, substituting, or adding a course within published period.

Late filing of study list (Study List card), $10.

Removal of grade E or I, $5 each petition.

Reinstatement fee, $10. Reinstatement after a status lapsed.

Late filing of Degree Candidate card for the bachelor's degree, $3.

Late payment of fees, $10.

Candidacy for Ph.D., Ed.D., or Dr.P.H., $25.

Credit by Examination, $5 each petition.

Special course Subject A, $45.

Duplicate diploma, $23.50. Replacement cost upon presentation of evidence original is lost or destroyed.

Late application for teaching assignment, $1.

Late return of athletic supplies,‡ $1 for each 24 hours until full purchase price of article is reached.

Failure to empty locker within specified time, $5.

Transcript of Record, $2 for the first copy and $1 for each additional copy ordered at the same time.

Master's thesis and doctoral dissertation filing fee, $50. For the graduate student who is not registered and who has completed all formal requirements for the degree except the filing of a thesis or dissertation and/or the completion of a formal final examination.

‡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.

Principal Items of Expense

Estimated for a college year (three quarters)

EXPENSE ITEM	COST	REMARKS
Registration Fee	$ 300.00	Actual Cost.
Educational Fee	300.00	The Educational Fee for graduate students is $360.00
Student Union Fee	12.00	Actual cost
ASUCLA Membership Fee .	18.00	Membership required of undergraduates; optional for graduate students; however, $12.00 Graduate Students Association Membership Fee is required.
Books and Supplies	220.00	Approximate cost.
Room and Board	1,396.00	Room and board (20 meals/week) for three quarters in a University residence hall, including a refundable $30 deposit and a $12 residence hall membership fee. Telephones not included in above rate. An additional sum should be budgeted to cover the one meal a week not provided in the University residence halls. The cost of remaining on campus during school recesses is not included in the basic residence hall contract. These supplementary room and board costs may average $88 a year. A 15 meals/week plan is also available for approximately $1,351.00.
Miscellaneous	600.00	An average allowance for variable items such as clothing, transportation and parking, medicine and drugs, laundry and dry cleaning, and recreation. The cost of a round trip from home to campus is an additional expense which should be considered.
Total	$2,846.00§	An average budget for a student who is a California resident and who lives in a University residence hall. A reasonable budget for those not housed in a University dormitory will be approximately $3,000 for three quarters as an undergraduate student, $3,060 as a graduate student. This rate is derived from an average rate of a student living alone in an apartment in the Westwood area. Students classified as nonresidents of the State must also add to their estimated budgets the tuition fee of $1,905 to the above budget.

§Because of rising costs, the above estimate of expenses may be subject to change.

FINANCIAL AID FOR STUDENTS

GENERAL INFORMATION

The Financial Aid Office is in Room A129 Murphy Hall, University of California, 405 Hilgard Avenue, Los Angeles, California 90024, phone (213) 825-4531. The department's purpose is to insure that no student is denied a university education for lack of funds. The assistance available for students comes from many sources: Federal and State governments, the University, the Alumni Association, community organizations, private individuals, and corporations. It is disbursed in many forms: scholarships, grants (gift money), low interest loans, and salaries (work-study employment).

APPLICATION AVAILABILITY

Prospective undergraduate students will find descriptive material and instructions for filing for financial aid in the "Application for Admission".

Students who file an application for financial aid by January 15 are assured of receiving all the available funds for which they are eligible. Applications are accepted throughout the year, but will be considered only after the processing of on-time applications, and *only* if funds are still available.

In addition there are types of aid obtained by filing separate applications that are *disbursed* by the University. These funds are described in detail later under "TYPES OF AID".

Undergraduate and graduate students may be eligible for financial aid. *Graduate students* are encouraged to apply for fellowships, traineeships, and assistantships. Those interested should contact either their department or Graduate Division, Fellowship and Assistantship Section, 1228 Murphy Hall, University of California, 405 Hilgard Avenue, Los Angeles, California 90024. The Graduate Division filing deadline is December 15 for awards for the following year.

Students from foreign countries obtain the 1976-77 "Application for Undergraduate and Graduate Financial Aid" and supplement at the International Student Office, 297 Dodd Hall, University of California, 405 Hilgard Avenue, Los Angeles, California 90024. The same filing deadlines apply to foreign students as to non-foreign students.

DETERMINATION OF FINANCIAL AID ELIGIBILITY

Financial aid awards are based on 'need', which is defined as the difference between allowable school-related expenses (budget) and the contribution expected from the family. Budgets vary depending on circumstances. However, the following single-student residence hall budget that was used in 1975-76 is provided as a guide to applicants. Budgets are revised yearly to reflect changes in the cost of living.

UCLA Residence Hall Budget			Additional tuition for non-residents
Undergraduate Fees	$ 630		$1905
Graduate fees		$ 684	$1905
Undergraduate books and supplies	215		
Graduate books and supplies		262	
Room and Board (21 meal plan)*	1,575		
Personal	486		
Medical (Campus Health Insurance)	135		
Transportation (bus)	108		
	$3,150*		

An underlying principle in the determination of financial need is that parents have an obligation to finance the education of their children to the extent that they are able. The expected parental contribution is determined from the information supplied in the Parents' Confidential Statement (PCS). The amount parents are expected to pay is derived from the interaction of income, asset holdings, family size, standard required expenditures, and unusual expenses.

A standard amount of 'self-help' is expected from students, as a result of earnings, in addition to the parents' contribution and any other resources students may have, such as savings, spouse's earnings, benefits from other Federal or State agencies (social security, veterans', welfare, etc.), graduate division assistance, and outside agency scholarships or grants. Self-help varies with the student's year in school, family financial strength, and dependency status. The family contribution that is subtracted from school-related expenses to arrive at 'need' is the sum of the parents' contribution, and the student's resources and self-help expectation.

The desire of students or parents to claim financial independence for the student does not necessarily release the parents from the responsibility of providing financial assistance to meet the student's college expenses. Any student who claims financial independence must fulfill *all* the following requirements:

(1) The student has not and will not be claimed as an exemption for Federal and/or State Income Tax purposes by the parents for the *calendar* years in which aid is received and the *calendar* year prior to the academic year for which aid is requested.

(2) The student has not lived and will not live for more than two consecutive weeks in the home of a parent during the *calendar* years in which aid is received and the *calendar* year prior to the academic year for which aid is requested.

(3) The student has not received and will not receive financial assistance of more than $600 from his or her parent(s) in the *calendar* years in which aid is received and the *calendar* year for which aid is accepted.

(4) The student must demonstrate that he or she has been self-supporting during this period. The independent student submits a 'Student Financial Statement' (SFS) in lieu of the PCS. PCS and SFS forms may be obtained at the Financial Aid Office.

TYPES OF AID—SEPARATE APPLICATION REQUIRED

Described below are programs administered by the Financial Aid Office. Students are usually eligible for several types of aid. 'Packages' are offered honoring the student's perference whenever possible. The forms of aid which require an application *in addition to* the UCLA Application for Financial Aid are Basic Educational Opportunity Grant (BEOG); California State Scholarship (CSS) and College Opportunity Grant (COG); and Guaranteed Student Loan (GSL, formerly FISL).

*We estimated in 1975-76 that living off campus would increase this budget by $590.

Basic Educational Opportunity Grant

The University of California *requires* that all eligible undergraduate students apply for this grant. Only U. S. Citizens, permanent residents, or Vietnamese or Cambodian refugees are eligible. Applications will be available at the Financial Aid Office, high schools, and post offices in February 1976 for academic year 1976-77. These grants range from $200 to approximately $1,400 per academic year and are awarded on the basis of need.

California State Scholarships and College Opportunity Grants

Both the California State Scholarship and College Opportunity Grant are awarded by the State of California. Applications are obtained from the Financial Aid Office, high school counselors, or the California Student Aid Commission, 1410 Fifth Street, Sacramento, California 95814. The deadline for submitting this application is generally in December of the preceding year. The University of California *requires* that undergraduate students who are citizens or permanent residents of the United States and residents of California apply for the *State Scholarship*. Awards range from $300 to $600 to be applied toward education and registration fees, and are based on need and academic achievement. They may be renewed for succeeding years.

College Opportunity Grant awards are based on need, range from $500 to $1,530 per academic year, and are renewable annually. The State sends renewal applications to all continuing State Scholarship and Opportunity Grant recipients.

Guaranteed Student Loan

Guaranteed Student Loans are long-term loans made by banks, savings and loan institutions, and credit unions.

A special application is required and may be obtained at the Financial Aid Office. These loans are available to graduate and undergraduate students who are citizens or permanent residents of the U.S. enrolled in at least a half-time program. Applications processed by the Financial Aid Office are then submitted to a lending institution by the student. Students should check with their lending institutions to determine individual policies.

Repayment of the Guaranteed Student Loan begins between 9 and 12 months after completion of, or withdrawal from, school. Eligible students may receive a Federal interest subsidy so that the loan may be interest free during the time the borrower is a student and for 9 months thereafter. Students have up to 10 years to repay the loan at an interest rate of 7% per year.

Minimum repayment is $360 a year. Repayment is waived up to three years while the borrower is serving in the armed forces, Peace Corps, or VISTA, or during any period of full-time study. Undergraduate students may borrow a total of $7,500, and graduate students $10,000 including the amount borrowed as an undergraduate. It takes approximately six weeks to process a Guaranteed Student Loan.

Federal regulations of the Guaranteed Student Loan Program require that student borrowers be notified of (1) their institution's fee refund policy and (2) the percentage of its students who find employment after obtaining a degree. The University of California's Refund Procedures and Schedule will be found under Refund of Fees of this Catalog. Salary and employment information for the University of California is set forth below.

FIELD OF STUDY	DEGREE LEVEL OF GRADUATES — AVERAGE MONTHLY SALARY[1]			PROBABLE OR DEFINITE JOB COMMITMENT[2]
	BACHELOR'S	MASTER'S	DOCTORATE	
Engineering	$930-1,290	$1,030-1,410	$1,260-1,840	77.4%
Humanities	510- 935	665-1,200	. .	59.2
Life Science	545-1,000	. .	. .	66.0
Management	. .	1,100-1,545	. .	80.7
Physical Science	760-1,260	. .	1,280-1,720	70.5
Social Science	560- 975	730-1,180	. .	56.6

UNIVERSITY SCHOLARSHIPS FOR UNDERGRADUATES

All UCLA scholarship awards are made on a competitive basis, consideration being given to academic excellence, achievement, scholastic promise, and financial need. Scholarships are awarded to entering and continuing students. The terms and amount of the award vary and students are expected to *maintain* academic excellence in their course work. Eligibility for a scholarship is determined by the University Committee on Undergraduate Student Support, Honors and Prizes. See Special Campus Instructions sent to all financial aid applicants for grade-point average requirements and special eligibilities.

Regents' Scholarships

Unlike other University scholarships, Regents' Scholarships are awarded for four years to students entering from high school and for two years to continuing students and those transferring from another university or college who will have completed their sophomore year by the end of spring quarter. Students who have achieved an outstanding academic record and show a high degree of promise are eligible for Regents' Scholarships. Regents' Scholars receive an honorarium of $100 regardless of need. If they are eligible for financial assistance they receive a stipend to cover the difference between resources and the cost of education at UCLA.

President's and University Scholarships

A limited number of President's Scholarships, bearing awards up to $500, have been established by the Regents and are based on grade-point average and financial need. The appointment is for one year but a student may reapply each year. When established need exceeds $500, supplemental aid will be awarded.

University, Alumni, Endowed and Agency Scholarships

Although most scholarships are open to all undergraduate applicants on a competitive basis, some are restricted by the donors to students who meet prescribed criteria. Students will be considered for all scholarships for which they prove eligible. Awards are based on grade-point average and financial need. See Campus Instructions included in the scholarship packet for details. Alumni Scholarships are limited to California residents who will be *freshmen in the fall quarter*. It is also possible to apply for an Alumni Honorarium only. No financial need is involved and no Parents' Confidential Statement is required.

[1]Source: A national survey of a representative group of colleges conducted by the College Placement Council, representing the 80 percent range of offers throughout the country. It should be noted that a wide variation in starting salaries exists within each discipline based on job location, type of employer, personal qualifications of the individual, and employment conditions at the time of job entry.

[2]Source: *The Job Market for UCLA's 1974 Graduates*. Percentages are based only upon those students who planned to work immediately after graduation.

Prizes

The generosity of alumni and friends of the University provides each year for competitive prizes and awards in several fields. Selections will be made by committees in the various academic departments concerned.

UNIVERSITY GRANTS FOR UNDERGRADUATES

Grants are gifts which do not have to be repaid and are based solely on need. Whenever guidelines and funds permit, the student's 'package' includes a grant.

Grant-in-Aid

Grant-in-Aid provides eligible graduate and undergraduate students with financial assistance from University funds.

Supplemental Educational Opportunity Grants

SEOG awards are Federally funded and are granted only to undergraduate students with exceptional financial need. These grants range from $200 to $1,500 per academic year, but can be no more than one-half the total assistance awarded.

Improved Access Grants

This grant program is intended to assist undergraduates who (1) have transferred to the University of California from post-secondary institutions other than the University of California, (2) have completed at least 84 quarter units (56 semester units) and not more than 135 quarter units (90 semester units) of acceptable transfer work, and (3) have a cumulative grade-point average of not less than 2.0.

Educational Fee Grants

To qualify for this grant students must be California residents and undergraduates in their first year of attendance at the University. The maximum grant is $100 per quarter for the first three consecutive quarters of attendance.

LOANS

For Guaranteed Loan Information refer to 'TYPES OF AID—SEPARATE APPLICATION REQUIRED'.

The following loans may be offered as part of the student's package. They are based on need and must be repaid as described below.

Educational Fee Loan

Students who are *residents* of the State of California qualify for a deferral-loan of the educational fee. Educational Fee loans may be awarded up to $300 per year for undergraduates and up to $360 for graduates. Every continuing resident student who is eligible for financial aid will be offered an Educational Fee Loan. Repayment, including interest of 3% per year, begins nine months after the completion of the borrower's education or withdrawal from school. The repayment period may not exceed ten years. Minimum repayment is $33 including interest per calendar quarter. Interest will not accrue and payments need not be made while the borrower attends an accredited graduate school at least half-time or for a maximum of four years while serving in the armed forces, Peace Corps, or VISTA.

Regents' and University Loans

These funds are provided by the Regents of the University to full-time graduate and undergraduate students. Eligible students may receive Regents' loans up to $1,200 per academic year. Regardless of age, borrowers are required to obtain co-signers. *Regents' loans* are repayable in five years in quarterly payments that may begin no later than six months after graduation or withdrawal from the University. Interest at the rate of 3% per annum accrues from the date of departure from the University.

University loans are repayable in minimum quarterly installments of $90 plus interest beginning nine months after graduation or withdrawal from school. Interest and co-signer provisions are the same as for the Regents' loan.

National Direct Student Loan

These loans are available to all students, undergraduate or graduate, who are *citizens or permanent residents,* and who are carrying at least one-half the full-time academic workload. Undergraduate students may borrow up to $2,500 during their first two years. The aggregate sum for all undergraduate studies may not exceed $5,000. Graduate or professional students may borrow up to $10,000, including all amounts borrowed as an undergraduate. Students under 18 years of age are required to obtain a co-signer. There is a nine month grace period after graduation or withdrawal from school during which no interest accrues and no payment is due. Repayment begins twelve months after the student ceases at least half-time study. Minimum repayment is $30 per month, including interest at 3 per cent per annum. The maximum repayment period is ten years. Cancellation provisions in effect under the former legislation for National *Defense* Student Loans made prior to July 1, 1972 will apply to those loans. Loans made subsequent to June 30, 1972 include cancellation provisions up to 100% of the total debt only for those who serve as full-time teachers of disadvantaged or handicapped students in non-profit elementary or secondary schools, as defined by Federal guidelines. Staff members in pre-school programs (Headstart) may also qualify for this cancellation benefit, depending upon their salary scale. Members of the Armed Forces may qualify for up to 50% cancellation at the rate of 12½% per annum for service in an area of hostilities. Payments and interest are deferred during a period in which a borrower attends school at least half-time or for a maximum of three years while a borrower is a member of the armed forces, the Peace Corps, or VISTA.

Emergency Loan

A student *need not be* a financial aid recipient to apply for this loan. *Registered* students qualify. Small amounts may be borrowed for immediate emergency needs. The loans are repayable within 30-45 days depending on which day of the month they are issued. Applications are available at window A107, Murphy Hall, Financial Aid Office.

Work-Study

Work-study is a need based award that allows a student to work a maximum of 20 hours a week while attending school, or 40 hours a week during vacation periods. An academic year's award may be from $600 to $2700. Gross earnings *may not* exceed the amount awarded.

COLLEGE WORK-STUDY (FEDERAL)

A portion of the student's hourly wage is provided by the Federal government, with the employer contributing the balance. Whenever possible, work is in the field of the student's educational objectives. Hourly pay rates comply with minimum wage laws and vary with the nature of the work and the student's experience and capabilities. Employment may be on or off campus. To be eligible a student must be a citizen or permanent resident of the U.S.

PRESIDENT'S WORK-STUDY

This program is administered in the same manner as the Federal program described above except that funding is provided by the Regents of the University and the employer. The student is limited to on-campus jobs. Citizens, permanent residents, and *foreign students* are eligible.

OTHER EMPLOYMENT OPPORTUNITIES

The Placement and Career Planning Center offers part-time work to students.

ROTC FINANCIAL ASSISTANCE

Funds for students in the Reserve Officer Training Corps *are not administered* by the Financial Aid Office; but the subsistence allowances and scholarships available are briefly described below:

Army ROTC Financial Assistance

Cadets receive $100 per month subsistence allowance during the last two years of the ROTC program (Advanced Course). There are also Four-Year Army ROTC Scholarships which provide financial assistance to outstanding students. (Full tuition, books and fees plus $100 per month for the four years.) During a six-week summer training period at the end of the Junior Year cadets receive one-half the pay of a second lieutenant. Also available are 3-year, 2-year, and 1-year scholarships for students enrolled in Army ROTC. For full information call (213) 825-4384, or write the Department of Military Sciences, UCLA, 405 Hilgard Avenue, Los Angeles, California 90024.

Navy ROTC Financial Assistance

College Program students receive $100 per month subsistence allowance during the last two years of NROTC. Excellent opportunities exist for qualified College Program students to receive full scholarships (tuition, books, and $100 per month) after spending at least two quarters in the NROTC Program. For details call (213) 825-3536 or write the Commanding Officer, Department of Naval Science, UCLA, 405 Hilgard Avenue, Los Angeles, California 90024.

Air Force ROTC Financial Assistance

Four-Year Scholarships are available to high school students, and two year and three-year Scholarships to college students. Scholarships include full tuition, books, and fees plus $100 a month. All cadets receive $100 per month during the last two years of the program and one-half the pay of a second lieutenant during the four-week summer training period or the pay of an airman basic during the six-week training period. For full information call (213) 825-1742, or contact the Department of Aerospace Studies, 251 Dodd Hall, UCLA, 405 Hilgard Avenue, Los Angeles, California 90024.

LIVING ACCOMMODATIONS*

The different types of living accommodations which are available to students are: University residence halls; cooperatives; privately-owned rooms and apartments; sororities or fraternities; or the Married Student Apartments.

University Residence Halls—(Single Students)

Four coed residence halls accommodate undergraduate students. Graduate students (21-29 years of age) are accommodated in a coed graduate hall.

Rooms (shared by two students) are furnished with studio beds, desks, draperies, and pillows. Students must furnish blankets, bed linens, bedspreads, and towels.

The residence hall rate (exclusive of recesses) is approximately $1335 for the academic year (Fall, Winter and Spring Quarters), plus deposit and membership fee in the residence hall student association. The rate is prorated for portions of the year. Three meals are served daily except Sundays and University holidays when two meals are served. (Special diets are not available.) A 15-meals-per-week plan is also available. Room and board may be paid in installments as authorized by the University.

ASSIGNMENTS TO RESIDENCE HALLS

Residence hall assignments are mailed beginning about March 1 for the academic year beginning in the fall; about November 15 for the Winter Quarter and February 15 for the Spring Quarter.

University Married Student Apartments

The University maintains the Park Vista and Sepulveda Park apartment complexes which consist of 643 unfurnished two- and three-bedroom apartments, and are located on Sawtelle and Sepulveda Boulevards, approximately five miles from campus.

The basic monthly rates range from $114 to $164 per month. The utilities are not included in the rates.

Assignments are made only to the full-time student member of the family and are nontransferable to another member of the family. To remain eligible for housing, assigned students must be enrolled in all quarters of the academic year, e.g., Fall, Winter and Spring Quarters.

Only the student and his/her immediate family may live in the apartment. Extension students are not eligible.

Due to the limited number of facilities, applicants can anticipate an average wait of 12-18 months for University married student apartments.

Privately Operated Residences

COOPERATIVES

There are several privately-owned, nonprofit, member-controlled, student living groups located adjacent to the UCLA campus. Each student is required to work 3-5 hours per week as part payment of room and board. Each cooperative has a manager, housemother, or head resident responsible for supervision and management. The Cooperative Housing Association is tor men and women; YWCA, and Stevens House are for women only. Room and board rates vary from approximately $260-$360 per quarter.

*Rates and information subject to change.

FRATERNITIES AND SORORITIES

Most of the fraternities and sororities own or lease homes near the campus and provide lodging and meals for a number of their members and pledges. Expenses for residents range from about $145 to $160 per month depending upon the number of meals served and the social and recreational privileges included. Students interested in affiliating with a sorority or fraternity should contact either the Panhellenic Office (for sororities), or the UCLA Interfraternity Council (for fraternities), care of the Dean of Students, 2224 Murphy Hall, 405 Hilgard Avenue, Los Angeles, California 90024.

PRIVATE LANDLORDS

For Single and Married Students

Room and apartment rental listings are available to any student who desires to come *in person* to the Office of Residential Life. Since the listings change from day to day, listings cannot be mailed. Students planning to live in rooms or apartments are advised to arrive on campus at least 10-14 days prior to the opening of the term. The great demand for housing in the near-campus areas makes it advisable for you to make your arrangements as early as possible. Many continuing students arrange for fall housing before leaving for summer recess. Some even pay rent throughout the summer months and try to sublet their apartments to minimize their costs.

The University does not inspect accommodations or make rental or other arrangements on behalf of students. Such transactions must be made individually and directly with landlords. Students are advised to have a clear understanding, preferably in writing, of the terms and conditions of occupancy. The Office of Residential Life offers a handbook on becoming a tenant, a model lease, other appropriate documents, and advice on landlord-tenant problems.

Only a very few places offer room and board at about $160 per month. Rooms in private homes cost from $80 to $110 per month. Single and bachelor apartments usually furnished, rent for $150 and up. Depending upon whether the apartment is furnished or unfurnished, as well as the location, rental prices for one-bedroom apartments are $170 and up, $225 and up for two-bedroom apartments. Rental prices for houses are appreciably higher.

Students who are not boarding by the month can obtain moderately-priced meals at a UCLA residence hall, at the cafeteria in the Ackerman Union, or at one of the many restaurants in Westwood Village adjoining the campus.

Non-resident meal plans can be contracted for on a quarterly basis. For further information, contact the Sproul Hall Cashiers Office, 350 De Neve Drive, Los Angeles, California 90024.

MOTELS AND TRAILER COURTS

Motels are located from one to five miles from campus with varying rates and accommodations. It is sometimes advisable for students to accept these accommodations temporarily until more permanent accommodations can be located. Listings may be secured from the Office of Residential Life.

No trailer parking areas are provided on or adjacent to the campus, the nearest being approximately five miles from campus.

TRANSPORTATION TO CAMPUS AND PARKING

Parking facilities on campus are not adequate to meet the student demand and are subject to parking fees. Students must petition for parking and assignments will be made on a point system based on the information on the petition. Only those persons who have parking permits are able to bring automobiles to campus. During the next few years there is a strong likelihood that large numbers of students will be unable to obtain parking permits: therefore please make alternate plans for getting to campus in the event you do not receive a parking assignment (e.g. public transit, car pools, bicycles, motorcycles, etc.). Contact the Southern California Rapid Transit District or the Santa Monica Municipal Bus Lines for information regarding bus schedules in this area. Those desiring to form car pools may obtain registration forms from Campus Parking Service or Alpha Phi Omega, the campus service fraternity.

Automobile

A limited number of parking permits will be sold to students. Those students with physical disabilities which preclude walking long distances may apply for permits through the Student Health Service. All other students must file parking petitions with the Campus Parking Service, Room 280, Gayley-Strathmore Structure (Area 8). Petitions will be processed on IBM cards utilizing a point system established on the basis of need. Permits approved for the fall quarter can be renewed for the winter and spring quarters for continuing students and new petitions need not be filed. However, new or re-entering students for each quarter must file parking petitions. Permits are not renewable from spring quarter for the following fall quarter. Deadlines for filing and for renewing permits will be established for each quarter. Inquire at Campus Parking Service for additional information. **Parking permits are not transferable and may be purchased only from the Campus Parking Service.**

Bicycle, Motor Scooter and Motorcycle

Bicycle racks and motorcycle parking areas are provided at convenient locations throughout the campus. Registration of bicycles and motorcycles is not required. Parking regulations, guide maps indicating the location of these facilities, and additional information may be obtained from Campus Parking Service.

Student Services and Activities

HEALTH SERVICES

GENERAL DESCRIPTION

Under several conditions of eligibility and coverage, the program makes available to students at UCLA a virtually complete range of preventive, diagnostic, and therapeutic health services. In cooperation with the Center for the Health Sciences and with other community health resources, and with the further aid of health insurance, the Health Services make available both direct and referral access to the kinds of high quality medical, surgical, dental and mental health care resources most appropriate to students' needs and means.

The main resources and activities of the Health Services are directed, as an integral part of the educational program of the University, towards those health concerns and conditions most frequently arising in the course of student life, and most often threatening students' continuing pursuit of personal and academic goals in the University.

In selected cases, compatible with continuing progress as a student, some direct care may be offered and subsidized through the Health Services for predictably chronic or recurring needs. For long-term conditions, the student will be assisted in locating other resources for care when not eligible for care of such conditions in the Health Service.

However, beyond such limited care for longstanding conditions, the Health Services' available resources must currently be primarily organized to meet the majority's needs for health education, counseling, and care on campus, arising during active attendance at the University, and cannot offer total coverage of all conditions, or in all locations.

FINANCIAL SUPPORT OF HEALTH SERVICES

The Health Services are supported principally by *allocations from the Registration Fee* paid by all fully registered students, and by the *Special Health Service Fees* paid by some other categories of students. Those paying the Registration Fee, or the Optional Health Service Fee receive all benefits as described below at no further cost, except for modest charges for some kinds of prescriptions, for missed appointments, and for a few other services.

In addition, students may in some circumstances be eligible to use the Health Services on a *Fee-for-Service* basis, as they would a private physician or clinic, paying for services actually received according to a fee schedule which is available for students' inspection upon request.

Summer Session Fees, Filing Fees, and any other monies advanced for special study categories short of full Registration *do not in themselves provide any support to or eligibility for Health Services*, but may make such persons eligible for benefits after paying the Special Health Service Fee, or on a Fee-for-Service basis, as explained below.

Benefits not directly provided through the University Health Services or exceeding stated limits, are the student's personal financial responsibility, with or without the aid of any health insurance he may hold. Such insurance, including the UCLA Supplemental Medical Insurance (see below), effectively extends the student's overall health-care coverage beyond the limits of direct Health Services benefits, and to situations when the student is unable to utilize the Health Services for necessary care.

SUPPLEMENTAL HOSPITAL-MEDICAL INSURANCE

The costs of necessary hospitalization and in-patient care are *not* covered by the University's student health benefits in any hospital, nor are the costs of any care obtained outside of UCLA and the Health Service, without prior authorization by Student Health. Further, students treated within Student Health following withdrawal or during an unregistered Quarter may be liable to Fee-for-Service charges for such care.

These costs, not covered by the University, are the student's responsibility, and if he has no adequate insurance, he may be faced with serious financial loss and hardship.

Therefore it is of great importance that each student be sure to have adequate hospital-medical insurance. If he is not already covered by insurance held independently, through parents, spouses, or employers, he should purchase the Student Hospital-Medical Insurance sponsored by the University. In the case of Foreign Students attending UCLA on non-immigrant visas, *the University requires, as a condition of Registration* that they have or purchase adequate insurance, as judged by the Health Service.

This Student insurance is available at very low cost through the Health Service, and is available only at the beginning of each Quarter.

Students' dependents are not covered and cannot be treated at the Health Service at this time, regardless of whether they have insurance or not, due to lack of staff and space. Therefore, students will be responsible for most, if not all, costs for care of their dependents.

However, for an additional premium, students may insure their spouses and children through the Student Hospital-Medical Insurance, to cover most, if not all such expenses.

The University reserves the right to require adequate hospital-medical insurance of all students as a condition of registration.

Conditions of Eligibility

With a few exceptions, the Health Services are presently reserved for the use of students at the Los Angeles campus of the University of California, and in special situations, for students from other U.C. campuses.

Students paying a full Registration Fee in any quarter of the regular academic year of any school, college or division of UCLA are entitled to full benefits as set forth below, with official verification of registration. This entitlement extends from the first day of the Quarter as officially published through the last day of same, except if the student withdraws. (See below for limitations following withdrawal.) If the student intends to register for the next immediately following quarter, his coverage extends through the break between quarters.

Prospective students arriving from significant distances, and students required for any University-connected reason to be on campus prior to the first day of the quarter will be entitled to full benefits during such periods with reasonable documentation of their status and intent to register; if later they fail to register, they will be charged for services actually received.

Students currently registered at other U.C. campuses may receive necessary emergency care on the same basis as those at UCLA. However, they are not eligible for other care or service at UCLA while registered elsewhere without the Director's approval of an official written request from their home campus Health Service, or without written evidence of acceptance for *transfer* to UCLA as fully registered students in the next regular quarter. In this case they will be entitled to full benefits, during the regular academic year, for the period between the last day of official registration at another U.C. campus and the first day of the UCLA quarter immediately following.

Some categories of students who pay anything less than the full Registration Fee, may receive Health Services benefits during any quarter (including Summer months), in which the category applies, in either of two ways, as they may elect.

A. They may receive full benefits by *pre-payment of the Special Health Service Fee* prior to the close of the tenth (10th) calendar day of the quarter or initial Summer Session, or:

B. They may utilize the Health Services on a *Fee-for-Service* basis (defined above) between the last official day of the academic session just preceding, and the opening day of the next session following such periods.

The *specific categories* of students eligible for these options are as follows:

1. *Continuing Students,* (including those from other U.C. campuses transferring to UCLA) during Summer months, whether attending Summer Sessions or not.

2. *Accepted candidates for any UCLA degree,* during any one quarter of non-registration, for any reason except withdrawal, provided they have been fully registered or have paid the Special Health Fee in the previous quarter, and that they have satisfactory evidence of intent to re-register fully in the next applicable term.

3. Graduate students actively researching and/or writing doctoral dissertations, but who have no need to take classes or to register for this purpose, and who are not yet ready to submit their theses and pay Filing Fees, provided they have official written confirmation of current sponsorship and continuing *bona fide* degree candidacy for the Quarter from the responsible senior Faculty member or Department Head.

4. *Graduate Students paying a "Filing Fee"* for dissertations, but not otherwise registered, for that quarter or Summer period in which that fee is paid.

5. *Postdoctoral Fellows and Trainees,* properly identified as such by their sponsors, working full time towards additional credentials in any quarter or summer period.

6. *Foreign Students,* not yet registered, but living near campus and working under University sponsorship to meet language and/or other academic prerequisites to full registration, when approved by the Foreign Students Office.

7. *Medical and Dental Students,* technically "registered" for purposes of medicolegal coverage during elective or "free" quarters, but paying no registration fee, with appropriate confirmation.

In all of the above situations, service charges incurred prior to the tenth (10th) day of the eligible period are *not* automatically cancelled by subsequent payment of the Special Health Service Fee.

Some other categories of students, having only intermittent, partial, or qualified University status, may be eligible for Health Services use, but *solely on a Fee-for-Service basis* as follows:

1. *Students enrolled in Summer Sessions only,* and who were not, and will not be, fully registered or enrolled, in the preceding or following quarters.

2. *Students whose re-registration in the next regular quarter is in any doubt* following withdrawal, or receipt of a degree. In such cases, the Fee-for-Service use privilege extends only to the opening day of the next regular quarter, or the initial Summer Session, whichever is sooner. *Thereafter eligibility on any basis terminates* until official confirmation of re-registration or Summer enrollment is presented.

3. *Special Scholars,* specially sponsored part-time, visiting, and exchange students and researchers primarily based elsewhere, when officially designated as such by the sponsoring Department, may use the Health Service, *but only for emergency care of acute illness and injury apparently arising in connection with their scheduled study and activities on the UCLA Campus, on a Fee-for-Service basis.* If under 18, Special Scholars must have signed parental permission on file for such emergency treatment.

In some unusual situations, if in the best interests of the student, and of no undue risk to the University, the Director may approve eligibility by exception to the foregoing conditions, on a case-by-case basis.

BENEFITS, LOCATIONS, AND HOURS

Direct Health Services benefits are available to students only through the services as provided at UCLA and in some officially connected facilities, except for emergency benefits through the Health Services of other U.C. campuses.

Emergency Care is available at the Student Clinic on "A" floor of the Health Sciences Center or at the Emergency Station of Pauley Pavilion during hours when they are open. Office hours are: Monday through Friday, 8:00 a.m. to 4:30 p.m.; emergencies to 5:00 p.m. *except Tuesday,* when office hours start at 9:00 a.m. Pauley Pavilion Station is open from 1:30 to 6 p.m. Monday through Friday, and is especially staffed and equipped to provide prompt expert care for athletic injuries.

When these facilities are closed, students in need of emergency care are treated in the UCLA Hospital Emergency Room, or in the Hospital's Primary Care Clinic. Charges for services rendered there will be covered through students' insurance whenever applicable and when not so covered, may be paid by Student Health.

The Student Health Service is not responsible for in-patient hospital costs at UCLA or elsewhere, and is not responsible for ambulance fees, except when previously authorized in connection with on-campus emergencies, although they are usually covered by health insurance, including the UCLA Student Supplemental Medical Insurance, for any legitimate use.

Benefits are subject to change at the discretion of the Chancellor, with appropriate official prior notice.

GENERAL MEDICAL AND SURGICAL SERVICES

The Student Clinics include: (a) A General Clinic where students with all kinds of ailments are usually seen without appointment, but in which some appointments are available for return visits; (b) A wide variety of Special Clinics where students are seen chiefly by appointment after referral from the General Clinic or another Special Clinic; (c) Clinical Laboratory, X-Ray, pharmacy, and other ancillary services; (d) An immunization station which operates during selected hours Monday through Friday; no appointment is required except in the case of yellow fever vaccination.

However, any student may apply directly, without referral, to the Dental Clinic or the Mental Health Services.

THE DENTAL CLINIC

The primary function of the Student Health Dental Clinic is to treat dental emergencies. Emergency care has priority over non-urgent procedures. Dental examinations, x-rays, prophylaxis, hygiene instructions, advice and consultation on dental problems are provided. A limited amount of general dentistry and dental surgery is available.

There is a fee for all services. Students are required to pay the scheduled fee for dental care at the time of treatment. Fees for missed appointments are strictly enforced, no exceptions. *Exception:* Initial examination for dental injury or conditions may be given at no cost, if referred by other Student Health professional staff, and no X-rays or operative procedures are required.

MENTAL HEALTH SERVICE

This service provides counseling, short-term individual and group therapy, and indicated prescriptions for students with emotional, psychological, and personal problems, at no charge. Its staff works closely with The Psychological and Counseling Services and with the Neuropsychiatric Institute of the Center for Health Sciences, and assists with referrals to other agencies for further treatment when this is appropriate.

CONTRACEPTIVE SERVICES

These services are available to UCLA students through the Conception Counseling and Education Clinic (CCEC), now an integral part of the Student Health Service Division of Gynecology and Family Planning. Student's spouses are not presently eligible for service in this unit, and will be referred elsewhere. Educational sessions are held weekly and are free of charge to all students, male and female. Attendance at one class session is required of any female wanting membership in the clinic.

Services are at no cost to students except for the costs of contraceptive medications, devices, and materials themselves. No direct service or coverage is provided at this time, except counseling and referral, for therapeutic abortions, although the Student Hospital-Medical Insurance, if held by the students, will cover most if not all the costs.

HOSPITALIZATION

Since June 30, 1973, and until further notice, the University and its Student Health Service *are not responsible for the costs of students' hospitalization and in-patient care at UCLA or at any other hospital.* All such hospital and related costs are the student's responsibility.

To assure protection against unexpected and sometimes severe financial losses, each student must be certain that he is adequately covered through independent hospital/medical insurance, or through purchase of the UCLA Student Hospital and Medical Expense Plan at the beginning of his first registered quarter. Under special circumstances, students without any personal insurance, who require hospitalization for acute injuries and conditions arising in the course of University-sponsored activities, may be covered for the resulting costs through other special University insurance provisions.

LIMITATIONS

The services provided are limited by the staff, space, and facilities available. These limitations are felt especially keenly in the Mental Health and Dental Clinics, where only a small proportion of students requesting routine services can be accommodated. The General Clinic is subject to recurring periods of overcrowding during which only preliminary service is possible for any but the most urgent conditions.

Furthermore, Health Service policy does not provide for the following: (1) Surgical correction of conditions existing at the time of entrance or re-entrance to the University; (2) Eyeglasses, or visual refraction for eyeglasses; (3) Routine dentistry, except under special conditions; (4) Care or termination of pregnancy, or the care of dependents; (5) Premarital examinations, other than the giving of general advice and performance of the required blood tests; (6) Care, other than first aid, for conditions compensable under the work injury laws (industrial accidents); (7) Care of conditions for which a surgical operation has been performed, a plaster cast applied, or other definitive treatment begun elsewhere, except when it would be impracticable for a student to return to his original doctor; (8) Care of chronic conditions for which a student has been under the care of an outside doctor, unless the latter recommends in writing, for the Director's approval, that the student be transferred to our care while attending the University; (9) Ambulance or other transportation unless ordered by University staff for on-campus emergencies; (10) Wheelchairs or special orthopedic apparatus; (11) Filling of prescriptions for drugs, or requisitions for x-rays or laboratory tests originating with the outside doctor; (12) Routine physical for other than University or other clear-cut requirements.

CONFIDENTIALITY OF MEDICAL RECORDS

Any student, by Federal Law, has the right to examine and review the contents of his medical record with Health Service professional staff members. The record itself, however, is *per se* the property of the University, and may not be removed from the premises by any person, except under court order.

However, no information whatsoever will be given from the student's medical record, nor relative to his medical condition without his prior express consent, or a legal court order, except in cases of extreme emergency when not to do so would in the Director's opinion endanger the student's life, or the lives of those about him; and as otherwise required by law.

CARE OFF CAMPUS

When visiting another University of California campus, a UCLA student is eligible for treatment of an acute illness or injury at the Health Service under the same conditions that apply to students enrolled on that campus. He must show his registration card to identify himself. While a student is off-campus participating in an officially sponsored field trip, sport event, or recreational outing, necessary medical expenses incurred because of injury or sudden illness are covered by insurance carried by the Regents of the University. This policy does not cover any care which the student could reasonably have obtained through the Health Services.

THIRD-PARTY LIABILITY AND SUBROGATION

When a student is treated under Health Service auspices and subsidy for illness or injury resulting from third party negligence or intent, the University reserves the right to recover the actual costs of such care, as the "prime insurer," by assignment or subrogation from any subsequent legal settlements and/or awards to the patient.

FEDERAL INCOME TAX DEDUCTION

For federal income tax purposes, the $30.00 allocated to Health Services from each quarterly Registration Fee paid during the taxable year may be taken as a deduction for medical care.

ADDITIONAL INFORMATION

Students, and any others concerned, may obtain additional information by calling the Health Services at 825-4073, by visiting, or by writing the Director.

HEALTH REQUIREMENTS

Each student who enters UCLA for the first time or who is re-entering after one or more Quarters' absence is required to complete a Health Evaluation Form, which usually will be mailed to him. If not, it may be obtained by calling (213) 825-4694 or writing the Student Health Service. The information is not intended to exclude students from school, but instead to better serve them while they are here, to make sure they are no hazard to themselves or other students, and to permit their activities to be adjusted so that they can make the most of their opportunities here.

Before coming to the University, all students are urged to have their own physician and dentist examine them 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.

The Health Evaluation Form is to be mailed directly to the Student Health Service in the envelope provided.

Students newly admitted to the Schools of Medicine, Dentistry, and Nursing are required by those schools to have their Health Evaluation Forms reviewed and to be given a thorough physical examination, and selected tests and immunizations, by appointment in the Student Health Service. (Telephone 825-2251) See Schools' catalogs for additional information.

Foreign students must have the Health Service's clearance for freedom from tuberculosis, and for coverage by adequate health insurance, before registration can proceed.

PSYCHOLOGICAL AND COUNSELING SERVICES

The Psychological & Counseling Services includes two separate divisions—The Behavioral Division and The Counseling Division. They provide professional services focusing upon student development, and are for the voluntary use of any regularly enrolled student.

BEHAVIORAL DIVISION

The Behavioral Division (4222 Math Science Building, 825-4207) offers counseling for students who want to increase their effectiveness in handling specific problems encountered in the course of university life. Typical concerns which can be resolved through a self-management learning process include overcoming test-taking anxiety, fear of oral exams or participating in classroom discussions, public speaking anxiety, tension or inexpressiveness in difficult interviews, and procrastination in studying. Other personal problems in which excessive anxiety or inappropriate learned behaviors interfere with performance can also be relieved, such as lessening difficulty in meeting people, learning to express oneself more directly and honestly in interpersonal relationships, and finding ways to increase self-confidence and self-control. Emphasis is placed upon the learning of techniques and abilities to help people implement decisions they have made and to more effectively realize their goals.

The staff is composed of professional psychologists. Both individual and group programs are offered. Students should call or come in to arrange an appointment or to receive further information.

COUNSELING DIVISION

The Counseling Division (3334 Murphy Hall, 825-4071) offers individual and group counseling for students who are experiencing any of the number of general concerns, dilemmas, crises or indecisions which are often encountered by students. Difficulties related to the process of making decisions, the clarification of values or long-range personal and career goals, the resolution of conflict in expectations, the handling of intense emotional experiences, and other concerns affecting the personal growth of students are among those to which the Counseling Division frequently responds. Educational and career interest inventories can be taken upon request. Marital and pre-marital counseling, and counseling related to problems encountered in other forms of relationships is also available. Emphasis is placed on the exploration and clarification of one's feelings, choices, expectations, and alternatives, and the resolution of indecision or inability to act.

The staff is composed of counseling psychologists and other professionals familiar with the needs and interests of college students. Students should call or come in to arrange an appointment (immediate appointments are possible, if indicated) or to receive further information.

LEARNING SKILLS CENTER

The Learning Skills Center offers individual and group programs designed to assist students in the development of reading, writing, listening, and study skills and habits appropriate to the demands of their University studies. Assistance is also offered in mathematics and science. The staff is composed of professionals from a variety of academic disciplines familiar with the learning needs of college students. There is no charge for these services, which are for the voluntary use of regularly enrolled students. (Dodd Hall 271)

PLACEMENT AND CAREER PLANNING CENTER

The Placement and Career Planning Center offers career counseling and placement services to students of all disciplines and all degree and class levels. It is comprised of three functional divisions: Career Planning and Placement, Student Employment, and Educational Career Services. Services are located in the Placement and Career Planning Center building and in two satellite locations. A satellite office in 1355 GSM specializes in Management, and another in 7420 Boelter Hall specializes in Engineering and the Physical Sciences.

CAREER PLANNING AND PLACEMENT

A staff of career counselors is available to assist in the process of career exploration and choice and in the career job search process. An educational and career information library is provided as the basic information resource for planning further education and careers. The on-campus employment interview program provides convenient access to information exchange with certain graduate and professional schools as well as hundreds of potential employers. A larger number and more diverse array of job opportunities is posted for review by graduating students and alumni and referral directly to the employers' offices.

EDUCATIONAL CAREER SERVICES

This is a specialized source of information and counsel to students and alumni seeking positions in universities, colleges, community colleges, secondary and elementary schools, both public and private. Current lists of educational job opportunities and a

professional file service are part of this service. Internships in educational institutions, and various training and orientation activities are also provided.

STUDENT EMPLOYMENT

A job listing and referral system is provided for currently enrolled students and their spouses who are seeking part-time, temporary, or vacation employment. Jobs are available in clerical, sales, food service, and unskilled labor areas. Career-related opportunities in engineering, science, recreation, and education are also available. Listings of possibilities for room and board in private homes in exchange for work are maintained. In addition, the Center maintains files of qualified students who are interested in tutoring, baby-sitting, and temporary unskilled jobs.

OFFICE OF SPECIAL SERVICES/VETERAN AFFAIRS

SELECTIVE SERVICE (DRAFT)

Selective Service information on draft matters is available at the Office of Special Services/Veteran Affairs A-255 Murphy Hall. Students desiring deferment on the basis of enrollment in the University ROTC programs should consult the proper ROTC Department.

VETERANS INFORMATION

Special Services maintains liaison between certain veterans and veterans' dependents, the Veterans Administration and the State Department of Veterans Affairs to assist students in coordinating University procedures with veterans' educational regulations.

Students wishing to enroll under any available federal educational acts should come to the Office of Special Services/Veteran Affairs, Room A-255 Murphy Hall, as soon as possible. These students must be prepared to pay all fees and educational costs at the time of registration, as education and training allowances are paid to the student by the Veterans Administration. The first monthly payments will normally be received at the beginning of each month after compliance with the above instructions. All students registered under a veteran's or dependent's subsidy program are required to personally file an official study list in the Office of Special Services/Veteran Affairs at the beginning of each academic year.

Information regarding educational benefits available for veterans' dependents from the State of California may be obtained from the State Department of Veterans Affairs, P.O. Box 1559, Sacramento, California 95807, or by writing either to P.O. Box 24010, Los Angeles, California 90024 or 350 McAllister Street, San Francisco, California 94102. Veterans' dependents who are on the State Program are eligible for fee waivers for the registration fee upon presentation of authorizations from the Division of Educational Assistance.

SOCIAL SECURITY BENEFITS FOR STUDENTS

The full-time status of Social Security dependents from the ages of 18 to 22 is certified to the Social Security Administration by the Office of Special Services/Veteran Affairs. Students who are dependents of retired, deceased, and disabled workers should check their eligibility with the Social Security office nearest their home which will send the certification form directly to the Office of Special Services/Veteran Affairs for completion so that payments can be made to the student.

VOCATIONAL REHABILITATION SERVICE

Students who have a physical, emotional, or other disability which handicaps them vocationally may be eligible for the services of the State Department of Rehabilitation. These services include vocational counseling and guidance, training (with payment of costs such as books, fees, tuition, etc.) and job placement. Under certain circumstances students may also qualify for help with medical needs, living expenses and transportation.

Appointments may be made with a counselor in the Office of Special Services/Veteran Affairs, or by contacting the State Department of Rehabilitation Office at 1494 South Robertson Boulevard, Los Angeles, 90035; telephone 273-4302.

The Office of Special Services/Veteran Affairs provides assistance in cases of clearly indicated need to physically handicapped students on registration and enrollment procedures and other matters.

CAMPUS PROGRAMS AND ACTIVITIES OFFICE

There are currently over 300 registered organizations at UCLA representing a wide range of student, faculty and staff interests in addition to a variety of student-government-sponsored programs and activities.

The Campus Programs and Activities Office (Kerckhoff 161, ext. 57041) under the Vice Chancellor for Student and Campus Affairs advises such groups in the development, implementation and evaluation of their programs and activities. It is also the responsibility of this office to administer University regulations related to non-class use of University facilities. An organization must first register with the CPAO; programs and activities sponsored by that organization also receive program approval here. The scheduling and facility use approval is then obtained from Campus Activities Service Office (Royce Hall 130). Ideas for new programs and activities are encouraged by the CPAO where a cooperative relationship between students, faculty, and staff prevails. Individuals and groups are encouraged to come in at any time to discuss concepts, plans, or problems.

CAMPUS ACTIVITIES SERVICE OFFICE

The Campus Activities Service Office has the responsibility to administer and operate campus facilities when used by non-class activities for the UCLA community. Event, activity, and program producers in these areas are invited to avail themselves of CASO's equipment, facilities and trained personnel for room scheduling, staging, lighting, audio visual services, crowd management, literature posting, etc. Administration of General Assignment Lockers and UCLA Combination Padlocks.

DEAN OF STUDENTS OFFICE

The Dean of Students Office exists to help students with whatever needs they might have, either directly or by referral. The variety of problems, complaints and requests cover the entire operation of the campus. Some of the more important functions for which the office is responsible are as follows: veterans affairs and special services, student legal aid services, sorority and fraternity affairs, orientation program for new students, advising various honorary and service groups, general counseling and advising, locating a student in case of emergency, and handling student discipline cases.

STUDENT SERVICES IN THE CENTER FOR THE HEALTH SCIENCES

The functions available to students on the general campus are not duplicated in the Center for the Health Sciences (CHS), but as an outpost of the Office of the Dean of Students, the Student Services Office does attempt to facilitate the activities of health science student organizations. Located just inside the Dental Wing, in room 13-089, the Student Services Office provides information about programs, activities, and services available on the general campus, and acts as a liaison between the other offices of Student and Campus Affairs and the CHS students.

STUDENT LEGAL SERVICES

Registered students with legal problems may obtain assistance free of charge in the resolution of their difficulties in such diverse areas as landlord/tenant relations, domestic relations, accident and injury problems, criminal matters and contract and debt problems. Each student will be seen on a walk-in basis in the Kerckhoff Hall office by a law student participating in a clinic program of the UCLA School of Law under the direct supervision of a qualified attorney or may be seen directly by an attorney. Matters requiring extended negotiations, court appearances, or litigation cannot be accepted but will be referred out to a community legal aid center or to an outside attorney.

OFFICE OF EXPERIMENTAL EDUCATIONAL PROGRAMS

The Office of Experimental Educational Programs (OEEP) responds to the educational needs of UCLA students by generating new ideas and directing innovative programs. The Office develops community service learning, internships, and field-study projects to supplement and complement both academic departments and other Student and Campus Affairs units. The Office's Extramural Programs and Opportunities Center (EXPO) provides an information and brokering service for experiential activities and national and international travel and study, while the Women's Resource Center (WRC) addresses the specialized concerns of women.

Students are invited to visit the Office, EXPO, or WRC.

OFFICE OF CULTURAL AND RECREATIONAL AFFAIRS

The Office of Cultural and Recreational Affairs serves as the administrative center for the coordination of facilities, equipment, programming and supervision of campus recreational activities and services. All students who have paid the full registration fee are entitled to these services. Four professionally staffed divisions provide a variety of services and programs to accommodate the total campus community.

RECREATION SERVICES AND FACILITIES

Opportunities for informal participation in swimming, body conditioning, basketball, handball, volleyball, badminton, tennis, and field sports are available seven days a week at the two gymnasiums, the Memorial Activities Center, the athletic fields, and tennis courts. In addition, recreation classes are offered in tennis, skiing, volleyball, exercise and figure control, swimming, water safety, senior lifesaving and gymnastics. Further information may be obtained at Pauley Pavilion 164.

INTRAMURAL SPORTS

Organized participation at various skill levels in seventy-four activities is available on an individual, dual, and team basis. The total program includes coed activities as well as the wide range of sports for men and women. The Intramural Office is located in Men's Gymnasium 118.

THE UNIVERSITY RECREATION ASSOCIATION

The University Recreation Association is a federation of over forty special interest clubs which features clinics, seminars, exhibitions, concerts, lectures, classes, tournaments, and field trips. The clubs serve students with interests ranging from chess to surfing, and karate to skiing. Inquiries should be directed to Kerckhoff Hall 600.

SUNSET CANYON RECREATION CENTER

The Sunset Canyon Recreation Center is a recreational and cultural facility aesthetically designed to serve the University community. It is open all year, seven days a week, for formal and informal use on both an individual and a group basis. Located in the hills of the west campus adjacent to the residence halls, it features two swimming pools (one for children), picnic-barbecue areas, multipurpose play fields, and an outdoor amphitheater. Rooms are available for meetings, receptions, symposia, dances, catered luncheons and dinners. The Center sponsors programs of poetry readings, informal concerts, exhibitions and art and dance classes for adults and children. An extensive aquatic program includes swim classes for children and adults.

ATHLETICS

MEN'S INTERCOLLEGIATE SPORTS

UCLA is a member of the Pacific-8 Conference which includes the University of California, Berkeley, Stanford University, University of Southern California, University of Oregon, Oregon State University, Washington State University, and the University of Washington. The Pacific 8 provides opportunities for participation (and "spectatorship") on the varsity and freshman level in football, basketball, track, baseball, tennis, crew, gymnastics, swimming, water polo, riflery, golf, wrestling, soccer, rugby, fencing, and cross-country.

WOMEN'S INTERCOLLEGIATE ATHLETICS

The Department of Women's Intercollegiate Athletics sponsors eleven different varsity programs for women athletes under the jurisdiction of the Association of Intercollegiate Athletics for Women (AIAW) and the Southern California Women's Intercollegiate Athletic Conference (SCWIAC). UCLA's women's teams have already won two national titles in women's sports and include nationally-ranked teams in basketball, swimming, golf, tennis, and track and field. One of the nation's leaders in intercollegiate athletics for women, UCLA has recently embarked upon a program of athletic grants-in-aid, regular coaching, equitable facility use and other upgrading of athletic opportunities for women. Women are also eligible to participate on all traditionally all-male varsity teams in the Department of Intercollegiate Athletics.

UNIVERSITY POLICIES COMMISSION

The University Policies Commission functions as a deliberative body to study, and when appropriate, to recommend policy changes or innovations which would enhance the quality of the campus environment. Representing all segments of the campus community, its membership includes three students, three faculty members, three non-academic staff members, three administrators, and the Ombudsman.

Under the aegis of the Commission there are three standing committees as follows: (1) The Registration Fee Committee; (2) The Judicial Review Committee; and (3) The Staff Affairs Committee.

The Registration Fee Committee provides a continuing review of registration fee allocations in an advisory capacity to the Chancellor. It, in turn, is assisted by a Program Task Force and a Capital Outlay Task Force which review and make recommendations on student-initiated program proposals and capital expenditures respectively.

The Judicial Review Committee conducts a continuing examination of UCLA regulations and judicial systems, and the Staff Affairs Committee reviews matters of concern to University employees and nominates staff members for appointment to the Commission.

Members of the campus community are encouraged to contact the Office at 128 Royce Hall or call 825-7906 with policy items of concern to them and the campus community.

OMBUDSMAN

The purpose of the Ombudsman office is to seek to resolve personal grievances of members of the university community emerging from policy, practices, and/or personalities. As an independent agent with investigatory powers, the Ombudsman accepts grievances only after the grievant has tried to resolve the problem through regular channels and when there is evidence that adverse decisions are questionable.

The Ombudsman also serves on the University Policies Commission which reviews and recommends policy changes.

The office is located in Kinsey Hall, Room 280 (phone 825-7627) and is open to all University-related persons also at times and other places convenient to the aggrieved.

CAMPUS SERVICE CENTER

The Services Center is a focal point for information of any nature regarding the campus community. Assistance is given by phone, in person, or by specific referral. The Center is located in the main lobby of Ackerman Union. Phone 825-3740. A similar Center has also been established in the Center for the Health Sciences for health science students. It is located in the Dental Wing, room 13-089, and the phone number is 825-1484.

THE ASSOCIATED STUDENTS

Almost all extracurricular programs or activities for students at UCLA are in some way connected with the Associated Students UCLA. ASUCLA, through the undergraduate and graduate student associations, sponsors dramatic, musical, and cultural programs, social events, community service projects, and students services. The Association operates the Ackerman Union and Kerckhoff Hall, providing students with facilities for meetings, relaxation, a complete student store, and food service areas.

Every UCLA student holds membership in ASUCLA. Undergraduate opinion in the formation of academic, cultural and social policies is represented by the elected members of the Student Legislative Council. The Graduate Students' Association Senate is composed of elected representatives from each school or department in the University which has 10 or more graduate students. Both councils sponsor special activities and programs designed to meet the needs and interests of their respective constituencies.

In addition to the Undergraduate Students' Association and the Graduate Students' Association, there is the ASUCLA Board of Control which administers policies regarding ASUCLA finances and facilities. The ASUCLA Board of Control is comprised of six students, two administration representatives, one faculty and one alumni representative.

The ASUCLA Board of Control directs the operation of a variety of low-cost services through a professional management staff. The services, in addition to the students' store and food services, include lecture notes, check cashing, charter flights, a print shop, a ticket agency, a complete photographic service, and a bowling alley. These services are available for the convenience of all members of the campus community.

RELIGIOUS FACILITIES AND PROGRAMS

The University Religious Conference is located at 900 Hilgard Avenue at LeConte. URC membership is held by the Baptist, Catholic, United Church of Christ, Disciple, Episcopal, Jewish, Lutheran, United Methodist and United Presbyterian organizations. The URC serves as the headquarters for various campus ministries and programs which are carried out on the campus and within the building. Other facilities of the URC members include the Catholic Center, 840 Hilgard Avenue; Baptist Campus Chapel, 668 Levering; and University Lutheran Chapel (LCMS), 10915 Strathmore.

Other campus related religious facilities include the L.D.S. Institute of Religion, 856 Hilgard Avenue; Christian Science Organization, 500 Hilgard Avenue; the Y.W.C.A., at 574 Hilgard Avenue; Chabad House, 741 Gayley Avenue.

In these facilities are held worship services, religious discussion groups, lectures, Bible classes, social gatherings, luncheons, dinners, social action conferences and other meetings dealing with campus religious life. In addition there are student religious organizations which also hold regular meetings and occasional services on campus.

RESERVE OFFICERS' TRAINING PROGRAMS

ARMY RESERVE OFFICERS' TRAINING CORPS (MILITARY SCIENCE)

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 (ROTC) was established on the Los Angeles campus of the University in July, 1920.

The purpose of the Army ROTC is to qualify selected male and female students as leaders in their chosen fields, as far as the requirements of the service permit. These fields include: engineering; communications; administration; logistics; personnel management; intelligence; and many others. The ROTC Program qualifies graduates for commissions as officers in the United States Army Reserve and selected graduates for commissions in the Regular Army.

Options now available in Army ROTC for qualified students include two, three, and four-year programs leading to an Army commission. Cross-enrollment is available through UCLA Extension from community colleges or other colleges that do not offer Army ROTC. See the Military Science Department listing for details of this program.

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 objective of the Naval Reserve Officers' Training Corps is to provide an education at civil institutions 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, submarines or aircraft of the Navy, with field units of the Marine Corps, or with Marine Aviation. In addition, post-graduate education in certain fields and nuclear engineering is available to qualified applicants. See Naval Science for details of the program.

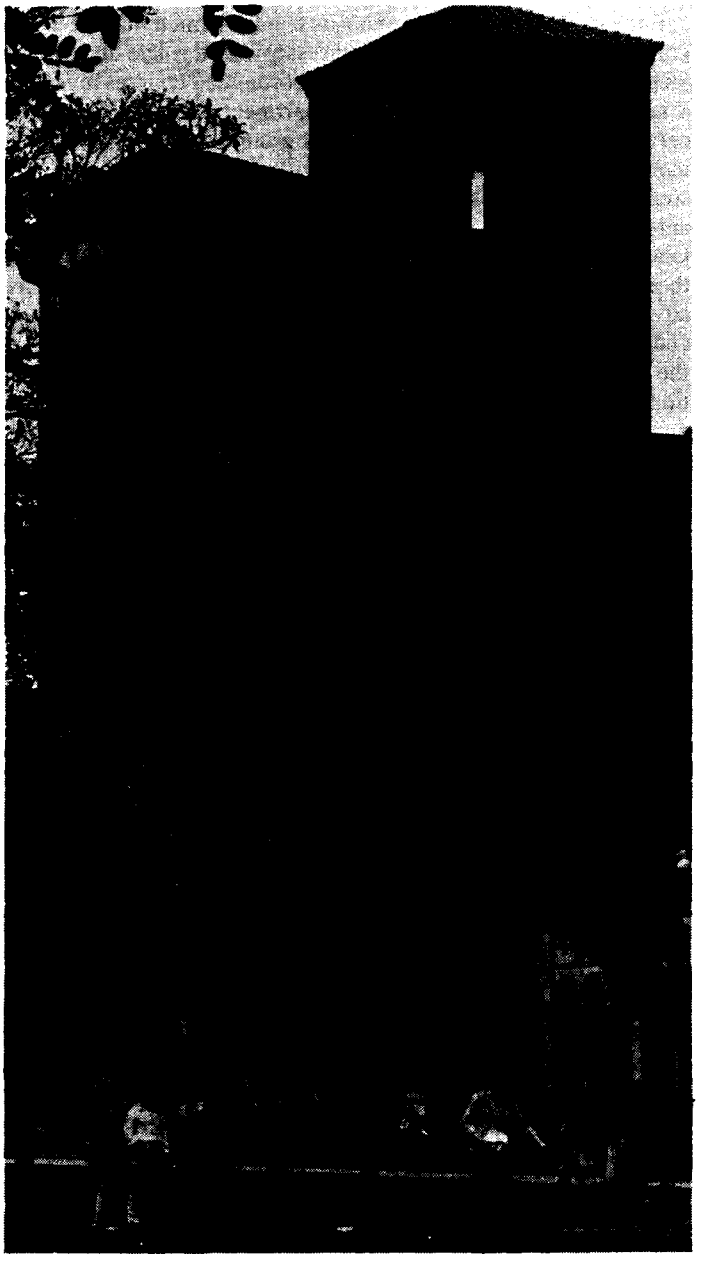
AIR FORCE RESERVE OFFICERS' TRAINING CORPS

Air Force ROTC, through its Aerospace Studies offerings, enables students to develop. demonstrate, and apply the knowledge and leadership qualities requisite for an officer's commission in the U.S. Air Force. Students who demonstrate dedication to their assignments, who willingly accept responsibility, who think critically and who have the ability to communicate with clarity and precision will, upon completing the curriculum and graduating from the University, receive an officer's commission. See Aerospace Studies for details of the program.

ROTC DRAFT DEFERMENT

Although University students are currently not being drafted, those students participating as Cadets in ROTC are still 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 D.A. Bull. 12, 1955).

For military deferment, see the department concerned. Students securing ROTC draft deferments need not request deferment through the Office of Special Services.



Colleges, Schools and Graduate Division

COLLEGE OF LETTERS AND SCIENCE

The curricula of the College of Letters and Science are designed to provide students with opportunities to broaden their culture and prepare them 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 twelfth quarter.

A liberal education presupposes a reasonably wide distribution of courses that contribute to a desirable balance of intellectual interests. To this end students are 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 students are relatively free to concentrate attention upon courses in a field of interest best suited to their aptitudes and purposes.

Each student, therefore, chooses a major which may be a program of related upper division courses within a single department (departmental major), or a group of coordinated courses involving a number of departments (interdepartmental major), or, under certain circumstances, an organized group of courses chosen to meet a student's special need (individual major). 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 Office of the Dean of the College of Letters and Science is located in Murphy Hall, Room 1312. Members of the Dean's staff are readily available to assist students with questions pertaining to academic regulations and procedures. Many questions can be answered at the College Information Window or by phoning the Information Desk, 825-1826 or 825-1965. Students in the College who would like to confer with a Counselor (regarding overall degree requirements, academic difficulty, program planning, or assistance in selecting a major) may arrange an appointment by phoning 825-3382.

Admission to College Honors Status

A student in the College of Letters and Science who has demonstrated superior academic achievement is eligible to apply for College Honors Status. Admission, which is recorded on the student's transcript, may be granted by the Dean of Honors Programs after completion of either (a) 16 or more graded units at UCLA with a cumulative grade-point average of not less than 3.25; or (b) 36 or more graded units in consecutive quarters with a grade-point average for those quarters, both overall and in Letters and Science courses, of not less than 3.30. Continued superior academic achievement is requisite for remaining in Honors Status.

Application for admission may be made at the Honors Programs Office, 1331 Murphy Hall, Window 10.

Honors Status students are under the immediate jurisdiction of the Honors Programs Office, receiving their counseling and other student services there. Admission facilitates taking exceptionally heavy course loads (see Study-List Limits,) and receiving credit for courses pursued by independent study (see "Credit by Examination.")

Students with College Honors Status are usually eligible for admission to the honors programs offered by a number of the departments in the College. Such programs include honors sections of regular courses, honors courses of a seminar type, honors thesis programs, and supplementary and advanced directed study. The departments are responsible for admitting students to their separate honors programs. For details of these programs, the student may consult the Dean of Honors Programs or the department of his major. (For the possibility of concurrently working for both undergraduate and graduate degrees see Departmental Scholar Program.)

HONORS WITH THE BACHELOR'S DEGREE

1. Departmental Honors and Departmental Highest Honors may be awarded at graduation upon the recommendation of the student's major department. The recommendation will be based on successful completion of a departmental honors program by the student. For the requirements of the various departments, consult the department concerned.

2. College Honors will be awarded with the bachelor's degree according to the student's over-all grade-point average at the beginning of the last quarter of academic work, or, if not then eligible, at graduation. To be eligible for College Honors, a student must have completed at least 20 graded courses (80 units) in the University of California. The College Committee on Honors is responsible for awarding College Honors. The degrees of honors and the requirements for each degree are: *Cum laude,* an over-all average of 3.4; *Magna cum laude,* 3.6; *Summa cum laude,* 3.8. Marginal cases will be decided by the Committee on Honors.

3. A list of students who have graduated with College Honors, Departmental Honors, or both, shall be published yearly. Each honors student will be awarded a certificate of honors at graduation indicating both the Departmental Honors and the College Honors won.

Requirements for the Bachelor's Degree

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

1. The candidate shall have completed for credit 45 courses (180 units), of which at least thirteen courses (52 units) shall be upper division courses (numbered 100-199).

The following *Credit Limitations* apply for all students enrolled in the College.

a) After completing 26 and ¼ courses (105 units) toward the degree (in all institutions attended) the student will be allowed no further unit credit for courses completed at a junior college.

b) Not more than one course (4 units) in Kinesiology 1, 2, and S3, and not more than two courses (8 units) in 300 and 400 courses may be counted toward the bachelor's degree. (Transfer students with credit for more than 4 units of Kinesiology I should be aware of the 4-unit limit on this credit.)

c) Credit is not granted for X300 and X400 courses taken in University Extension unless the approval of the Dean has been obtained by petition prior to enrollment. Such petitions are rarely granted.

d) Not more than 6 units of Dance and Music Performance courses in the 70, 71, 170, and 171 sequences taken at UCLA may be counted toward the bachelor's degree. *Beginning Fall Quarter 1975. Letters and Science students electing to take these courses must enroll in these courses Pass/Not Pass.* All units earned prior to the end of the Spring Quarter 1974 may be applied to the degree, and all grade points earned prior to the end of the Spring Quarter 1975 are included in the grade point average. Required P/NP Dance or Music 70, 71, 170, 171 will not be counted in the limits on P/NP enrollment. (For further information on these limits, see Courses Taken Passed Not Passed.) Students are required to petition for the excess P/NP enrollment.

e) Credit earned through the College Level Examination Program (CLEP) after June 30, 1974, will not be counted toward the bachelor's degree in the College.

f) Advanced Placement Test Credit (AP) earned after June 30, 1974, will not apply toward a degree in the College, except for students at the freshman level with not more than 36 units of credit already earned toward the bachelor's degree at the time of the examination.

g) Not more than 24 units of credit in Aerospace Studies, Military Science, or Naval Science may be applied to the 180 unit minimum required for the Bachelor's degree.

The candidate shall have attained at least a C (2.00) grade-point average in all courses undertaken in this University. **A student is not normally expected to take more than 180 units to attain the bachelor's degree. After having credit for 208 units, he will not be permitted to continue, except in rare cases approved by the Dean.**

2. The candidate shall have completed the general University and College requirements.

3. The candidate shall have met the University requirements in American History and Institutions.

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

5. Of the last 45 units completed for the bachelor's degree. 35 must be earned in residence in the College of Letters and Science on this campus. Not more than 18 of the 35 units may be completed in summer session on the Los Angeles campus. While registered in this College the student must complete at least six upper division courses (24 units), including four courses (16 units) in the major. In departmental majors, the department will specify how many of these four required courses shall be taken in the department. This residence regulation applies to all students, including those entering this University from other institutions or from University Extension and those transferring from other colleges of this University. Students transferring from a College of Letters and Science on another campus of the University may petition for an exception to this rule.

Concurrent enrollment in courses offered by University Extension (including correspondence courses) or at other institutions is not permitted except in extraordinary circumstances, and no credit will be given for such courses unless the approval of the Dean has been obtained by petition prior to enrollment.

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 majors as the Executive Committee of the College may designate as leading to that degree.

Minimum Progress. Effective in 1974-75, an undergraduate student in the College of Letters and Science who does not pass at least 36 units during any three consecutive terms shall be placed on probation, and an undergraduate student who does not pass at least 32 units during any three consecutive terms shall be subject to disqualification from further registration at the University. Courses bearing solely a letter designation may be used to meet this requirement only during the first three quarters of residence. Petitions for exception to these requirements must be approved by the Dean and may be granted only on account of poor health or of regular outside occupation requiring half-time or more.

General University and College Requirements

It is advisable that each of the requirements be completed as early as possible in the student's progress toward the degree, normally all of them within the first 24 quarter courses (96 units) of college work. In majors requiring unusually heavy lower divison preparation, some postponements may be advisable.

A. SUBJECT A

All entrants are required to demonstrate proficiency in English composition (Subject A). For further regulations concerning Subject A, consult Index.

B. AMERICAN HISTORY AND INSTITUTIONS

Consult Index.

C. FOREIGN LANGUAGE

The College of Letters and Science does not have a college-wide requirement for foreign language. Students should consult this catalog and departments or committees administering curricula concerning the requirement of specific majors. Credit will not be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition.

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.

D. ENGLISH COMPOSITION

This requirement may be satisfied with one course from English 1A, 1B, or 2, Humanities 2A or 2B. A grade of "C" or better is required. A course in English Composition taken for a Pass grade does not satisfy this requirement. Courses in the above group may be applied on the Humanities requirement if they are not used to satisfy the D requirement.

The composition requirement may also be satisfied with a score of 4 or 5 on the CEEB Advanced Placement Test in English, or by passing a proficiency examination in English Composition set and administered by the Department of English. To be eligible for this proficiency examination an entering student must have a score of 660 on the CEEB English Achievement Test. *Each student should satisfy the composition requirement before having completed 90 quarter units. Students who fail to do so must have their study lists approved by the Dean.*

Transfer students who have completed with grade C or better a college composition course that has not satisfied the College of Letters and Science requirement in English composition may be eligible for the proficiency examination after an interview by the

English department. Eligible students must register for the examination in the English Department office prior to the first day of enrollment in each quarter.

Transfer students with 90 or more units who have not completed a course that satisfies the College of Letters and Science requirement in English composition, but who are exempt from the Subject A requirement, must include an acceptable composition course in the study-list of their first quarter of residence in the College. Those who are required to take the course in Subject A should, upon completion of that requirement, include an acceptable composition course in the study-list of their second quarter of residence in the College. Students who fail to do so must have their study lists approved by the Dean.

Units evaluated by the Office of Admissions as English Composition but not sufficiently advanced to satisfy the College of Letters and Science "D" requirement can be applied on the Letters and Science breadth requirements as Humanities only if specifically approved by the Dean. Advanced Placement English with Grade 3 has such approval and requires no petition by the student.

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 33C with a grade of C or better when that course is required. If English 33C is not required, the student from abroad may take either English 1A or 106J to satisfy the composition requirement.

Breadth Requirements

All students who entered UCLA prior to Fall Quarter 1973 and all students who acquired college credit of thirty-six or more quarter units (twenty-four transferable semester units) prior to the Fall Quarter 1973 may apply courses taken before Fall Quarter 1973 according to the requirements of Plan A or Plan B as described in the 1972-73 UCLA General Catalog. Any course taken Fall Quarter 1973 or later will be applied according to the lists under E-H in this catalog.

Students reentering the college after an extended absence may petition the Dean of the College to graduate under the breadth requirements of catalogs published prior to Fall Quarter 1970.

Transfer students should consult the College of Letters and Science concerning application of Advanced Standing courses on the Breadth Requirements.

To determine how UCLA courses apply on Breadth Requirements, consult list of courses (E through H) below.

For the purposes of these requirements, departmental and interdepartmental majors are classified in the following divisions.

Humanities
African Languages
Ancient Near Eastern Civilizations
Arabic
Chinese
Classics
English
English-Greek
English-Latin
Ethnic Arts
French
French and Linguistics
German
Greek
Hebrew
Indo-European Studies
Italian
Italian and Special Fields
Japanese
Jewish Studies
Latin
Linguistics
Linguistics and English
Linguistics and French
Linguistics and Italian
Linguistics and Oriental Languages
Linguistics and Philosophy
Linguistics and Psychology
Near Eastern Studies
Philosophy
Portuguese
Scandinavian Languages
Slavic Languages
Spanish
Study of Religion

Physical Sciences
Applied Geophysics
Astronomy
Biochemistry
Chemistry
Cybernetics
Engineering Geology
General Chemistry
General Physics
Geology
Geophysics and Space Physics
Mathematics
Mathematics-Applied Science
Mathematics-Computer Science
Mathematics-System Science
Meteorology
Physics

Social Sciences
Anthropology
Black Studies
Business-Economics
Chicano Studies
Communication Studies
East Asian Studies
Economics
Geography
Geography-Ecosystems
History
Latin American Studies
Political Science
Sociology

Life Sciences
Bacteriology
Biology
Kinesiology
Psychobiology
Psychology
Quantitative Psychology

Each student will choose to satisfy the requirements according to either Plan A or Plan B.

Note: The following courses in the College of Letters and Science will *not* apply on breadth requirements: Anthropology 173A-173B; Chemistry A; Economics 140, 141, 142; Geography 176; Kinesiology 1, 2, 102; Mathematics 1A, 38, 38A-38B; Physics 5; Psychology 41, 142; Sociology 18.

PLAN A

Option 1

The Student will ordinarily take three courses in each of the three divisions outside the division of his own major. He may, however, use courses authorized by the Council on Educational Development to replace one of the three courses in each division, provided that the Executive Committee of the College has designated each course as appropriate to the division in which it is applied.

Option 2

The student will take three courses, excluding elementary and intermediate foreign language, in each of two divisions outside the division of his own major, and in addition complete course 5 in one foreign language. Successful completion of a proficiency examination that is administered by a foreign language department (at UCLA) certifying proficiency at the level of course 5 is acceptable on this option. Courses authorized by the Academic Senate Council on Educational Development and by the Executive Committee cannot replace course 5 in a language but may replace one of the three required courses in each of the two remaining divisions, provided the courses so applied have been designated as appropriate to the division.

For the purposes of both options, except for the individual courses specified below, courses in the student's major division may not be used to satisfy any of these requirements. In no case may courses in the student's major department or courses required for the major be used to satisfy these requirements. Courses in other divisions required in preparation for the major may be used to satisfy these requirements. Courses used exclu-

sively to satisfy College breadth requirements may be taken on a passed/not passed basis. Acceptable courses in the College of Fine Arts applicable as humanities are listed below under H.

E. PHYSICAL SCIENCES

Any courses for which the student is eligible in Astronomy, Chemistry (except Chemistry A), Geology (except Geology 15, 115, 116, M117, and M118), Mathematics (except Mathematics 1A, 38, 38AB), Meteorology, and Physics (except Physics 5). Also, Engineering 11 and 20; Geography 1A, 100, 102, 104, 106; Economics 145, 146; Linguistics 145; and Philosophy 125, 128, 134, and 135.

F. LIFE SCIENCES

Any course for which the student is eligible in Bacteriology, Biology, and Kinesiology (except Kinesiology 1, 2, 102, 108, 109, 170A-170B and 175). Also applicable, Anthropology 1A, 1B, 11, 12, 130A-130B, 132; Geography 5, 110, 112, 116A, M127; Geology 15, 115, 116, M117, and M118; Psychology 15, 110, 111, 115, 116, 117, 118A-118B-118C, 120 and 121.

G. SOCIAL SCIENCES

Any courses for which the student is eligible in Anthropology (except Anthropology 1A, 1B, 11, 12, 130A-130B, 132, 173A-173B), Archaeology M131, M132, Communication Studies (except Communication Studies 142 and 175), Economics (except Economics 140, 141, 142, 145, 146), Geography (except Geography 1A, 5, 100, 102, 104, 106, 110, 112, 116A, M127, 176), History, Indo-European Studies M131, M132, Journalism (UCLA courses only), Political Science, Psychology (except Psychology 15, 41, 110, 111, 115, 116, 117, 118A-118B-118C, 120, 121, and 142), and Sociology (except Sociology 18). Also applicable: Kinesiology 108, 109, 170A-170B, 175; Linguistics 100, 103, 170.

H. HUMANITIES

Option 1. Any courses for which the student is eligible in Classics, Communication Studies 142 and 175, English, Folklore, French, Germanic Languages, Humanities, Indo-European Studies 140, M150, Italian, Linguistics (except 100, 103, 145, and 170), Near Eastern Languages, Oriental Languages, Philosophy (except 125, 128, 134, and 135), Slavic Languages, Spanish and Portuguese, and Speech.

Acceptable courses in the College of Fine Arts are:

Art 30A, 50, 51, 52, 53, 54, 101A-101B-101C, 101D, 103A-103B-103C, 103D, 104B-104C-104D, 105A-105E, 106A-106B-106C, 108A-108B, 109A-109D, 110A-110D, 112A-112B, 114A-114B-114C, 114D, 115A-115B-115C, 118A-118B-118C, 119A-119B-119C, 120A-120B, 121A-121B, 122.

Dance 140A-140B-140C, 151A-151B.

Integrated Arts 1A-1B-1C.

Music 2A-2B, 130, 131A-131B, 132A-132B, 133, 134, 135A-135B-135C, 136, 137, 138, 139, 140A-140B-140C, 142A-142B, 143A-143B, M144, 147, 150A-150B-150C, 153A-153B-153C; M154A-154B, 155, 157, M180, M183.

Theater Arts 5A-5B, 102A-102B-102D, 103A-103B, 104A-104B, 105, 106A-106B, 106C, 108, 110, 113, 114, 130A-130B.

Option 2. All courses as listed above, except that in the departments of foreign languages only course 5 or the equivalent at the college level is applicable. Students majoring in a foreign language may use course 5 of another foreign language on this requirement.

PLAN B

The student will take seven courses in any division outside the division of his own major, and either one course in each of the two remaining divisions or two courses in one of the remaining divisions. The divisional requirements may be satisfied according to **E-H** above. Acceptable courses in the College of Fine Arts applicable as humanities courses are listed under **H.**

No courses in foreign language will apply on Plan B unless the student has passed course 5 in one foreign language at the College level. If the student has completed course 5 in one foreign language, then all elementary and intermediate foreign language courses taken at the College level are acceptable for satisfaction of this requirement under the division of humanities.

Courses required for the major or in preparation for the major may not also be used to satisfy this requirement. In no case may courses in the student's major department be used to satisfy this requirement. Courses used to satisfy College breadth requirements may be taken on a passed/not passed basis.

No interdisciplinary (CED) courses may be used on Plan B.

Credit For Advanced Placement Tests

Students may fulfill a part of the College requirements with credit allowed at the time of admission for College Entrance Examination Board Advanced Placement Tests with scores of 5, 4, or 3. Advanced Placement Test credit will fulfill requirements in the College of Letters and Science as follows:

TEST	CREDIT ALLOWED ON COLLEGE REQUIREMENTS
Biology	Two courses in Life Science.
Chemistry	Two courses in Physical Science.
English	English 1, 2 (Grades 4 and 5 only).*
Foreign Language	Equivalent to course 5.
History—American	Two courses in Social Science.
History—European	Two courses in Social Science.
Mathematics	Two courses in Physical Science.
Physics	Two courses in Physical Science.

Students should be aware that portions of Advanced Placement Test credit may be evaluated by corresponding UCLA course number. If a student takes the equivalent UCLA course, a deduction of unit credit for such duplication will be made prior to graduation. Limitations on Advanced Placement Test credit apply to students who have completed 36 units toward the degree at the time of the examination.

Credit by Examination

Within the College of Letters and Science, eligibility for credit by examination is for the most part limited to students who have established their superiority by being approved as Departmental Scholars, or by their participation in a departmental honors program, or by their admission to the College Honors Program. A student not eligible by any of these criteria may nevertheless petition to the Dean: his petition should make clear his superiority at least in the area of the course in question and in related work. Petitions for credit by examination are available only through an appointment with a College counselor. A $5 fee will be charged for each petition.

Declaration of Major

A student who has 90 or more units of credit toward the degree must declare a major. A student who does not already have a major should file a petition for declaration of major with the department or committee in charge of the proposed major. If accepted in the major, he shall thereafter be advised by a representative of the department or the committee.

We urge students not to choose a major hastily or thoughtlessly. Many freshmen enter the University uncertain about their field of concentration. If an entering student does not specify a major offered by the College, his major will officially be listed as *Undeclared.* Such students are not restricted in any way from taking introductory courses in any department in the College. Usually the student who enrolls in a variety of courses, acquiring a background in two or three of the broad fields of human knowledge—the natural sciences, the social sciences, the humanities—will be able to decide upon his area of interest and complete his undergraduate studies readily in the normal four years. We advise not making this important decision until some of the many fields of study offered at the University have been explored, but some major programs, especially in the natural sciences, have prerequisites requiring as much as two years of sequential studies, and thus may not be open to third-year students who have not yet begun the appropriate prerequisite courses. Once a major has been decided upon, the fields from which courses must be selected to satisfy the College breadth requirements can be defined; if in the first year a variety of courses throughout the College has been sampled, some of these courses will very likely count toward satisfication of the requirements in the different general areas.

A freshman or sophomore who has entered the University with a particular major that he does not intend to complete should not change to another major until reasonably certain of his academic goals. Students who are in doubt about their interests and abilities can get help and guidance from the College of Letters and Science office, the Psychological and Counseling Services Center, and the Placement and Career Planning Center. In many departments, counselors and faculty members are available to discuss their particular disciplines and related areas.

Regulations Governing the Major

A major shall consist of not less than nine (36 units), nor more than 15 (60 units) upper division courses, except that a departmental major may be increased by three more upper division courses (12 units) in other departments, with the approval of the Executive Committee of the College.

The majors shall be designated as **departmental, interdepartmental, or individual.**

A departmental major shall consist of a group of coordinated upper division courses, of which at least six courses are in one department, set up and supervised by a department.

An interdepartmental major shall consist of at least 13 coordinated upper division courses, of which not more than eight are in one department, set up and supervised by a committee appointed by the Executive Committee of the College.

A student who has some unusual but definite academic interest for which no suitable major is offered in the University of California and who has completed at least three quarters of work (a minimum of nine courses) in the University with a grade-point average of B (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 major. 1) The **individual major** must be submitted to and approved by the Dean of the College no later than the first week of classes of the third quarter before the student's intended graduation. The request should be accompanied by a statement from the student, defining the purposes of the major and its relation to his goals, and explaining the reasons why the program cannot be accommodated within some existing major. There must be an accompanying statement from a faculty adviser indicating that there has been significant faculty consultation in devising the program. The faculty adviser should be a regular member of the faculty of the College of Letters and Science, with a professorial title in a department that offers a major in the College. 2) Each request for an individual major should list the course numbers and titles in the preparation for the major and in the major itself, including an indication of the relevance of each course or group of courses to the program. The major should consist of at least twelve and not more than fifteen upper-division courses, a majority of which are in departments offering a major in the College. 3) The major may not include any courses taken on a P/NP basis except that one or two 199 courses may be included in the major and may be graded in this way. CED and other experimental courses may not be used as part of a major. 4) A senior thesis is required of each student with an individual major. An outline of the thesis, worked out with the help of the faculty adviser, should be submitted to the Dean's office no later than the first week of the second quarter before graduation. The faculty adviser will pass final judgment on the quality of the thesis: a copy of the thesis must be filed in the Dean's office. The Dean must certify that the student has completed the requirements of his major, including completion of the thesis, before the degree is granted. The title of the major will not appear on the diploma, but will be entered in the memoranda column on the student's official transcript. The major will be indicated on the diploma as Individual Field of Concentration. Further information about the individual major may be obtained at the College Information Window or from one of the College counselors.

Students in good standing are sometimes permitted to have a *double major,* consisting of two departmental majors in this college, provided they can be completed within the maximum limit of 208 units. Double majors in the same department are unacceptable. If the majors are not in the same division, the student will designate one of the two majors as his principal one, in order to identify his division for the purpose of satisfying the breadth requirements. (See Plans A and B, Breadth Requirements.) Courses used to satisfy the requirements for the principal major may also be used to satisfy the requirements for the secondary one, but *at least six courses cannot be common to both majors.*

For *double majors,* courses outside the department of the principal major required in preparation for that major may be used to satisfy the breadth requirements on Plans A or B. Courses used to meet the requirements for the secondary major (including preparation for the major) may be used to satisfy the breadth requirements under Plan A, but not to satisfy the requirements of a seven-course sequence under Plan B. They may be used to satisfy the other one or two courses under Plan B.

A student who has been away from the University for several terms should consult with his major department concerning the major requirements under which he will graduate.

Change of Major. A student in good standing who wishes to change his major may petition the department or committee in charge of his proposed major, provided that the student can com-

plete his proposed field of study *without exceeding the 208-unit limit*. Final action on the petition will be taken by the Dean of the College. Certain majors may be unavailable. A change of major may be denied if all preparatory courses have not been satisfactorily completed. A student on probation may not normally change his major. No change of major will be permitted after the opening of the student's last quarter. Each student who has declared his major shall be advised by a representative of the department or committee before enrolling in classes.

Students who fail to attain a grade-point average of at least C (2.00) in work taken in the prerequisites for the major, or in courses in the major, may, at the option of the department or committee in charge, be denied the privilege of entering or of continuing in that major. The student must attain an average grade of C (2.00) in all courses undertaken in the major.

Organized Majors in the College of Letters and Science

DEPARTMENTAL MAJORS LEADING TO THE BACHELOR'S DEGREE

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

African Languages
Ancient Near Eastern Civilizations
Anthropology
Applied Geophysics*
Arabic
Astronomy
Bacteriology
Biochemistry*
Biology
Business-Economics
Chemistry*
Chinese
Classics
Economics
Engineering Geology*
English
English-Greek
English-Latin
French
French and Linguistics
General Chemistry*
General Physics
Geography
Geography-Ecosystems
Geology*
Geophysics and Space Physics
German
Greek
Hebrew
History
Italian
Italian and Special Fields
Japanese
Jewish Studies
Kinesiology*
Latin
Linguistics
Linguistics and English
Linguistics and French
Linguistics and Italian
Linguistics and Oriental Languages
Linguistics and Philosophy
Linguistics and Psychology
Mathematics
Mathematics-Applied Science
Meteorology
Philosophy
Physics*
Political Science
Portuguese
Psychobiology
Psychology, General
Quantitative Psychology
Scandinavian Languages
Slavic Languages
Sociology
Spanish

INTERDEPARTMENTAL MAJORS LEADING TO THE BACHELOR'S DEGREE

Black Studies
Chicano Studies
Communication Studies
Cybernetics*
East Asian Studies
English-Greek
English-Latin
Ethnic Arts (Intercollege)
Indo-European Studies
Latin American Studies
Mathematics-Computer Science*
Mathematics-System Science
Near Eastern Studies
Study of Religion

*Leading to the degree of Bachelor of Science.

Requirements of these majors are listed in detail on the following pages.

SPECIAL PROGRAM IN AFRICAN STUDIES

Committee in Charge. C. Ehret (Chairman), History, J. Maquet, Anthropology, R. Sklar, Political Science.

Adviser. C. Ehret.

This program is designed primarily for (1) students who plan to live and work in Africa or who are interested in government and public service careers involving African affairs, and (2) students who plan to pursue graduate work in one of the social sciences or Near Eastern and African languages with primary concentration on the African field.

The underlying philosophy of the program in African Studies is that persons with a firm grounding in one of the established disciplines can make the best contribution to an understanding of Africa and its problems. Thus, the special program in African Studies can be taken only jointly with work toward a bachelor's degree in one of the following fields: anthropology, economics, geography, history, Near Eastern and African languages, political science, or sociology. The student completing this special program will receive a degree with a major in his chosen discipline and specialization in African Studies. The student's major department will certify completion of the Special Program in African Studies.

Preparation. The introductory courses listed here in three of the six following departments: Anthropology 5A and 5C; Economics 1 and 2, or 100; Geography 1A-1B; History 1A-1B-1C or 100; Sociology 1 or 101. Training in Arabic, French, Portuguese or an African language is highly recommended.

Upper Division. The student is required to take a departmental major in the social sciences, humanities or arts. In addition, he is required to take a course related to Africa in each of four departments, one of which must be African Languages 190. African Languages 190 and one of the other three required upper division courses related to Africa may, however, be replaced by a three-quarter sequence of any African language.

SPECIAL PROGRAM IN DIVERSIFIED LIBERAL ARTS

This Program is designed to meet the requirements of the Teacher Preparation and Licensing Act to qualify candidates for the multiple subject teaching credential with provision for a waiver of the subject matter examination. Under the Program the student will complete a major in the College of Letters and Science. The divisional classification of the major satisfies one of the four areas specified below. In addition, the student will complete seven courses (28 units) in each of two other areas and eight courses (32 units) in the third area. Courses from other areas (Division) that are required in preparation for the major or are a part of the major may be used toward these unit requirements.

Students planning on obtaining the multiple subject instruction (elementary) credential are urged to elect this program as appropriate preparation for elementary school teaching and are advised to elect recommended courses in their first year's work. If students are uncertain of their field of concentration, they should select courses required in preparation for the various major programs. Completion of this Program satisfies the breadth requirements of the College. *The Dean of the College will certify completion of the Program.* This program constitutes satisfactory academic preparation for any multiple subject teacher preparation program in California.

Students who apply to, and are accepted by the Graduate School of Education may complete the professional education

program as undergraduates. The courses required are Education 100, 112, 312, 315, and the 324 series. Students who defer the professional sequence of courses until the fifth year may apply for admission to the Graduate School of Education. A minimum 3.00 grade-point average is required, and admission cannot be guaranteed.

For advising in this Program, the student should consult a counselor in the College of Letters and Science.

The Fours Areas and Courses in Each are:

1. *English, including grammar, literature and composition.* Required: at least one course in composition and grammar, one course in literature, and one course in Speech. *Composition and Grammar* include English 1A, 1B, 2, Humanities 2A, 2B. Equivalent courses from other institutions accepted by the College in satisfaction of the D requirement also satisfy the composition requirement of Area 1. *Literature:* English 10A, 10B, 10C, Humanities 1A, 1B, all upper division English literature courses and Humanities courses for which the student has the prerequisite. (Recommended: English 112, 120 (English Language Study for Teachers), 123, 130 (Composition for Teachers), 131 (Composition), 274). In addition, Communication Studies 10, 100, Speech 1, 2, 107, 109, 112, Linguistics 1, 2, 100. (Recommended: Linguistics 103, 120B (Linguistics Analysis: Grammar), 130, 140, 165B (Linguistics Theory: Grammar), 170).

2. *Mathematics and the Physical or Life Sciences.* In Mathematics, a minimum of three courses (12 units) is required, chosen from any courses except Mathematics 1A and 100. Students not majoring in area 2 should include Mathematics 38 in their programs. A minimum of 12 units in either Physical Science or Life Science or both is also required. Applicable courses are: Astronomy 3, 4; Chemistry 2, Meteorology 3, Physics 10; Biology: all lower division courses; all upper division courses for which the student has the prerequisites. Chemistry 1A, 1B, 1C. All lower division courses in Physics. In addition, Anthropology 11; Bacteriology 6, 7; Geography 1, 5; Geology 1, 10, 15, 115; Kinesiology 12, 14, 16, 102, 110, 130, 160; Psychology 15.

3. *Social Sciences.* All lower division courses in the Departments of Anthropology, Economics, Geography, History, Political Science, Psychology, and Sociology *except* those courses listed in the UCLA 1975-1976 General Catalog as not applicable on the Social Science requirement in Plan A or Plan B; all upper division courses in these departments for which the student is eligible except those courses listed as *not applicable* as Social Science on Plan A or Plan B.

4. *Humanities, the Fine Arts, and Foreign Languages.* All courses listed as applicable to Plan A or Plan B in the UCLA 1975-76 General Catalog and all courses in foreign language and literature and courses in literature in translation. In addition, Art 30A; Dance 10A, 10B, 10C; Music 1, 113; Theater Arts 118A, 118B, 119.

Transfer students may petition to have suitable courses from other institutions applied to the requirements of this Program.

The option of Pass/Not Pass exists for all courses not used on the major or on preparation for the major. However, Education courses required for the credential must be taken on a graded basis.

SPECIAL PROGRAM IN INTERNATIONAL RELATIONS

Adviser. Undergraduate international relations adviser in the department of Political Science.

This program can only be taken jointly with a major in political science, and all requirements for the political science major must be met, by or in addition to meeting the requirements for this special program. The student completing this special program will receive a degree with a major in political science and specialization in international relations. The program is designed to serve the needs of: (1) students desiring a general education focused on international affairs; and (2) students preparing for graduate work in international affairs, whether in a social science, in area study, or in a school of foreign service.

The program also partially serves the needs of: (1) students planning careers (in business, law, journalism, or library service) with an international emphasis; and (2) students preparing to teach social science in the secondary schools. These students should govern their programs primarily by the preparation requirements of the professional school or teaching credential of their choice.

Courses in management and administration, and in verbal and written communications, will ordinarily increase the career options of students in this program.

Preparation. Political Science 1, 2, and 3. History 1A-1B-1C, or any three courses selected from History 8A-8B, 9A-9D, 10A-10B. Economics 1 and 2, or 100. Sociology 1 or 101. Anthropology 22, 100 or 102. Geography 1B or 5.

Upper Division. The political science major should be completed as follows: Political Science 101; any four upper division courses in Field II, International Relations; Political Science 168, and three additional upper division courses in Field IV, Comparative Government; one additional course from Field I, or two additional courses both in Field III, Field V or Field VI.

Other social sciences courses required: Geography 140; Sociology 140; two courses from Economics 110, 111, 112, 180, 190; three courses from History 147A-147C, 169, 178A-178B, 193.

Language requirement: completion of the sixth quarter course (or its equivalent, as prescribed by the language department), with a grade of C or better, of any modern foreign language. French 6, German 6, Spanish 25, Russian 6, are most frequently offered in fulfillment of this requirement, but see also the offerings listed under Portuguese, Italian, Germanic Languages, Near Eastern and African Languages, and Oriental Languages. Chinese, French, German, Japanese, Russian and Spanish, are the languages of widest career utility in international affairs.

Area Focus. Students are advised but not required to concentrate their political science, geography, history and language courses so as to achieve broad familiarity with one area such as Latin America, Africa, the Atlantic area, the Soviet sphere, East Asia, Southeast Asia, South Asia, or the Middle East.

SPECIAL PROGRAM IN URBAN STUDIES OR ORGANIZATIONAL STUDIES

Adviser. Professor Robert Fried, Department of Political Science.

Students may elect to combine one of these programs with a departmental major and may petition to have the area of specialization recognized with the bachelor's degree.

The option of completing an individual major in Urban Studies or Organizational Studies is also open to qualified students.

Students with departmental majors should seek advising in the appropriate department. Students interested in the individual major should consult a counselor in the College of Letters and Science.

The requirements for the specializations, to be taken in conjunction with the major in the Division of Social Sciences, are:

Preparation. At least five of the following courses appropriate to the courses to be taken in the specialization: Economics 1 and 2,

Sociology 18 and 109, or the equivalent, Political Science 1, Psychology 10, Sociology 1 or 101, Geography 1C.

Urban Studies Specialization. (1) At least three courses outside the major department, chosen from: Political Science 182A, Sociology 125, Economics 120, Geography 150, Anthropology 160, Psychology 175. (2) One of the following suites of three courses, outside the major department: Political Science 180, 182B, 188B, Economics 121, 122, 133, Sociology 124, 155, 154, Geography 153, 154, 163, Psychology 125, 135, 137A. (3) Internship experience in an urban governmental or community service organization.

Organizational Studies Specialization. (1) At least three courses outside the major department, chosen from: Political Science 181, 190, Sociology 121, 141, Management 190, Psychology 149. (2) One of the following suites of three courses, outside the major department: Political Science 146, 147, 180, Economics 109, 170, 171, Sociology 124, 140, 152, Geography 153, 160, 163, Psychology 135, 148, 189. (3) Internship experience in a governmental or service organization.

SPECIAL PROGRAM IN WOMEN'S STUDIES

Adviser. Director, Special Program in Women's Studies.

This program is designed to promote the integration of the study of women into traditional academic disciplines. It is oriented toward the student who wishes to undertake studies in an established discipline with a special emphasis on the roles, contributions, and cultural images of women. At the same time, the program is also designed to provide a view of women in society from the perspective of several different disciplines. With these purposes in mind, two Women's Studies courses have been instituted in order to provide a multidisciplinary over-view of research on women and sex roles and to present new research and theory in this area.

Preparation. Women's Studies 100, Introduction to Women's Studies.

Upper Division. The student participating in this program is required to complete a departmental major in one of the following departments: Anthropology, Biology, English, History, Political Science, Psychology, or Sociology. Students may petition to have other departments accepted. The requirement of a departmental major is included to provide the student with a strong background in the subject matter and analytic tools of a discipline. These are a necessary preparation for a multidisciplinary program and will enable students who desire further training to embark on related graduate study. Students completing this special program will receive a degree with a major in the chosen discipline and may petition to have the area of specialization recognized with the bachelor's degree.

Students are required to take at least seven upper division courses from the Women's Studies list. These must include at least one course from each of two areas outside the student's major department (as for example Anthropology 163, History 171C, 171D, Psychology 165, Sociology 160, or Women's Studies 197, Senior Seminar in Women's Studies). Each quarter the Women's Studies Committee will prepare a list of departmental courses with Women's Studies content. The core courses of the Women's Studies Program are offered on a regular basis by individual departments. This consists of five regular departmental courses listed above. Undergraduate special topic courses and seminars, such as English 180X, Women in Twentieth Century Literature, and courses such as CED 168, African Women and Social Change, may be applied to the specialization when offered.

Students are encouraged to declare their specialization in Women's Studies as early as possible and to discuss their proposed course of study.

BLACK STUDIES MAJOR

Committee in Charge. E. A. Alpers (Chairman), G. Berry, H. McGee, J. Miller, F. T. Price.

This multi-disciplinary program is designed to serve the needs of (1) students desiring a general education focused on the Afro-American and African experience; (2) students preparing to teach in the social sciences; and (3) students preparing for advanced academic study. Through a judicious use of electives, students may find it possible to obtain the B.A. degree with two majors, e.g. Black Studies and History. Further information can be obtained at the College of Letters and Science, the Center for Afro-American Studies, or the African Studies Center.

Preparation for the Major. Required: History 10A and 10B. Students will take five additional lower division courses as prerequisite to the area of emphasis selected in the specialization. Courses may be chosen from Anthropology 5A, 5C; Economics 1, 2 or 100; Geography 1B, 2B; History 6A, 6B, 6C; Linguistics 1, 2 (strongly recommended for Option B of the Major); Philosophy 5B; Political Science 1, 3, 4; Sociology 1, 18.

Students must complete the courses in Preparation for the Major before entering the upper division courses listed below. Exceptions may be made by the committee in charge of the major on recommendation by the student's faculty adviser.

The Major. Each area of specialization has seven required courses. In addition, the student will select six elective courses from the lists that follow. Students in the African Studies specialization will also be required to complete a three-quarter course sequence in an African Language. Many of the courses listed below in each of the options have prerequisites.

A. *African Studies, Required courses:* Anthropology 107A or 107B; Economics 110; English 114; two courses chosen from History 125A, 125B, 125C, 126A, 126B, 127A, 127B, 128A, 128B, 129, 133A, 133B; two courses chosen from Philosophy 190, Political Science 147, 165, 166A, 166B, 166C, Sociology 130, 132. *Electives:* 6 additional courses chosen from those listed above or from the following: African Languages 150A-150B, 190; Art 118C, 119A, 119B, 119C, Geography 188, 189, Music 143A, 143B, an upper-division seminar course designated by the committee in charge of the major as deaing with Black Studies, or from those listed under B below.

B. *Afro-American Studies, Required Courses:* Economics 109; English 104 or 123; Library and Information Science 104; History 176A, 176B; two courses chosen from Philosophy 190, Political Science 147, Sociology 109, 124, 129, 136, 155. *Electives: 6 courses chosen from History 125A, 125B, 125C, 183, Linguistics 170, Music M154A, 154B, Theater Arts 103A, 103B, Nursing 196, Psychology 133D, an upper-division seminar course designated by the committee in charge of the major as dealing with Black Studies, or from those listed in A above, or from the required courses in this option.*

This major is under consideration by the Executive Committee of the College.

MAJOR IN CHICANO STUDIES

Committee in Charge. R. Rocco, (Chairman), A. Cervantes, J. Gomez-quinones, P. Miranda, R. Paredes.

This multi-disciplinary program leading to the Bachelor of Arts degree in Chicano Studies is designed to provide systematic in-

struction for liberal arts and pre-professional majors who wish concentrated study of the Chicano experience. Viewed as developmental, the program subjects to critical investigation and analysis the Chicano reality: social economic, educational, historical, political and psychological.

This major is recommended for students who plan to prepare themselves for graduate study as well as students preparing for public service careers. Students are encouraged to spend up to one year in either a) a service agency in the Chicano community or, b) in a professional research project on the Chicano experience.

In 1974-1975, enrollment in the major will be limited. Admission to the major will be by petition to the Committee in Charge. Only students already enrolled in the College will be accepted into this program.

Preparation for the Major. Required as preparation for the Major in Chicano Studies are: Anthropology 22 or 5A or 5C; Economics 1 or 2 or 100; History 6A or 6B or 6C; Political Science 1; Psychology 10; Sociology 1; Spanish 5 or its equivalent. Students are required to complete the prerequisite courses for each of the four *Major Core* areas they elect to include on the Major.

The Major. The Major in Chicano Studies consists of three elements: The Major Core, the Major Concentration and the Multi-disciplinary Senior Seminar. The *Major Core* shall consist of eight upper division courses with two courses required in each of four disciplines selected from among those listed below: Anthropology 143, 145, 146M, 160; Economics 101A, 108, 109, 150, 151, 152; History 181, 186A-186B, 188; Political Science 101, 142, 147, 172B; Psychology 133D, 134, 135; Sociology 123, 124, 125.

Major Concentration. All Majors will be required to complete four additional upper division courses in one discipline to be selected from the Approved Course List for Chicano Studies. This list will be available in the Undergraduate Counseling office of the Chicano Studies Center. The Major Concentration shall be selected from the four Core disciplines the student has previously chosen. The student may petition the Committee in Charge of the program to include in the Major Concentration area a course not on the Approved List. CED courses are applicable only by petition.

Multidisciplinary Senior Seminar. Prerequisite: Senior standing. A three quarter sequence of courses including: 1st quarter, conceptualization, formulation, and specification of topic; 2nd quarter, research and collection of data; 3rd quarter, analysis and completion of study.

Course Limitations. Not more than two 199 courses may be taken to fulfill the Major Core or Major Concentration areas. Registration in special studies courses (199) for undergraduates must be approved by the Chairman of each department or the head of the duly constituted interdisciplinary program concerned. This approval must be based upon a written proposal. Not more than four CED courses my be taken to fulfill the Major Core or Major Concentration areas.

MAJOR IN COMMUNICATION STUDIES

Committee in Charge. P. I. Rosenthal (Chairman), D. Hobbs, A. L. Rich, Emanuel A. Schegloff, S. Thompson.

The major in Communication Studies seeks to provide the student with a comprehensive knowledge of the nature of human communication, the symbol systems by which it functions, the environments in which it occurs, its media, and its effects. Employing critical and empirical approaches, the major draws its resources from the humanities, fine arts, and social sciences. The program offers two areas of specialty involving studies ranging from dyadic to mass communication. The specialization in Mass Communication centers upon formal and institutional communication systems and the macrocosmic social contexts in which they function. The specialization in Interpersonal Communication centers upon face-to-face communicative interaction in the small group environment. Students selecting the major must complete the required lower division prerequisites and a minimum of 16 upper division courses as set forth below.

Enrollment in the major is limited. Admission to the major will be by petition to the Committee in charge. Only students already enrolled in the College will be accepted into the program.

Effective Fall 1975, the major in Communication Studies will be designated as a major in the Division of Social Sciences. Students who have been enrolled as majors in Communication Studies prior to Fall 1975 may satisfy the requirements of Plan A or Plan B either as Humanities or Social Science majors.

Preparation for the Major. Sociology 1, Psychology 10, Communication Studies 10, Linguistics 1. Linguistics 2 is required for students who elect to specialize in Interpersonal Communications.

The Major. Required core courses: Communication Studies 100 and 101, Anthropology M146 or Linguistics 100.

Specializations.

A. Studies in Mass Communication. (1) *Theory and Method.* Required courses: Communication Studies 140, 152, Sociology 122, and one course from Psychology 137B, Political Science 141, or Sociology 150. (2) *Modes of Mass Communication.* Two courses chosen from Journalism 192, Theater Arts 108, 110, 138. (4) *Electives* (five courses). Two courses chosen from Communication Studies 120, 130. Psychology 137A or Sociology 152, Sociology 154 or Psychology 135, Sociology 155. Three courses chosen from any one of the following three groups: (a) Language Theory. Linguistics 100, 170. Communication Studies 142, 150. Psychology 123, Philosphy 127A, 127B, 172. (b) American Studies, English 102-104; History 177A, 177B, 180A, 180B. Folklore M105. Political Science 114. (c) Social Systematics. Anthropology 143, 144, 145, 149A, 149B; Sociology 144.

B. Studies in Interpersonal Communication. (1) *Theory:* Psychology 135 or Sociology 154; Psychology 137A or Sociology 152. (2) *Methods.* Three courses required: Communication Studies 120, Management 182, Psychology 174. (3) *Heterogeneous Groups Communication.* Three courses chosen from Communication Studies 130, Sociology 124, 155, History 183, (4) *Electives* (five courses). Two courses chosen from Communication Studies 140, 160, 165, 170, Sociology 122. Three courses chosen from any one of the following three groups: (a) Language Theory, Linguistics 100, 170, Communication Studies 142, 150, Psychology 123, Philosophy 127A, 127B. (b) Media and Media History, Journalism 192, Theater Arts 108, 110, 116. (c) Social Systematics, Anthropology 143, 144, 145, 149A, 149B, Sociology 144.

MAJOR IN CYBERNETICS

Committee in Charge. J. W. Carlyle (Chairman), W. R. Adey, E. C. Carterette, R. S. Eisenberg, A. D. Grinnell, P. Ladefoged, J. J. Vidal.

This major provides an introduction to cybernetics (general theoretical foundations for information processing, communication, control, and system analysis) accompanied by complementary studies of models and phenomena, with particular attention to those arising in the life sciences. The major is appropriate preparation for technical employment in cybernetics, and in its roles in

biological and health sciences, or for graduate or professional studies emphasizing interdisciplinary research in these fields. Courses in technical cybernetics for the major are offered by the Department of System Science (School of Engineering and Applied Science), and accompanying course-work is taken in Psychology, Biology, Linguistics, Mathematics, the School of Medicine, and related disciplines. Options are arranged within the major as follows: (1) cybernetics and linguistics: (2) mathematical cybernetics: (3) cybernetics and psychology, emphasizing physiological psychology, perception and learning; (4) cybernetics and biology, emphasizing physiology, cell biology, and the nervous system; (5) cybernetics and premedical studies.

Preparation for the Major. Chemistry 1A-1B-1C or 3A-3B; Engineering 10 or comparable experience with rudiments of computer programming; Mathematics 31A-31B or 3A-3B or 2A-2B-2C; Physics 8A-8C or 6A-6B; four courses selected from the following: Chemistry 21, 22, 24; Mathematics 31C or 3C, 32A-32B-32C, 60; Physics 8B-8D or 6C; Psychology 10, 41, Mathematics 31C and Chemistry 21 are recommended, and the major advisor will suggest further selections appropriate to the various options. In general, Cybernetics student are encouraged to complete as much as possible of the series Chemistry 21-22-24. Mathematics 31 and 32, and Physics 8 or 6 at some time during their four-year programs.

The Major. Biology 189A-189B; one course in group (a) below (Biology 111 is recommended) and five additional courses selected from not more than two of the groups (a), (b), (c), (d); four courses in group (e); two additional courses which may be selected from groups (a) through (f). For premedical students and others who have completed Biology 1A-1B, the Biology 189A-189B major requirement will be satisfied by one course in group (a). The groups are: (a) upper-division courses in Bacteriology and Biology except 189 (recommended: Biology 111, M132, 138 144, 158, 166, 171, 184); (b) Linguistics 100, 103, 120A, 120B, 125, 145, Psychology 122, 123; (c) Psychology 110 through 121, 150, 151; (d) courses in Mathematics numbered 106 and above; (e) courses in System Science numbered Engineering 101A. 120 through 122, 127 through 129, 199G (recommended: 121C, 122A, 127B, 128D, 128L); (f) upper-division courses for which the student is eligible in Biological Chemistry, Biomathematics, Chemistry, Computer Science (Engineering 123 through 126). Electrical Sciences and Engineering (Engineering 110 through 119), Physics, Physiology, Public Health.

MAJOR IN EAST ASIAN STUDIES

Committee in Charge. David Farquhar (Chairman), Ben Befu, Richard Rudolph.

This major is designed to meet the needs of students who (1) are seeking a general education on East Asia; (2) are planning careers which will necessitate knowledge of, and/or residence in, East Asia; and (3) desire a background in East Asian Studies as a basis for research and/or community work related to the Asian American.

Preparation for the Major. History 9B-9C; Oriental Languages 1A-1B-1C or Oriental Languages 9A-9B-9C or a parallel Cantonese sequence: Oriental Languages 11A-11B-11C or Oriental Languages 19A-19B-19C. Students planning to pursue classical Chinese in the Major will need Oriental Languages 13A-13B-13C in addition to the above courses.

The Major. This consists of three parts:

1. Four courses selected from the following: Anthropology 103C; Geography 186; History 191A-191E, 192, 193, 195A-195B-195C; Political Science 135, 136, 159, 160, Sociology 134.

2. Five courses selected from the following: any courses in the social sciences listed above under "1" not being used to satisfy that requirement: any upper division courses in the Department of Oriental Languages not being used to satisfy other parts of the Major Requirements; any new upper division courses relevant to East Asian or Asian American studies (including no more than three CED courses) which may be approved by the Executive Committee of the College on the recommendation of the Advisory Committee: Art 114B, Art 114C, Art 115C; Dance 140B, 145;* Music 140B, 147.*

3. The prescribed courses in one of the following areas (courses offered to satisfy this requirement will not also satisfy other parts of the Major requirements): (a) *Language:* Oriental languages 121A-121B and two other upper-division courses in Chinese; or Oriental Languages 119A-119B and two other upper-division courses in Japanese. (b) *Archaeology:* Any four of the following: Oriental Languages 170A-170B-170C; Anthropology 109A*-109B,* 175A*-175B* (c) *Geography:* Geography 130, 186; and two additional upper-division Geography courses. (d) *History:* Four upper-division or graduate courses in East Asian or Southeast Asian history (History 191A-191E, 193, 195A-195 B-195C, 196C-196D, 197 when in the East Asian field, 201B, 214). Recommended: four upper-division courses in History other than Asian history; 1 year of French or German. (e) *Political Science:* Political Science 115,* and three courses selected from the following: Political Science 135, 136, 159, 160, 161, 197 when in the East Asian field. (f) *Sociology:* Sociology 124* and three courses selected from the following: Sociology 113*, 126*, 134*, 151,* 154.*

INTERCOLLEGE MAJOR IN ETHNIC ARTS: INTERDISCIPLINARY STUDIES

This is an interdepartmental major open to students in both the College of Fine Arts and the College of Letters and Science.

The major includes a core of seven courses from the departments of Anthropology, Art, Dance, Folklore and Mythology, Music, and Theater Arts; a concentration in one of these six disciplines; at least three courses in one foreign language; a senior colloquium; and electives selected by the student. The student remains in the college of his choice and fulfills the breadth requirements of that college. The student will elect his area of concentration at the beginning of the junior year. Counseling is available in the department of concentration and in the College of Letters and Science.

Admission to the major will be by special application to the Committee in Charge. For details of the major, see Ethnic Arts.

MAJOR IN INDO-EUROPEAN STUDIES

Committee in Charge. Raimo Anttila (Chairman), Patrick K. Ford, Terence Wilbur.

Preparation for the Major. Three courses of Latin; three courses of Greek; three courses of German or Russian.

The Major. Required: (1) Indo-European Studies M131, M132, 140, M150, Oriental Languages 160, 161, 162; (2) two courses chosen from English 216A, 217A, Oriental Languages 214A,

*Courses so marked have prerequisites which are not included among the courses mentioned here. Consult the UCLA GENERAL CATALOG.

M222A (same as Persian M222A), Persian 230A (Near Eastern Languages); (3) Greek 101A and 101B; (4) one course chosen from Anthropology 109A-109B, 123A-123B. Linguistics 100; (5) one course chosen from English M111D (same as Folklore M122). 111E, Linguistics 110, 120A, 120B, Oriental Lnguages 166, 167, Persian 169 (Near Eastern Languages), Slavic M179 (same as Folklore M126).

MAJOR IN LATIN AMERICAN STUDIES

Committee in Charge: F. El Guindi (Chairperson), S. Arora, E. Gonzalez, B. Herrick, J. Lockhart.

For details of the curriculum leading to the degree of Bachelor of Arts, see Latin American Studies. Students should see an adviser in the Latin American Center, 10343 Bunche Hall.

MAJOR IN MATHEMATICS-COMPUTER SCIENCE

Committee in Charge. K. Baker (Chairman), B. Bussell, D. Cantor, M. Krieger, D. Martin, D. Sanchez.

This major, an alternate to the regular departmental major in Mathematics, consists of an integrated program of courses offered by the Department of Mathematics and the Computer Science Department (School of Engineering and Applied Science). In addition to the appropriate studies in Mathematics, the interdepartmental major permits study in the principal disciplines of Computer Science, including theoretical foundations of computer science, methodology of computing, computer system design, programming languages and systems, and computer applications. This major is administered by the Mathematics Department, MS 6356. The Mathematics Department can arrange advising appointments and can provide current information on changes in requirements. The major leads to the Bachelor of Science degree.

Preparation for the Major. Mathematics 31A, 31B, 31C, 32A, 32B, 32C, Physics 8A, 8C or Physics 6A, 6B. Engineering 10, 20, and 30. Students who take Physics 8A, 8C are urged to take Physics 8B.

The major. Fourteen courses, as follows. (i) Mathematics 110A, 115, 150B or 152A. (Normal order: 115, 110A, 152A or 150B.) (ii) Four additional courses in Mathematics chosen from courses numbered 110 or above. (Suggested: 113, 114, 140A, 140B, 142, 144, 152B or 150A.) (iii) Engineering 123A, 123B, 125A, 125B, 125L. (Recommended order: 125A, 125B, 125L, 123A, 123B.) (iv) Two additional courses chosen from Engineering 121C, 124A, 124D, 125N, 126C, 127B. Credit will not be allowed toward the major for both Mathematics 140B and Engineering 124A. Management 210A may be substituted for Mathematics 144.

Students with 90 units or more as of September 1973 are exempt from Engineering 30.

Students who completed Engineering M100D under requirements in the 1975-1976 catalog may finish the major under those requirements.

Transfer students admitted to the Mathematics-Computer Science major should consult an adviser for the major at the earliest opportunity.

Students with 60 or more quarter units of college credit will not be admitted to the major unless they have completed one year of calculus and have a C average or better in all college-level mathematics courses completed. This requirement applies both to transfer students and to continuing UCLA students not already in the major.

Students with substantial knowledge of programming in the PL/I language may be exempted from Engineering 10 by passing a special placement examination. This examination is given during registration week each quarter by the Computer Science Department. Students seeking exemption from other courses should consult a mathematics-computer science adviser.

The Departmental Scholar Program is available to interested and qualified students who wish to work towards a Master's Degree in either Mathematics or Computer Science. See Departmental Scholar Program.

MAJOR IN MATHEMATICS-SYSTEM SCIENCE

Committee in Charge. S. Port (Chairman), J. Carlyle, R. Epp, S. Greibach, S. Port.

This major is an alternate to the regular departmental major in Mathematics, and combines work in the Department of System Science (School of Engineering and Applied Science) with thorough preparation in mathematics, including those aspects significant in the theory of systems, information, and control. The major is appropriate for students who plan graduate study in mathematics, applied mathematics, or engineering, with emphasis on mathematically based research relevant to such fields as: automata, formal languages, applied logic and the theory of computing; random signals and noise, information theory, coding, communication systems; networks and graphs, state-space theory of systems, feedback and control systems, optimal control theory, computing techniques for system optimization, identification and adaptivity; modeling and analysis of quantitative aspects of systems in other fields, such as biomedical, socio-economic, and civil systems. This major is administered by the Mathematics Department, MS 6356.

Preparation for the Major. Mathematics 31A-31B-31C, 32A-32B-32C, Physics 8A-8C or 6A-6B. Recommended: Engineering 10 or equivalent experience with rudiments of computer programming. Upper division or transfer students who have not had the opportunity to enroll in Mathematics 60 may substitute Engineering 127B.

The Major. Thirteen upper division courses as follows: Mathematics 115 and 5 additional mathematics courses numbered between 110 and 199; Five courses in System Science selected from Engineering 120A, 120B, M120C, 121C, 122A, 122B, 124A, 127B, 128A, 128D, 128L, 129A and 199G; One course, either in System Science selected from the list in (2), or in Computer Science selected from Engineering 123A, 123B, 124A, 124D, 125A, 125B, 125L, 125N, 126A, 126C, 195A, and 199A; One additional upper division course in Biology, Chemistry, Economics (numbered 101 or above), Mathematics (numbered between 110 and 199), Physics, or Psychology. One of the thirteen courses must be either Mathematics 150A or Engineering 120A. (Credit will not be allowed towards the major for both.)

Some Recommended Selections. General, and preparation for graduate study: Mathematics 110A-110B, 131B, 132; Engineering 120A or Mathematics 150A-150B; Engineering 121C, 128D, 128L, 129A. Automata, computability, and discrete systems: Engineering 128D, Mathematics 112B, 113, 114. Control, optimization, and computing methods: Engineering 122A, 122B, 128A, 129A; Mathematics 130B, 144. Communications and random processes; Engineering 120B; Engineering M120C or Mathematics M151; Mathematics 150B-150C.

Credit will not be allowed toward the major for both Engineering 120A and Mathematics 150A. Mathematics-System Science majors may enroll in Engineering 122B without having taken Engineering 101A in consultation with an adviser.

MAJOR IN NEAR EASTERN STUDIES

Committee in Charge. S. J. Shaw (Chairman), F. El Guindi, F. Jabber, G. Sabagh, A. K. Sanjian.

This major is designed primarily for the following classes of students: (1) those seeking a general education and desiring a special emphasis in this particular area; (2) those who plan to live and work in the Near East whose careers will be aided by a knowledge of its peoples, languages, and institutions, and (3) students preparing for academic study in the various disciplines pertaining to the Near East. Selection of courses should be decided partly by the student's own special objectives except that the same Near Eastern Language must be maintained in both lower and upper division.

Preparation for the Major. The first year course in Arabic, Armenian, Hebrew, Persian or Turkish; candidates must also obtain a reading proficiency in French, German, Italian, Russian or Spanish as evidenced by completion of six quarter courses or their equivalent in the language of their choice; History 1A-1B-1C, 9D; four social science courses from: Anthropology 5A, 5C; Economics 1, 2; Geography 1B; Sociology I.

The Major. Required: fourteen courses as follows: (1) Completion of the advanced level or its equivalent in Arabic, Armenian, Hebrew, Persian or Turkish; (2) History 134A-134B and four courses in the history of the Near East including at least two of which are related to the major language area; (3) two courses in one discipline selected from: Anthropology 123A-123B, 110; Geography 187, 188; Political Science 132, 164; Sociology 132, 133; (4) for concentrations in Armenian, Persian, or Turkish, additional elective courses from among those given as alternatives in History or the other Social Sciences to complete the required fourteen courses. This program may be modified in exceptional cases with the permission of the adviser.

MAJOR IN STUDY OF RELIGION

Committee in Charge. K. Bolle (Chairman), R. Benson, G. Buccellati, J. Maquet, H. Scharfe

The UCLA major in the Study of Religion has a twofold purpose. In the first place it is designed to give students a broad humanistic perspective. It introduces students to several religious traditions of mankind and thus to an appreciation of the very nucleus of civilization in various periods of history and various parts of the world as well as to an understanding of fundamental human orientations. In the second place, the program asks the student to select one particular religious tradition for study at greater depth. Cohesion and integrity in the program are furthered by some courses dealing with philosophical problems in religion and with general anthropological reflections.

The program requires one year of language study which should be related to the major tradition of the student's concern. This minimum requirement will allow every student to develop some idea of the basic problems in understanding religious texts. Students contemplating graduate study will generally do more than fulfill the minimum requirement.

It is hoped that in the future a group of courses will be added to the nine groups of the present program to allow for a concentration of sociological and philosophical problems of religion.

Preparation for the Major. Anthropology 22, Philosophy 2, three courses chosen from History 1A-1B-1C, 10A-10B, 9A-9D.

The Major. The major requires a minimum of 16 courses. These must include: History 124A or 124D, Anthropology 140 or 144, two of the following: Philosophy 175, 191, 193, 195.

In addition a student is to select one of the following groups as his main area of study and is to take 3 courses in that main area, and 3 related courses in foreign language as indicated below. (If any requirements have been satisfied prior to admission to the program, they will be honored upon the recommendation of the appropriate instructor in the program. Another language pertinent to the student's main area may be substituted with the consent of the committee in charge of the program. Among these languages are Hittite, Ugaritic, Syriac, Coptic, Persian, Armenian, French, German.)

Group 1: Ancient Near East and Eastern Europe. Three courses selected from the following: History 124C, Ancient Near East 130, 170, Indo-European Studies 131, 132, Iranian 170. Three courses in one of the following languages: Ancient Egyptian or Akkadian.

Group 2: Indo-European Tradition. Three courses selected from the following: English M111D, M111E, History 124F, Classics 140, Scandinavian Literature 141, Iranian 170, Slavic M179. Three courses in one of the following lnaguages: Sanskrit, Latin, Greek.

Group 3: Greece and Rome. Three courses selected from the following: History 99, sec. 9 (Roman History: Conflict Between Paganism and Christianity), Classes 161, 162, 166A, 166B, History 197 (Roman History: Christianity and Imperial Rome). Three courses in one of the following languages: Latin or Greek.

Group 4: Israel and Judaism. Three courses selected from the following: English 113A, History 137A-137B, 138A-138B, Hebrew 150A-150B, Hebrew 220 (Studies in Hebrew Biblical Literature), Jewish Studies 151A-151B, 199, Ancient Near East 170. Three courses in Hebrew.

Group 5: Christianity. Three courses selected from the following: Philosophy 105, 106, English 113B, History 131A-131B, 141B, 177A-177B, 204A-204B-204C, 207, Ancient Near East 170, Classics M170A. Three courses in one of the following languages: Latin or Greek.

Group 6: Islam. Three courses selected from the following: Philosophy 104, History 134A, 135, Arabic 150A-150B, Iranian 150A-150B. Three courses in Arabic.

Group 7: South Asia. Three courses selected from the following: History 124B, 124E, 124F, 124G, 196A, 197 (South Asian Religions), Oriental Languages 167, Iranian 170. Three courses in Sanskrit.

Group 8: Far East. Three courses selected from the following: History 124B, Oriental Languages 168, 172A-172B, 173, 174. Three courses in one of the following languages: Sanskrit, Chinese, Japanese.

Group 9: Traditional and Non-Literate Cultures. (Choose A or B)

A. Three courses selected from the following: Anthropology 107A-107B, Linguistics 150A-150B. Three courses in a language chosen in consultation with an instructor in this area.

B. Three courses selected from the following: Anthropology 108, Folklore and Mythology M111, M123A, M125, M129, 130. Three courses in a language chosen in consultation with an instructor in this area.

The student will select six courses in traditions chosen from at least two Groups outside his main area of study, excluding foreign language courses.

Preparation for Various Professional Curricula

The following pre-professional curricula are not degree programs in the College. Courses listed under each curriculum are presented to assist students who plan to apply to professional

schools at the conclusion of their sophomore year (90 units) or junior year (135 units). Students who are not accepted by the professional schools must declare a major in the College and be able to complete degree requirements without exceeding 208 units. New students entering in these curricula will be listed as Undeclared Majors and will be advised in the College unless an adviser is named below in the presentation of the curriculum.

The Pre Health Care Advising Office, 1339 Murphy Hall

Information and counseling on preparing for health care professional school is available through this office together with assistance in putting together an application at the time of applying. Open counseling sessions are held weekly or biweekly for premeds, predents, and prenurses (time and place are announced in the "campus events" section of the "Daily Bruin" and posted by 1339 Murphy Hall. For counseling on preparing for other health care professional schools, inquire at this office.

COPE (Counseling on Pre Health Education) student counselors are on duty each week day in the Court of Sciences by Young Hall. COPE counselors can answer questions and give referrals.

PREDENTAL CURRICULUM: THREE YEARS

Adviser for Applicants to Dental Schools. Ann Beech, School of Dentistry.

The College of Letters and Science offers a predental curriculum designed to fulfill the basic educational requirements for admission to several dental schools and the general educational requirement of the College of Letters and Science. It is advised that the student determine and satisfy the specific requirements of the dental schools to which he expects to apply.*

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

The 135 quarter units of work required for admission to the School of Dentistry include the following:

General University Requirements: (1) Subject A: (2) American History and Institutions.

Specific UCLA School of Dentistry Requirements† (1) English 1A or 1B or 2; (2) Sciences: Chemistry 1A-1B-1C, or 3A-3B, 21, 22, 24; Physics 3A, 3B, 3C; Biology 1A-1B, 138 and Psychology 10.

Social sciences and humanities should also be included in the 135 quarter units for which the student may consider such courses as anthropology, history, economics, psychology, political science, appreciation of art and/or music, and philosophy.

For further information, consult "Admissions Requirements of U.S. and Canadian Dental Schools" AADS, 1625 Massachusetts Avenue, N.W. Washington, D.C. 20036.

PREDENTAL HYGIENE CURRICULUM: TWO YEARS‡

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 90 quarter 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);

Curriculum Requirements. (1) Subject A; (2) American History and Institutions. (The examination in American History and Institutions may be taken in the School of Dentistry, but it is preferable to satisfy the requirements in the predental program); (3) English 1A or 1B and 3; (4) Chemistry 1A-1B-1C or 3A-3B, 21, 22, 24; (5) Biology 1A-1B; (6) Physics 3A-3B-3C or 6A-6B-6C; (7) Psychology 10, and one additional course; (8) 20 units in Social Sciences and Humanities (including foreign language).

PREMEDICAL STUDIES: FOUR YEARS

Program Adviser. See major department.

Prehealth Care Advising Office. 1339 Murphy Hall.

Students who intend to apply for admission to a medical school and who wish to complete the requirements for a bachelor's degree before such admission should select a major within the College. In addition to fulfilling the requirements of the chosen major, the student is advised to ascertain and satisfy the specific requirements for medical schools to which he expects to apply.

High school preparation for premedical studies at the University should include: English, three units; United States history, one unit; mathematics three and one-half units; chemistry one unit; physics, one unit; biology, one unit; foreign language (preferably French or German), two units. It is desirable that a course in freehand drawing be taken in high school.

Usually the following courses are required for admission to the UCLA medical school; English: 12 quarter units including at least one course in English Composition; Chemistry 1A-1B-1C or 3A-3B, 21, 22, 24; Physics 3A-3B-3C or Physics 6A, 6B, 6C; Biology 1A-1B; M132. Courses in physical chemistry and calculus are strongly recommended. Course requirements for admission to other University of California medical schools vary slightly (e.g. UCLA and UCSD require genetics). Requirements for admission to medical schools outside the University of California also vary somewhat so that students should consult the publication, "Medical School Admission Requirements, USA and Canada," Association of American Medical Colleges, 1 Dupont Circle, N.W., Washington, D.C. 20036.

PRENURSING CURRICULUM: TWO YEAR

The University offers a four-year course leading to the Bachelor of Science degree in nursing. The prenursing curriculum in the College of Letters and Science is designed to prepare students for the program in the School of Nursing. Students should apply to the School of Nursing when they have completed or have in progress 84 quarter credits of liberal arts courses with at least a grade-point average of 2.8. Since students must apply during the Fall of the year prior to the year in which they wish to be enrolled, they must present their proposed curriculum for the remaining quarters.

The curriculum as set forth below includes the specific requirements for application to the School of Nursing. Enrollment in the School is limited.

Since students who have completed the two year prenursing curriculum cannot be assured of admission to UCLA's School of Nursing, all prenursing students should become familiar with the admission requirements of other nursing programs. These requirements vary from school to school so *it is imperative that prenursing students obtain this information as early in their college careers as possible.* Contact schools of nursing directly and

*School of Dentistry, see Pre-Dental Requirements.

†Other dental schools may have different requirements.

‡The School of Dentistry reserves the right to limit enrollment if applications exceed available facilities, and to require interviews and aptitude tests if they are neccessary in the selection of the class. For further information see the ANNOUNCEMENT OF THE SCHOOL OF DENTISTRY, SAN FRANCISCO.

attend open counseling sessions in UCLA's School of Nursing (times posted in the Office of Student Affairs, 12-139 CHS) and those given by the Pre Health Advising Office (posted by 1339 Murphy Hall). Students who are not accepted by the School of Nursing *(as transfer students from other institutions)* must declare a major in the College of Letters and Science to be admitted to the College.

New students admitted to the College in this curriculum will be counselled in the College as Undeclared Majors, but may seek additional advisement during posted Open Counseling sessions. Students in the College who do not transfer to the School of Nursing must declare a major and be able to complete all degree requirements within 208 units.

Prenursing Requirements: (1) English 1A or 1B; (2) Chemistry 1A-1B, or 1A-1N, or 3A; (3) Biology 1A-1B); (4) Anthropology 5A; (5) Sociology 1 or 101; (6) Psychology 10: (7) Psychology 15; (8) Bacteriology 10; (9) Physics 10 or one year of high school physics with laboratory: (10) Public Health 111 or 115. Recommended electives in the social and biological sciences.

PREOPTOMETRY CURRICULUM: TWO YEARS

A two-year program designed to prepare students for admission to optometric schools may be completed in the College of Letters and Science. Students planning to transfer to the School of Optometry at Berkeley are advised to contact the Dean of the School of Optometry, University of California, Berkeley, California 94720 as early in their preprofessional studies as possible.

The student will be adequately prepared for preoptometric studies if he has taken the following subjects in high school: English, history, mathematics (algebra, geometry and trigonometry), chemistry, physics and foreign language.

The 90 quarter units of work required for admission to the School of Optometry, Berkeley, include the following:

General University Requirements—(1) Subject A, (2) American History and Institutions.

Specific UCB School of Optometry Requirements—(1) English 1A or 1B and 2; (2) Chemistry 1A-1B-1C or 3A-3B, 21; (3) Physics 3A-3B-3C; (4) Biology 1A-1B; Psychology 10; (5) Mathematics 3A-3B-3C or Mathematics 31A-31B-31C and 50A or Psychology 41.

The balance of the 90 quarter units required for admission may be selected from the social sciences, foreign languages and the humanities.

PREPHARMACY CURRICULUM: TWO YEARS

Adviser: J. H. Beckerman. Appointments may be made at A7222, Center for the Health Sciences.

The School of Pharmacy on the San Francisco campus of the University offers a four-year curriculum leading to the degree of Doctor of Pharmacy. To be admitted to this curriculum a student must have met all requirements for admission to the University and have completed, with an average grade of C (2.00) or better in the University of California or in another institution of approved standing, at least 90 quarter units of the program set forth below. 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 time, students should complete elementary chemistry, trigonometry, and a full year of intermediate algebra in high school.‡

Curriculum Requirements: First Year. (1) Subject A; (2) English 1A or 1B and 2; (3) Chemistry 1A-1B-1C or 3A-3B; (4) Trigonometry and intermediate algebra (if not completed in high school); (5) Electives: six or seven elective courses should be selected from courses in foreign language, social sciences, and humanities offered in satisfaction of the lower division requirements of the College.

Curriculum Requirements: Second Year. (1) Biology 1A-1B; (2) Physics 3A, 3B, 3C; (3) Mathematics 3A-3B-3C or 31A-31B-31C; (4) American History and Institutions; (5) Electives, two-three.

PREPHYSICAL THERAPY CURRICULUM: THREE OR FOUR YEARS

Students who intend to apply for admission to a Physical Therapy School should select a major (kinesiology and Psychology are commonly selected) and complete the following prerequisite courses: one course in Human Anatomy and one course in Physiology (Kinesiology 14, 12), two courses in Biology (Biology 1A and 1B), two courses in Chemistry (1A and 1N), Physics 10 or 3A, 3B, Psychology 10, 115, 127, 130 recommended, Public Health 44 or 100, and one course in statistics. The prerequisite courses should be taken for a grade and not on a P/NP basis. GPA's for these courses should not be lower than 3.0, with no grade lower than a "C".

Certificate programs in Physical Therapy are available for the Baccalaureate degree at the following California schools: 1) University of California, The Medical Center, San Francisco, 2) University of Southern California, 3) Children's Hospital, Los Angeles. Students are urged to write each school early in the sophomore year to obtain details concerning specific admission requirements and application deadlines. Information concerning out-of-state programs can be obtained from the American Physical Therapy Association. 1156 N.W. 15th St., Washington, D.C. 20005.

Prepublic Health Curriculum: Two Years

See the Announcement of the UCLA School of Public Health, the section of this Catalog under Public Health, and request further information from the Office of Student Affairs, 21-236B Public Health, UCLA, Los Angeles, California 90024.

Other Professional Curricula in the University

GRADUATE SCHOOL OF LIBRARY AND INFORMATION SCIENCE

The University of California does not offer an undergraduate major in librarianship. Graduate School of Library and Information Science has the following basic admission requirements: a bachelor's degree with a subject major, a broad background in the liberal arts and sciences, and a reading competence in a foreign language. Librarians interested in information science will also need a background in mathematics. Further information on admis-

‡Students who have completed the two-year prepharmacy curriculum at Los Angeles cannot be assured of admission to the School of Pharmacy of 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. A personal interview may be required. Applications for admission to the School of Pharmacy, San Francisco campus, must be filed between October 1 and February 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 94122. For further information see the ANNOUNCEMENT OF THE SCHOOL OF PHARMACY, SAN FRANCISCO, which may be obtained from the Dean, School of Pharmacy, University of California Medical Center, San Francisco 94122.

sion requirements and on recommended undergraduate courses may be obtained from the Office of the Graduate School of Library and Information Science, Powell Library 120.

THE COLLEGE OF FINE ARTS

The College of Fine Arts, established on the UCLA campus in 1960, administers the departments of Art, Dance, Music and Theater Arts. Together with the College of Letters and Science, the College of Fine Arts is the foundation in the liberal arts upon which the balance of the University's academic and professional structure rests.

The appropriateness of education in the fine arts in the University is fully recognized, and in recent years a true explosion has taken place. Further, professional training in the fine arts is becoming increasingly acknowledged as an appropriate and vital activity for the American university. Thus, faculty and students are not only concerned with the history and evolution of the various arts, but they are also interested in the creation or the performance of a work of art.

As one of the nation's greatest and most rapidly growing centers of vitality in the fine arts, Southern California presents UCLA with both an opportunity to take advantage of this vitality and an obligation to assist its development.

By completing additional requirements as determined by the Graduate School of Education and the State Department of Education, students may also qualify for standard teaching credentials (see the ANNOUNCEMENT OF THE GRADUATE SCHOOL OF EDUCATION).

The College of Fine Arts admits students only in the fall.

Students desiring to major in Music or dance will be asked for an audition prior to acceptance by the department. Those who wish to enter the Department of Theater Arts with a major in Theater, will be required to submit a statement of past achievement, aims while at UCLA, and goals for future work in the chosen field. In addition, for the Motion Picture/Television major, evidence of creativity is required (such as scripts, films, or slides of previous work, etc.).

Students may secure answers to their questions about academic procedures and regulations, program planning and degree requirements by calling 825-1397 or 825-1762, or by coming to the Student Services window of the Dean's Office, located in Murphy Hall, Room A-333. The College counselor is available at the same location (or by phone, 825-1554) if help is needed regarding academic difficulty and related matters.

Guidelines for Admission to Advanced Standing

Since the College of Fine Arts admits all students on a quota basis, first preference will be given to those students who, in addition to meeting the general requirements for admission, will have completed all the breadth requirements and have an overall grade-point-average of 3.00.

Second preference will be given to those students who have an overall GPA of 3.00 and have completed at least 36 quarter units (24 semester units) of college work which will satisfy our foreign language and English composition requirements and three or more additional courses applicable to the remaining breadth requirements.

Further, in the interest of all applicants, preference will be given to those students who, in consideration of their total record, will be able to complete the work for the B.A. degree without exceeding the established maximum of 208 units.

In addition to the above, the selection committee of each department of the College will do its own screening to ascertain that the student has the appropriate background or talent to fit successfully into the program. For detailed information regarding specific departmental requirements, please contact the department in which you desire to major.

Requirements for the Bachelor's Degree

UNIT REQUIREMENTS

The minimum number of courses (and units) for the bachelor's degree is 45 courses (180 units), of which at least 24 courses (96 units) are to be outside the student's major department. No more than one course (4 units) of Kinesiology 1 and 2A-2Z or Physical Education 1 and 2 may be counted toward the degree. Not more than four CED courses (16 units) and not more than two courses (8 units) of Freshman Seminars will be counted toward the degree. At least 16 courses (64 units) must be upper division, including two courses (8 units) outside the major department. Only work of passing quality will apply toward these requirements.

Students are normally expected to complete the work for the bachelor's degree with no more than 180 units. After having credit for 208 units, a student will be permitted to continue only in rare cases approved by the Dean.

The Study List. Each quarter the student study list may include from twelve to seventeen units. Petitions for more than seventeen units must be filed and approved by the Dean of the College prior to the deadline dates listed in the annual ANNOUNCEMENT OF THE COLLEGE OF FINE ARTS.

If a student has not filed his study list by the end of the second week of classes, he must secure the permission of the Dean of the College to continue for that quarter.

Courses numbered in the 200 series are normally reserved for graduate students only. Undergraduate students who wish to take these courses must petition for advance approval of the department chairman and the Dean of the College, prior to enrollment. Courses numbered in the 400 and 500 series are not available to undergraduate students in the College of Fine Arts.

SCHOLARSHIP REQUIREMENTS

A C average (2.0) is required in all work attempted in the University of California, exclusive of courses in University Extension and courses attempted on a passed/not passed basis. A C average is also required in all upper division courses in the major attempted in the University.

See Grades and Scholarship Requirements for details regarding the Minimum Progress which is required of students in the college of Fine Arts.

RESIDENCE REQUIREMENTS

Of the last 45 units completed for the bachelor's degree, 35 must be earned in residence in the College of Fine Arts. (A student is "in residence" only while enrolled as a *major* in one of the departments of the College of Fine Arts.) Not more than 18 of these 35 units may be completed in summer sessions at UCLA.

When students transfer from another institution with senior standing, there is the additional requirement that, of the 35 units to be earned in residence in the College of Fine Arts, 28 must be *upper division,* including 16 upper division units in the major department.

University Extension. Courses in University of California Extension (either class or correspondence) may not be offered as part of the residence requirement.

Concurrent Enrollment. Concurrent enrollment in courses at another institution or in University Extension (including correspondence courses) is permitted only in extraordinary circumstances, and no credit is given for such courses unless the approval of the Dean has been obtained by petition *prior to enrollment.*

SUBJECT REQUIREMENTS

All students complete the specific subject requirements established by the University, the College of Fine Arts, and the student's major department.

General University Requirements

See Subject A (English Composition) and American History and Institutions.

General College Requirements

The general requirements of the College of Fine Arts provide for breadth in the student's education, and are planned to insure a degree of basic skill in communication—both in English and in one foreign language, and to offer the student an introduction to each of the broad fields of human learning: natural science, social science, and the humanities.

The courses indicated may be taken at the University of California or elsewhere. The list of courses and their descriptions may be used by prospective transfer students as a guide in selecting courses of similar content and purpose offered in their own institutions. Students attending a California junior college should consult their counselors to determine which junior college courses are appropriate and are accepted in satisfaction of the breadth requirements by the College of Fine Arts.

Individual departments may require additional courses in any of the four areas. No "198," "199" or CED courses and no seminars, pro-seminars or freshman seminars may be applied on the general requirements of the College. Courses which are multiply-listed (numbers preceded by "M") may not be applied on these requirements.

ENGLISH COMPOSITION

One course in English composition (English 1A or 1B) with a grade of "C" or better, taken at UCLA or transferred from another institution, is required of all students. This course may *not* be taken for Passed/Not Passed grade, and must be completed by the end of the sophomore year (90 units of work).

This requirement may also be met by a score of 4 or 5 in the College Entrance Examination Board's Advanced Placement Test in English, or by passing a proficiency examination in English composition set and administered by the Department of English. To be eligible for this proficiency examination an entering student must have a score of 700 on the CEEB English Achievement Test with a verbal score of 675 on the CEEB Scholastic Aptitude Test, or must have the endorsement of his major department based on evidence of superior writing ability in a departmental course. Transfer students who have completed with a grade of "C" or better a college composition course not evaluated as English 1A or 1B, may request permission from the English Department to take this proficiency examination. Eligible students must register for the examination in the English Department office prior to the first day of enrollment in any quarter.

A foreign student whose entire secondary school work was completed in his native tongue, excluding English, may satisfy this requirement with English 33C if completed with a grade of "C" or better.

FOREIGN LANGUAGE; LIFE, PHYSICAL AND BIOLOGICAL SCIENCES; SOCIAL SCIENCES; AND HUMANITIES

Thirteen courses (52 units) chosen from these four areas, including at least three courses (12 units) in one foreign language, and at least three courses (12 units) in each of two other areas. *Any course applied on one of these four general requirements may not also be applied on another of these requirements.*

Foreign Language

At least three courses in one foreign language are required of all students. **This requirement must be met no later than the end of the junior year.** All courses in foreign language, except foreign literature in English translation, may be applied to this requirement.

Without reducing the total number of units required for the bachelor's degree, high school foreign language work with grades of "C" or better and not duplicated by college work will count as follows: the first two years together equal two college courses and the third and fourth years each equal one college course. No more than the equivalent of three college foreign languages taken at the high school level will count toward the required thirteen courses.

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.

Life, Physical and Biological Sciences

Selected courses from any of the life, physical and biological sciences will meet this requirement.

Social Sciences

Students may select courses to meet this requirement from the following: most courses in anthropology, economics, geography, history, political science, psychology, and sociology. Any economics, history or political science course taken to satisfy the University requirement in American History and Institutions may also be applied on this requirement.

Humanities

Courses to meet this requirement may be selected from the following areas:

The Arts: courses in art, dance, music, theater arts, and integrated arts, except that courses in the student's major department may not apply on this requirement. Also selected courses in Classics or Folklore and Mythology.

Note: Performance or studio courses do not meet this requirement.

Literature: all courses in English, American or foreign literature (classical to contemporary), including work in translation. In addition to literature courses offered by language departments, *literature* courses given by the Department of Classics and the Department of Humanities are also acceptable. Any English Department course taken to satisfy the University requirement in American History and Institutions may also be applied on this requirement.

Philosophy: all courses in philosophy; also courses in religion offered by other departments.

Credit for Advanced Placement Tests

Credit earned through the CEEB Advanced Placement Examinations may be applied on these requirements as follows: credit for English 1 and 2 will apply on the English Composition require-

ment; all foreign language credit will apply on the foreign language requirement; all credit in science and mathematics will apply on the life, physical and biological sciences requirement; and all credit in history will apply on the social sciences requirement.

It is important to note that portions of Advanced Placement Test credit may be evaluated by corresponding UCLA course numbers, e.g., History 1C. If a student takes the equivalent UCLA course, *deduction of unit credit for such duplication will be made prior to graduation.*

Departmental Requirements

THE MAJOR

Each candidate for the bachelor's degree is required to complete a major in the College of Fine Arts with a scholarship average of at least two grade points per unit (C average) in all upper division courses, and must be recommended by the chairman of his major department.

A *major* is composed of not less than 14 courses (56 units), including at least nine upper division courses (36 units). The major includes both lower and upper division courses, arranged and supervised by the department and approved by the Executive Committee of the College.

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.

As changes in major requirements occur, students are expected to satisfy the new requirements insofar as possible. Hardship cases should be discussed with the departmental adviser, and petitions for adjustment submitted to the Dean of the College when necessary.

Any student failing to attain a scholarship average of at least two grade points per unit in his major department may, at the option of the department, be denied the privilege of a major in that department.

A department may submit to the Dean of the College the name of any student who, in the opinion of the department, cannot profitably continue in the major, together with a statement of the basis for this opinion and the probable cause of the lack of success. The Dean may permit a change of major, or may, with the approval of the President, require the student to withdraw from the College.

Any department offering a major in the College of Fine Arts may require from candidates for the degree a general final examination in the department.

ORGANIZED MAJORS AND CURRICULA IN THE COLLEGE OF FINE ARTS

Majors leading to the degree of Bachelor of Arts are offered in the following areas:

Art. History of Art, Design,* Painting/Sculpture/Graphic Arts.*

Dance.*

Music with specialization in Composition and Theory, Ethnomusicology, History and Literature, Music Education,* Opera, Performance, Systematic Musicology.

Theater Arts. Theater, Secondary Teaching Curriculum,* and Motion Pictures/Television.

Ethnic Arts: Interdisciplinary studies.

With the proper selection of courses, including those designated by the Graduate School of Education, teaching credentials are available in the majors marked with an asterisk(*).

ETHNIC ARTS: INTERDISCIPLINARY STUDIES

An intercollege, interdepartmental major is offered in Ethnic Arts. It is open to students in both the College of Fine Arts and the College of Letters and Science. The student remains in the college of his choice and fulfills the breadth requirements of that college. Counseling is available in the department of the student's concentration.

The degree is not viewed necessarily as a foundation for graduate study, but may become so with proper course selection if that is the student's aim.

The major includes a core of seven courses from the departments of Anthropology, Art, Dance, Folklore and Mythology, Music, and Theater Arts; a concentration in one of the six disciplines; at least three courses in one foreign language; a senior colloquium; and electives selected by the student.

Admission to the major will be by special application to the Committee in Charge.

For details of the major, see Ethnic Arts.

INDIVIDUAL MAJORS

A regularly enrolled UCLA student who has some unusual but definite academic interest for which no suitable major is offered, and has completed at least three quarters of work (a minimum of 9 courses) at the college level with a grade-point average of 3.0 or higher, or the equivalent in creative work and performance, may, with the assistance of a faculty adviser in consultation with the chairman of the faculty adviser's department, and with the consent of the Dean, plan his own major. A majority of the courses in the major must be in departments in the College of Fine Arts. The individual major is subject to the 208 unit limit and must comply with all University and College requirements.

A student interested in an individual major should consult the Student Information section of the Dean's Office for information and forms necessary to implement such a major.

The major should be submitted and approved by the first quarter of the junior year, but no later than the first week of classes of the third quarter before the student's intended graduation.

The individual major must be approved by the Executive Committee of the College before it may be accepted in lieu of a departmental or interdepartmental major. The faculty adviser (who must be a regular member of the faculty of the College of Fine Arts) shall supervise the student's work in lieu of a department or committee, and the student's study list must be approved by him and the Dean before it will be accepted by the Registrar. A senior paper or project is required of each student with an individual major.

The Dean must certify that the student has completed the requirements of his major before the degree is granted.

Honors in the College of Fine Arts

DEAN'S HONORS

Dean's Honors will be awarded at the end of the Spring Quarter to students completing the previous year's program with distinction according to criteria established by the Dean of the College.

DEPARTMENTAL HONORS PROGRAMS

Each department offering an undergraduate major may establish an Honors Program including special courses, or supplementary and advanced directed study, or both.

COLLEGE HONORS WITH THE BACHELOR'S DEGREE

College Honors are awarded at graduation to students with a superior overall grade-point average. The honor designations and the requirements for each are Cum laude, an overall average of 3.4; Magna cum laude, 3.6; Summa cum laude, 3.8. To be eligible for College Honors, a student must have completed at least 20 *graded* courses (80 units) in the University of California.

A list of students graduating with Departmental and/or College honors will be published in the Commencement Program, and honors earned will be recorded on each student's diploma.

SCHOOL OF ARCHITECTURE AND URBAN PLANNING

The School of Architecture and Urban Planning offers programs of study leading to the degrees Master of Architecture (M.Arch.), M.A. in Architecture and Urban Planning, and PhD. in Urban Planning. Currently, the School offers educational opportunities for a broad spectrum of careers, including a number that are not yet common in practice, but which reflect emerging social needs. The programs of the School of Architecture and Urban Planning at UCLA reflect the University's concern with the escalating problems of the changing urban environment and its largely untapped potentialities.

In order to relate closely to public affairs and practitioners in the field, the School has established the Urban Innovations Group. The Urban Innovations Group undertakes "real-world" projects to provide graduate students with opportunities to gain practical experience. It also affords faculty opportunities for professional service. To reflect the nature of the problems and the opportunities associated with the creation and maintenance of environments of the future, the projects are on-going and programmatic. They range from pure research, applied research, development, and prototype testing to full scale implementation. The Urban Innovations Group provides a bridge or transition between pure academic pursuits and professional practice.

Architecture and Urban Design

In an increasingly urban civilization, the unprecedented rate of growth of the world's population places increasing demands on the Architecture profession to provide for man's needs to live and work in close proximity with other men. A new technology of city building is being evolved to keep pace with the accelerated rate of urban growth. Advances in methods of construction, building economics and organization, together with insights gained in the social and behavioral sciences, place at our disposal new resources with which to respond to the urban challenge. This enormous undertaking demands a group of professionals who can direct diverse forces toward the realization of better environments. The field of architecture, like so many of our professions and institutions today, is undergoing radical change. The old pattern of architectural practice as something that transpires between an individual architect and his client is no longer valid. The new pattern of the large architectural office serving a corporate client's needs may also soon fade. A more radical view of the architect is emerging. Increasingly, he is offering his services as a member of an interdisciplinary team of problem-solving specialists. To fulfill this role the architect will have to become a specialist himself; thus, the term "architect" will have in the future many specialized meanings.

THE AREAS OF STUDY

The Program is organized around seven Areas of study which represent major directions within architecture and urban design.

A. Projects in Architecture and Urban Design

The practical application of problem analysis and design method to environmental problems. The student acquires the ability to analyze and conceptualize specific designs as he participates, individually or in teams, in projects which vary in scale and complexity from the design of individual components to portions of the city or entire physical systems.

Courses: 401. Projects in Architecture; 402. Projects in Urban Design; 451. Elements and Multiples; 452. Redevelopment; 453. Urban Facilities; 454. Regional Facilities and Networks; 496. Special Projects in Architecture; 497. Special Projects in Urban Design.

B. Design Method

Empirical and theoretical study of the processes of design. Critical evaluation of techniques and methods, with particular emphasis on computer-aided procedures. The relations between organizational context, communication, information and method.

Courses: 224. Methodology: Design Theory; 226A. Computer Applications in Architecture and Urban Planning (Introductory); 227. Computer-Aided Design; 228. Research in Design Methods; 280. Information Systems; 281. Mathematical Models in Architectural Design; 410. Fundamentals of Design.

C. Environmental Technology

To consider physical technological solutions to the built environment, at both the architectural and urban scale, giving particular emphasis to the systems approach to problem solving. Subjects will range from those concerned with urban systems technologies—energy distribution, transportation, communication, etc., to those of building systems—enclosures, structure, environmental controls, services, etc.

Courses: 242. Systems Building; 243. Research in Environmental Technology; 423A-423B. Architectural Technology; 424A-424B. Environmental Controls; 425A-425B-425C. Structural Systems.

D. Environment and Behavior

To introduce architecture students to existing behavioral science knowledge concerning the relation of man to his social and physical environment, as well as appropriate methods for assessing various aspects of this relation; and, to present this area of knowledge as a partial basis for understanding theories and philosophies of environmental design.

Courses: 225. Cognitive Processes in Design; 253. Application of Behavioral Research to the Design Process; 254. Image and Cultural Symbolization; 256. Housing Patterns; 257. Social Meaning of Space; 258. Research in Man-Environment Relations.

E. Architectural and Urban Analysis

Examination of properties and relations of the elements of architecture and the urban environment. The needs and behavior of individuals and groups are studied with respect to their mutual inter-relation in order to understand the environmental consequences. Emphasis is put on using exact methods in making the analysis.

Courses: 216. Process of Change; 210. Health Care Facilities; 218A-218B. Urban Structure: Analysis and Modeling; 235. Architectural Case Study; 236. Urban Form; 237. Elements of Urban Design; 238. Research in Architectural and Urban Analysis; 245. Architectural and Urban Systems; 247. Design Seminar in Educational Systems and Facilities; 255. Urban Morphology: Definitions and Consequences.

F. Environmental Management

The development of management procedures for forecasting, planning and designing the systems of the physical environment. On the assumption that architects and urban designers will become agents of change who will act upon the future physical environment, the forms of organization to fulfill this role are examined. The introduction and management of innovation in the architecture and urban design professions, both in theory (teaching and research) and practice (Urban Innovations Group Workshop) is also stressed.

Courses: 203A-203B. Decision-Making in Planning and Design; 204. Imaging the Future; 244. Projects in Urban Building Systems; 460. Architectural Management; 461. Professional Organization and Practice; 490. Urban Innovations Group Workshop.

G. Theory, History and Criticism

Theory, history, and criticism support the field of architecture and urban design as both an activator of the professional discipline as well as the repository of its accumulated knowledge, values, and philosophies. Work in this subject area develops the conceptual frames of reference by which the project and its context are defined, examines the criteria for analysis and evaluation, probes the methodological issues underlying the design process, and stimulates an awareness of the evolution of society and culture as the context within which architectural and urban form are manifested.

Courses: M190. Man and His Environment; Urban Form and Urban Life; 191. Modern Architecture: the Heroic Period; 201A. Architectural Theory; 270. Seminar in Environmental Design; 271A-271B-271C. History and Future of Environment.

The Degree Master of Architecture

THE FIRST PROFESSIONAL DEGREE PROGRAM (M.ARCH.I)

The objective of the program is to provide the student with the basic professional education necessary for the practice of architecture and urban design as they are evolving today and in the future. The competence and sensitivity which an environmental designer must bring to his task requires intensive exploration of a number of subject areas, and the ability to organize and purposefully integrate widely varied forms of information relevant to a given project. In this curriculum, a structured sequence of lectures, seminars and design projects is complemented with individual and group extracurricular work intended to exemplify both usual and unusual forms of professional activity.

Admission Requirements

For admission to this program, the applicant must first meet the entrance requirements of the Graduate Division of the University, including a bachelor's degree from the University of California or its equivalent and a grade average of B or better. In addition, the School of Architecture and Urban Planning requires that the applicant submit the material outlined in the Departmental Application Form. Particular emphasis is placed on the Statement of Purpose, letters of recommendation, and evidence of creative or analytic ability in either graphic, written, or mathematical form.

Good command of spoken and written English is absolutely essential and no foreign student will be allowed to attend classes until he passes the Graduate Division's English fluency exam and completes any required remedial courses.

Additional information about the program may be obtained by writing directly to the Graduate Adviser of the Architecture and Urban Design Program.

Degree Requirements

The student is expected to be three years in residence at UCLA and undertake nine quarters of work while maintaining a 3.0 grade point average in all courses in the seven Areas of Study as follows: Courses.

A minimum of twenty-seven courses are required for graduation distributed

A. Projects in Architecture and Urban Design: 451, 452, 453, 454, plus one additional course.

B. Design Method: 410, plus one additional course.

C. Environmental Technology: 423A, 423B, plus three additional courses.

D. Environment and Behavior: two courses.

E. Architectural and Urban Analysis: 235, 245, plus one additional course.

F. Environmental Management: 460, plus two additional courses.

G. Theory, History, and Criticism: 270, plus two additional courses. Course 598, *Preparation for Thesis,* must be taken at some time during the last year.

The remaining three courses are electives, which may be chosen from upper division or graduate courses offered University-wide.

A professionally oriented thesis will be required for completion of degree requirements.

THE SECOND PROFESSIONAL DEGREE PROGRAM (M.ARCH. II)

In this program, the architectural graduate or experienced professional is afforded the opportunity to develop in depth a core of conceptual and methodological skills and to pursue specialized areas of study and research, according to his professional aims and needs. An innovative attitude toward the future profession is emphasized, which is explored in seminars, projects and field experience. Each student works closely with his tutor to build a program that fits his individual interests, culminating in a Masters' thesis.

In one of these areas of specialization, Urban Design, a Letter of Certification is conferred at graduation indicating completion of a series of specified courses within the M.Arch. Degree Program. These courses are selected in order to coordinate the various disciplines related to Urban Design and to provide for a systematic sequence of courses. Emphasis is placed on introducing innovative approaches and on bridging the gap between analysis and design as well as between theory and practice.

The M.Arch. II degree is also being offered as part of UCLA's Extended University Program. This provides practicing professionals opportunities to pursue part-time study towards the M.Arch. II, Second Professional Degree. Under this option full-time residency is not required at any time and a student should be able to complete the program in approximately three years. With the exception of its part-time character, the Extended University for M.Arch. II program is identical with the full-time M.Arch. II Program.

Admission Requirements

For admission to this program, the applicant must first meet the entrance requirements of the Graduate Division of the University, including the grade average of B or better. In addition, the School of Architecture and Urban Planning requires that the applicant

hold the degree Bachelor of Architecture from an accredited school, and submit the material outlined in the Departmental Application Form. Particular emphasis is placed on the Statement of Purpose, letters of recommendation, evidence of professional quality, creative or analytic ability in either graphic, written, or mathematical form.

Good command of spoken and written English is absolutely essential and no foreign student will be allowed to attend classes until he passes the Graduate Division's English fluency exam and completes any required remedial courses.

Additional information about the program may be obtained by writing directly to the Graduate Adviser of the Architecture and Urban Design Program.

Degree Requirements

The student is expected to be two years in residence at UCLA and undertake six quarters of work.

A total of eighteen courses is required distributed in the following way:

1. Three may be taken at large from those offered campus-wide. Permission may be granted by the Head of the Program to increase this number for students following individual programs requiring greater interdisciplinary study.
2. At least five courses must be numbered in the 400 professional series.
3. The student must successfully complete at least three courses listed as Projects in Architecture and Urban Design.
4. Eight courses should be chosen from among the six other Areas of Study listed earlier with never more than three of these in any one Area. Directed Individual Study and Research, Course 596, done in one of the Areas of Study, also qualifies as a course in meeting this requirement.
5. 598, Preparation for Thesis, should be taken at some time during the last year.

A professionally oriented thesis will be required for completion of degree requirements. It may be in the form of a design project or a thesis.

THE MASTER OF ARTS DEGREE (M.A.) PROGRAM IN ARCHITECTURE AND URBAN DESIGN

The objective of this program is to provide for the specialized learning needs of those with or without previous education in architecture whose primary motivation is not professional practice but teaching, consulting or research in the environmental design field. This academic degree program is in contrast to broadly based professional training offered in the M.Arch. I Program. An essential aspect of the M.A. degree is its emphasis on an individualized program of study in a specific area of concentration which is to be developed jointly by each student and his tutor.

Admission Requirements

For admission to this Program, the applicant must first meet the entrance requirements of the Graduate Division of the University (Bachelor's Degree, grade average if B or better, and so on). The School of Architecture and Urban Planning requires that the applicant submit the material outlined in the Departmental Application Form. Particular emphasis is placed on the Statement of Purpose, letters of recommendation, and evidence of creative or analytic ability in either graphic, written or mathematical form.

Good command of spoken and written English is absolutely essential and no foreign student will be allowed to attend classes until he passes the Graduate Division's English fluency exam and completes any required remedial courses. Additional information about the program may be obtained by writing directly to the Graduate Adviser of the Architecture and Urban Design Program.

Degree Requirements

1. The student is expected to be six quarters of two years in full-time residence.
2. A total of 64 units of satisfactorily completed graduate or upper division work is required for graduation, 36 units of which must be taken within the School of Architecture and Urban Planning.
3. In addition to courses 401, 402, 496 and 497, a maximum of three other courses in the Professional (400) series may be taken toward the degree.
4. The University of California minimum requirements for the Master of Arts degree must be completed.
5. A thesis is required.

THE URBAN PLANNING PROGRAM

The Urban Planning Program in the School of Architecture and Urban Planning offers a curriculum leading both to the Master of Arts and the Ph.D. degrees. The normal route of study requires two years of course work for the Masters. The Ph.D. program generally requires at least two years of study beyond the M.A. and prior to beginning dissertation research. This allows a student to pursue his planning studies in greater depth and to acquire a higher degree of competence in the relevant skills than is possible in the two years at the Master's level.

The curriculum is organized so that a student may obtain at the Master's level not only a theoretical and practical understanding of urban and planning processes, but also acquire a working knowledge of advanced analytical techniques for planning, capabilities for carrying out evaluations of complex urban phenomena, and critical interactive and learning skills.

An important aspect of the student's education in the Urban Planning Program is the opportunity for organized field work and internships as well as for applied research. Opportunities for applied research vary from year to year. Current work includes, but is not limited to, research on social indicators for monitoring changes in metropolitan areas, comparative studies in urbanization and planning, environmental impact analysis, environmental evaluation, transportation for the elderly, and transfer of knowledge to Third World countries.

THE MASTER OF ARTS DEGREE (M.A.) PROGRAM IN URBAN PLANNING

Admission Requirements

Undergraduate preparation. The minimum requirement for admission is a baccalaureate degree from an accredited institution; a concentration in one of the social sciences, engineering, or economics is desirable, but not essential. Students who have background deficiencies in study areas such as mathematics, economics, or sociology, will be required to round out their knowledge by taking additional course work early in their residence. There is no foreign language requirement for the Master of Arts.

Students are expected to devote full time to their studies. It is recommended that students not plan to work more than 20 hours per week on outside jobs.

In terms of a formal curriculum at the Master's level, the student may elect one of five existing Areas of Policy Concentration (APC). The first, Urban-Regional Development Policy, concerns

planning for broad social and economic objectives of subnational development. This APC provides a framework for policies planning in housing, urban renewal, urban-regional economic growth, and urbanization in industrializing countries, among others. The second, Public Service Systems, is concerned with knowledge about the general system embracing services that are supplied publicly or semi-publicly, the specific sectors or services comprising this system, and analytical techniques for planning and evaluating the delivery of public services such as transportation, education, housing, health and recreation. The third, Environmental Planning and Management, deals with the quality of the physical environment in rural and urban areas. The major areas of concern here are land use planning, environmental impact studies, and residuals management. The fourth area, Social Development Policy, is concerned with policy aspects of human development, community-neighborhood development, community organization and collective action, and the development of tools and methods for social planning. The fifth area, Urban Design, is concerned with the unique contribution that the theories, methods, and techniques evolving within urban planning can make to the field of urban design. In general, it represents a blending of the fields of urban planning and architecture. The Sixth APC: In addition to the preceeding structured APC's, students may devise their own in consultation with appropriate faculty members.

Complementing their work in an Area of Policy Concentration, students elect courses from the Core curriculum. Core courses are distinguished from those in the Area of Policy Concentration in that their subject matter cuts across different specializations. Work is offered in five areas of core specialization: Professional Development, Planning Theory, Quantitative Planning Methods, Methods of Evaluation and Public Choice, and Methods of Implementation.

Specifically, the student must take 18 courses (72 units) of graduate and upper division work, of which at least 13 courses (52 units) will be graduate courses. Students may petition, however, to transfer up to 24 units of course work completed while on graduate status from another University of California campus, provided that these were not formerly applied to another degree, and up to 8 units from other schools.

To fulfill the requirements of both the Graduate Division and the Urban Planning Program for the Master's Degree, students may submit either a thesis (Plan I) or take a comprehensive examination (Plan II). Students choosing Plan I are expected to submit a research paper of publishable quality not to exceed in length the usual article for professional-scientific journals (up to 10,000 words).

The Ph.D. Degree

The Ph.D. in Urban Planning requires at least two additional years beyond the Master's level prior to beginning dissertation research. The minimum requirement for admission is a Master's degree in planning or a closely related field, and a 3.5 grade point average in all graduate work completed. Students applying to the doctoral program without a Master's degree will automatically be considered for the Master's program. Subsequent admission to the Ph.D. program depends on formal application and successful review of the student's work during the second year. Ph.D. students are required to pass a written qualifying examination in the core areas of Planning Theory and Quantitative Planning Methods. In addition, the student must also pass a written and oral exam in his major field (APC) and complete a minor field requirement. After the student has successfully completed the examinations, he sits for an oral candidacy examination covering the prospectus of his dissertation. After passing this examination which is administered by the student's Doctoral Committee, the student is eligible for advancement to candidacy and may begin work on his dissertation.

THE CONCURRENT JD/MA DEGREE PROGRAM

The concurrent program was established to enable interested students to receive a JD degree from the School of Law and an MA degree in planning at the completion of four years. Students interested in this program must first apply and be admitted to the Law School. During the first year of study, students apply to the Urban Planning Program to begin formal Master's studies, and hence the concurrent degree program, during their second year. Admission is based upon several factors including the completion of the first year in Law School with a "B" average. The student's first year is spent full-time in Law School. The second and third years of study are a mixture of planning and law courses; the fourth year is spent full-time in the Planning Program.

Persons interested in more detailed information regarding any of the above planning programs should contact the Graduate Counselor.

SCHOOL OF DENTISTRY

The UCLA School of Dentistry occupies facilities in the Center for the Health Sciences. It enrolls classes of 106 students each year in a four-year course of study leading to the degree of Doctor of Dental Surgery. Students undertake a comprehensive program in the biological and technological sciences to foster the highest standards of clinical competence in the practice of dentistry. Opportunities exist for outstanding students to graduate early or to complete their requirements for graduation in less than four years.

Predental Requirements

Modern dentistry provides exciting opportunities for blending art and science, technology and biology. The predental student will therefore wish to test his abilities in handling both biological and physical sciences. In addition, there are many other aspects in the broadening scope of dentistry which contribute to preparation for a career in private practice, in academic dentistry, and in the Armed Forces and Public Health Service.

It is desirable, however, for the predental student to prepare himself for broad professional activities. He should take advantage of the opportunity at the college level to extend his cultural background, his knowledge of languages and the behavioral sciences. Many predental students now avail themselves of advanced educational opportunities so as to qualify for admission to graduate divisions, in which case the student may find it important to have completed more than two years of college work prior to admission to a school of dentistry.

The basic educational requirement for admission to the School of Dentistry is a minimum of three years of college work (90 semester or 135 quarter units including the courses listed under the College of Letters and Science in this bulletin).

APTITUDE TEST

The School requires satisfactory performance on the American Dental Association Aptitude Test given by the Council on Dental Education of the American Dental Association.

The Aptitude Test is given in October, January and April and all applicants are required to take this examination no later than October of the calendar year prior to the one for which they are

applying. In order to avoid delay of application processing, it is advisable that the student take this examination during (or prior to) the April testing period.

When taking this test, the candidate should specify the schools where applications are to be filed so that the test results may be mailed directly to the appropriate schools.

APPLICATION PROCEDURE

UCLA participates in the American Association of Dental Schools Application Service (AADSAS). Application materials are available April 15-October 15 and may be obtained from:

AADSAS
P.O. Box 1003
Iowa City, Iowa 52240

Completed applications for UCLA are accepted by AADSAS no later than October 15 of the year prior to that in which the student wishes to enroll. At the time of application, a check for $20.00 payable to The Regents of the University of California should be forwarded to:

Office of Student Affairs and Admissions
UCLA School of Dentistry
Los Angeles, California 90024

Interviews are not generally used in assessing the suitability of an applicant to the UCLA School of Dentistry; however, the Committee on Admissions, in certain circumstances, may request interviews with individual applicants. Letters of recommendation are not required by this school, but will be considered if submitted. Applicants wishing to submit additional information not covered in the application form, which may be helpful, may do so in a letter to the Committee on Admissions in no more than two typewritten (double spaced) pages.

Notice of acceptance, rejection or alternate status will be sent to the applicant following completion of the formal evaluation by the Admissions Committee, beginning December 1 of any given year. Notification of rejection does not necessarily imply similar Committee action on subsequent applications.

An applicant receiving a letter of acceptance to the School of Dentistry must submit a deposit of $50.00 (applicable to registration fees) within 30 days, unless otherwise indicated, in order to reserve a place in the class. This deposit is refundable for a period of six weeks following acceptance upon written notice to the Admissions Committee that the student wishes to withdraw his application. After this time period, the deposit is refundable only if the candidate's acceptance is rescinded by the School of Dentistry.

Individual Programs of Study in the Dental Curriculum

Special programs of study for individual students may be arranged within the framework of the dental school curriculum. Normally these programs are available only after the student has completed the first year and with the approval of the Dean's Office and the chairman of the department responsible for the additional course work. Every effort is made to maintain flexibility within the dental school curriculum, although extensive changes in the course of study can be arranged for only a limited number of students.

Graduate work leading to the M.S. degree is offered, either separately or in conjunction with the D.D.S. program, in oral biology. See the departmental announcement elsewhere in this catalog for further information.

GRADUATE SCHOOL OF EDUCATION

The Graduate School of Education consists of one department, the Department of Education. The School is administered by the Dean, an Associate Dean, an Assistant Dean for Business Affairs and Internal Management, an Assistant Dean for Programs, an Assistant Dean for Research, and an Assistant Dean for Student Affairs.

The Department of Education is administered by a Chairman and a Vice Chairman.

Graduate Degree Programs

The following graduate degree programs are offered for the development of leadership in education: The Master of Education, the Master of Arts, the Doctor of Education, and the Doctor of Philosophy, as well as a joint Doctor of Philosophy degree program in Special Education with California State University at Los Angeles.

THE MASTER OF EDUCATION DEGREE (M.ED.)

The Master of Education program is a professional master's degree program providing preparation for mid-level professional positions in schooling or for advanced professional study. Emphases include practice, applied studies, and knowledge related to professional skills. Persons with above-average capabilities, with long-term commitment to the profession, and who are high in initiative and self-direction are sought. The Master of Education Degree is the appropriate degree to provide professional foundation study for students selecting the Doctor of Education program for advanced graduate study.

Qualification for the degree requires fulfillment of a minimum of 36 units from upper-division and graduate courses (in the 200/400 series) completed in graduate status. At least 20 of the required 36 units must be taken in professional (400 series) Education courses. The specialization fields available to students in the Master of Education degree program are indicated below:

1. The specialization in Teacher Education is designed to prepare competent, highly trained career teachers. Basic professional study is combined with specialization study in an elected field of interest. In addition to six specified and required Education courses, the student must elect at least three courses from one of the several fields designated as appropriate for subspecialization study.

2. The specialization in the Teaching of Reading is directed to the development of requisite skills and abilities as well as to the dissemination of knowledge regarding the latest techniques and materials in the reading field. Basic professional study is combined with subspecialization study in an elected field of interest. In addition to seven specified and required Education courses, the student must complete at least three courses from a designated list of electives.

3. The specialization in Comprehensive Curriculum is designed to prepare individuals as specialists in curriculum, instruction, and evaluation. Basic professional preparation is combined with subspecialization study in an elected field of interest. In addition to four specified and required Education courses, the student must complete five courses designated as appropriate for the selected subspecialization (curriculum, instruction or evaluation).

4. The specialization in Urban Educational Policy and Planning is designed to prepare competent, highly trained educational professionals for careers as urban administrative leaders. Basic professional study is combined with intensive internship experience.

In addition to five required Education courses, two specified research methodology courses and two quarters of directed field experience must be completed.

Final examinations for the Master of Education Degree include a comprehensive written examination and a performance examination; no thesis plan is offered. A maximum of seven quarters is permitted for completion of the degree.

THE MASTER OF ARTS DEGREE (M.A.)

The Master of Arts program is an academic master's degree program providing preparation for advanced graduate study or for careers in basic research. Emphases include theory, research methodology, basic studies, and in-depth knowledge in a selected major area of education. The Master of Arts Degree is the appropriate Education master's degree for students planning to pursue the Doctor of Philosophy Degree in advanced graduate study; the Master of Arts Degree in conjunction with specified supplementary requirements may serve as prerequisite to study in the Doctor of Education degree program.

In completion of degree requirements, the student selects one of three major areas of education, and further selects a field of study within the major area for some specialized preparation and for possible thesis research. The major areas and participating specialization fields are shown below:

Area I: Social and Psychological Studies in Education
- (a) Philosophy of Education
- (b) Sociology and Anthropology of Education

Area II: Psychological Studies in Education
- (a) Counseling
- (b) Early Childhood Development
- (c) Learning and Instruction
- (d) Research Methods and Evaluation
- (e) Special Education

Area III: Organizational and Administrative Studies in Education
- (a) Business-Economic Education
- (b) Higher Education
- (c) Vocational-Technical Education

Qualification for the Master of Arts Degree in Education requires fulfillment of nine upper-division and graduate courses (36 quarter units) completed in graduate status, of which at least six courses (24 quarter units) must be graduate courses in the 200/500 series in Education; no more than two courses (8 quarter units) may be in the 500 series.

To meet the methodology requirement, two courses must be selected from the following Education courses: 200A, 200B, 210A, 210B.

The student may complete requirements for the Master of Arts Degree in Education by submitting a satisfactory thesis or by passing a comprehensive examination. A maximum of seven quarters is permitted for completion of the degree.

THE DOCTOR OF EDUCATION DEGREE (ED.D.)

The Doctor of Education program is a professional doctoral degree program preparing students for careers of leadership and applied research in the schools and community educational programs. Emphases include practice, applied studies, and knowledge related to professional skills.

In completion of degree requirements, the student selects one of two major areas of education, and further selects an educational specialization within the major area as a base for his professional study and for his dissertation research. The major areas and participating specialization fields are shown below:

Area I: Social and Philosophical Studies in Education
(No participating specialization fields.)

Area II: Psychological Studies in Education
- (a) Early Childhood Development
- (b) Learning and Instruction
- (c) Special Education

Area III: Organizational and Administrative Studies in Education
- (a) Administrative Studies in Education
- (b) Business-Economic Education
- (c) Comprehensive Curriculum
- (d) Higher Education
- (e) Urban Educational Policy and Planning
- (f) Vocational-Technical Education

Although there is no specific unit requirement, the Doctor of Education student will be expected to complete such course work as his Guidance Committee may specify in preparation for qualifying examinations. Course work must include a minimum of three courses outside of the selected field of specialization which have been approved for breadth study, and a minimum of four courses beyond the baccalaureate degree in research methods or formal processes of inquiry and the application of research findings to the practice of education; in addition, the student must complete a field experience minimally approximating a one-course requirement.

Qualifying examinations include written examinations on major area and breadth study, a professional competency performance examination, and an oral examination employing topics from education related to the student's research proposal.

A dissertation embodying the results of independent investigation is required of every candidate. A maximum of 20 quarters is permitted for completion of the degree.

THE DOCTOR OF PHILOSOPHY DEGREE (PH.D)

The Doctor of Philosophy program is an academic doctoral degree program preparing students for careers in basic research or college-level instruction. Emphases include theory, research methodology, basic studies, and in-depth knowledge in education and an approved cognate field.

In completion of degree requirements, the student selects one of three major areas of education, and further selects an educational specialization within the major area for some specialized preparation and for dissertation research. The major areas and participating specialization fields are shown below:

Area I: Social and Philosophical Studies in Education
- (a) Comparative and International Education
- (b) Philosophy and History of Education
- (c) Sociology and Anthropology of Education

Area II: Psychological Studies in Education
- (a) Counseling
- (b) Early Childhood Development
- (c) Learning and Instruction
- (d) Research Methods and Evaluation
- (e) Special Education

Area III: Organizational and Administrative Studies in Education
(a) Administrative Studies in Education
(b) Higher Education
(c) The Study of Elementary and Secondary School Programs

Although there is no specific unit requirement, the Doctor of Philosophy student will be expected to complete such course work as his Guidance Committee may specify in preparation for qualifying examinations. Course work must include a minimum of three courses outside of the selected field of specialization which have been approved for breadth study, and a minimum of four courses beyond the baccalaureate degree in research methods or formal processes of inquiry; in addition, the student must complete a research internship minimally approximating a one-course requirement.

Qualifying examinations include written examinations on major area and breadth study, an appropriate examination in an approved cognate field given by the cognate department, and an oral examination employing topics from both education and the cognate discipline which are related to the student's research proposal.

In addition, the student is required to pass an appropriate examination, administered by the Graduate Division, which will test his ability to read and understand the written form of one foreign language acceptable to the Graduate School of Education and to the Dean of the Graduate Division.

A dissertation embodying the results of independent investigation is required of every candidate. A maximum of 20 quarters is permitted for completion of the degree.

JOINT DOCTOR OF PHILOSOPHY DEGREE(SPECIAL EDUCATION)

Students seeking information regarding emphases and requirements of the joint Ph.D. degree program should consult the Head of the Special Education field at UCLA, 122 Moore Hall, or the Chairman of the Department of Special Education, California State University at Los Angeles.

FIELDS OF SPECIALIZATION

(NOTE: Not all specialization fields participate in all Education degree programs; see foregoing information on specific degree program requirements.)

More detailed information regarding fields of specialization may be secured by contacting the Office of Student Services in the Graduate School of Education or by consulting the UCLA ANNOUNCEMENT OF THE GRADUATE SCHOOL OF EDUCATION.

Graduate Study Admission Requirements

General qualifications for admission to a program of graduate study leading to an advanced degree in Education are:

1. The currently specified University requirements for admission to the Graduate Division.
2. An earned grade-point average of at least 3.0 (based upon upper-division undergraduate and graduate work).
3. A minimum total score of 1000 on the combined quantitative and verbal sections of the Graduate Record Examination. (The Miller Analogies and Doppelt Mathematical Reasoning Test may be substituted for the Graduate Record Examination; minimum scores are 48 and 19 respectively.)

Information regarding additional specific admissions requirements applicable to respective degree programs as well as that pertaining to admissions criteria for students from markedly different social-cultural backgrounds may be obtained from the Office of Student Services, Moore Hall 201.

A student seeking admission to a program of graduate study in the Graduate School of Education must file formal applications with both the Graduate School of Education and the Graduate Admissions Office indicating his professional interest. He must also submit the results on the Aptitude Test of the Graduate Record Examination and an official transcript of his record *in duplicate* from each college and university he has attended. Requests for application forms may be made directly to the Office of Student Services of the Graduate School of Education, Moore Hall, University of California, Los Angeles. The last day to submit advanced degree program applications for each quarter of the 1976-77 academic year is indicated in the Calendar section of this Catalog.

The Dean of the Graduate Division may deny admission if the record of scholarship is not sufficiently distinguished, or if the undergraduate program has not been of such character as to furnish an adequate foundation for advanced academic study. Applications for advanced study in education are referred by the Dean of the Graduate Division to the Graduate School of Education for recommendation before admission is approved.

Transfer of Credit

By petition, courses completed in graduate status on other University of California campuses may apply to master's programs at UCLA. If approved, such courses may fulfill up to one-half the total course requirement, one-half the graduate course requirement, and one-third the academic residence requirement.

Also by petition, with the approval of the Department and the Dean of the Graduate Division, courses completed with a minimum grade of B in graduate status at institutions other than the University of California may apply to UCLA master's programs. A maximum of two such courses (the equivalent of eight quarter-units or five semester-units) may apply, but these courses may not be used to fulfill either the graduate-course requirement or the academic-residence requirement. No transfer credit is allowed for either the Ed.D. or Ph.D. degree.

Credit for University Extension Courses

University Extension courses (100 series) taken *before* July 1, 1969 (identified with an asterisk in the University Extension bulletin of the appropriate year) may apply on approval by the Department and Dean of the Graduate Division. No more than two such courses (8 units) may apply, and they must have been completed after the student received his bachelor's degree.

Courses in University Extension taken *after* July 1, 1969 may not apply to the University minimum of nine courses required for master's degrees, with the following exception. By petition to the Dean of the Graduate Division and with the recommendation of the major department, a maximum of two concurrent courses (100, 200, or 400 series) completed through the University Extension (with a grade of B or better, after the student has received his bachelor's degree) may be counted toward the nine-course University minimum requirement and toward the graduate-course requirement for the master's degree. However, the program for the master's degree shall include at least two graduate courses in the 200 or 400 series completed after admission to regular graduate status.

Grades earned in University Extension are not included in computing grade averages for graduate students nor for the removal of graduate scholarship deficiencies. Correspondence courses are not applicable to graduate degrees.

Petitions for acceptance of credit for courses taken in University Extension are to be submitted to the Office of Student Services in the Graduate School of Education.

Continuous Registration

All graduate students are required to register for three quarters every year until completion of all requirements for the degrees for which they are working, unless they are granted a formal leave of absence. Enrollment in either Summer Session does not constitute a substitution for the requirement of continuous registration. Failure to register or to take a leave of absence will constitute presumptive evidence that the student has withdrawn from the University.

Standard of Scholarship

UCLA requires at least a B average in all courses taken in graduate status on any campus of the University of California and in all courses applied toward advanced degrees. This standard applies to all graduate students, including candidates in graduate level certificate programs.

Credit by Examination

Graduate students in good standing may petition to the appropriate instructors, the Department, and the Dean of the Graduate Division for permission to take courses for credit by examination, up to a maximum of three courses. To be eligible for this privilege, a student must be registered in graduate status at the time of the examination. Credit earned by examination may be applied toward the minimum course requirements for master's degrees, but it cannot apply to academic residence requirements for master's and doctoral degrees.

Teacher Education Laboratory

The Teacher Education Laboratory offers courses of study leading to teaching credentials and to the Master of Education Degree. The Laboratory's purpose is to advance knowledge and understanding in the field of teacher education through the development of carefully designed experimental programs for the preparation of new and experienced classroom teachers.

The teaching credential program prepares candidates for initial employment as classroom teachers. Students may enroll in team programs representing different philosophical and psychological approaches to teaching and learning, and remain a part of their selected team for the entire period of training.

The Master's degree programs are designed for teachers with two or more years of classroom experience. The M.Ed. with specialization in Teacher Education is aimed at the improvement of the teacher's decision-making proficiency in curriculum, instruction, evaluation, and in a subject-matter field. The M.Ed. with specialization in the Teaching of Reading is designed to develop high levels of competence in reading instruction, curricula, and evaluation; upon completion of the program, the candidate qualifies for both the M.Ed. Degree and the Specialist Credential in Reading.

TEACHING CREDENTIALS ADMISSIONS REQUIREMENTS

Admission to the approved program leading to a teaching credential is by application, only; application forms may be secured from the Office of Student Services, Moore Hall 201. The last day to submit applications for the academic year 1977-1978 is February 15, 1977. Early application is recommended.

All applications are reviewed by the Committee on Teacher Admissions, Credentials, and Standards, and consideration is given to qualifications as a whole including:

1. Grade-point average.
2. Probability of employment, as determined by the applicant's background, experience or personal qualities.
3. Skill in teaching as determined by the applicant's previous experience.

Students qualifying for admission for a fifth year of professional preparation in the Graduate School of Education must meet the general admissions requirements of the Graduate Division of the University and must have an earned grade-point average of at least 3.0 (based upon upper division undergraduate and graduate work).

PHYSICAL AND MENTAL HEALTH

Prior to entering a credential program, the student must secure clearance from the UCLA Student Health Service indicating that his health is such that he cannot endanger the health of others, and can perform the duties normally expected of teachers on the academic level he plans to teach. Those students admitted to the program will receive special directions regarding health clearance.

PERSONAL FITNESS

An individual with a criminal record, or one incapable of normal personal-social relationships, is barred by law from teaching in California. If a student's history is such that there is doubt on this matter, he should consult a counselor in the Office of Student Services.

The credential application for any teaching credential candidate who has a record of arrest which resulted in a conviction or a plea of nolo contendere may be delayed because of investigation of this record by the State Committee of Credentials. It is possible that such an arrest record will constitute grounds for denial of a teaching credential.

UNIT REQUIREMENTS

The approved professional program leading to a teaching credential consists of 16 quarter units (four specified courses) plus student teaching. Information regarding required academic courses may be obtained from the Office of Student Services.

CERTIFICATION OF REQUIREMENTS

A Certificate of Completion is awarded the student upon fulfillment of requirements; this certificate constitutes UCLA's recommendation to the State for the awarding of a teaching credential.

Enrollment in Summer Session Courses

Students who wish to enroll in Summer Session courses and apply them to requirements for graduate degrees or credential certification should consult the Graduate Adviser in the Office of Student Services. This is true also for students readmitted to graduate status who wish to resume their study in the Summer Sessions.

Enrollment of prospective graduate students in Summer Session courses does not constitute admission to graduate status in the University, which is possible only through application for graduate admission during the regular academic year.

Graduate Record Examination

The Aptitude Test of the Graduate Record Examination or the equivalent is required prior to admission to graduate status for all degree and advanced credential candidates.

Arrangements for taking the Graduate Record Examination may be made by contacting the Educational Testing Service at Box 955, Princeton, New Jersey, 08540 or 1947 Center Street, Berkeley, California 94704.

The results of this examination should be sent to the Office of Student Services, Graduate School of Education, University of California, Los Angeles, California 90024.

Office of Student Services

The Office of Student Services, Moore Hall 201, helps prospective students in Education explore and choose appropriate fields and levels of school service; advises them concerning courses and procedures to follow in qualifying for graduate degrees, credentials, and certification for public school service; and counsels them on professional matters.

In addition, the Office serves as a selection agency to determine eligibility for professional programs under the supervision of the Teacher Education Laboratory, offers interpretation of test results, handles details of enrollment in classes, refers graduate-program candidates to appropriate faculty advisers; makes recommendations for scholarships and fellowships; conducts research on student and professional problems; and formulates periodic reports on student personnel.

The staff consists of a Head who coordinates the work of the Office, a Graduate Adviser who handles advising of all candidates for graduate degrees, and counselors who advise candidates for credentials.

It is important that each student establish contact with the Office of Student Services so that he may determine his eligibility for the program he wishes to enter, receive assistance in the selection of courses, and fulfill all requirements for admission. Enrollment for a second quarter is contingent upon his having completed all necessary steps satisfactorily during the first quarter.

The Neuropsychiatric Institute School

The Neuropsychiatric Institute (NPI) School is a demonstration facility for the Graduate School of Education, offering observation, classroom participation, and graduate research opportunities for students in the specialization field of Special Education. The School is comprised of nine classrooms on the seventh floor of the Neuropsychiatric Institute in the UCLA Center for Health Sciences.

The NPI School provides schooling for some 60-80 emotionally disturbed and mentally retarded children and adolescents hospitalized on the inpatient wards of the UCLA Mental Retardation and Child Psychiatry Program. The staff includes a special education director in charge of research, training, and educational services, an academic administrator, and four demonstration teachers who direct their respective staffs of teachers and teaching assistants at the early childhood, elementary, and secondary levels. There is, in addition, an outpatient educational consultation team. The staff further participates in the research and teaching activities of the UCLA Department of Psychiatry.

University Elementary School

The University Elementary School serves as a center for research, inquiry, and experimentation in education as well as providing a research laboratory for more than twenty other departments in the University. Thousands of visitors from all parts of the world visit the University Elementary School every year. Demonstrations are planned for these visitors as well as university classes in education, psychology, pediatrics, psychiatry, art, music, kinesiology, and many other departments on request. Closed-circuit television provides classroom and other specialized demonstrations for University students at many points on campus. Opportunities for internship are available to a limited number of teachers and education students.

The staff of the School includes a director, principal, master teachers, teachers temporarily assigned from public school districts, teachers engaged in residency training, and students learning to teach. Some are generalists, others specialize in a subject field. Auxiliary personnel include a nurse, social worker, and consultants from medicine, psychology and psychiatry.

A heterogeneous population representing all children from three to twelve years old who are eligible for public education are educated in this nongraded school in team-taught classrooms. Each student is individually diagnosed and his educational program is custom tailored to his needs.

The School plant is designed to utilize fully a beautiful setting combining indoor and outdoor work areas. With minimum architectural change, it has been adapted to house an innovative educational program. The plant includes 17 classrooms, a community hall, art studio, children's library, conference rooms, film and observation room, office facilities, and a playground designed to facilitate an innovative instructional program in movement.

The Center for the Study of Evaluation

The Center for the Study of Evaluation (CSE) was established in 1966 by the Federal Government to improve the way in which educational programs are evaluated. Under the sponsorship of the National Institute of Education, CSE conducts basic research and develops products for use in school systems. Actual evaluation studies and training programs are also conducted under contracts with various UCLA departments and with state and federal agencies.

A limited number of research assistantships are available to qualified graduate students. The positions provide experience in the areas of psychometrics, research design, product development, programming and evaluation. Students work and study in these areas under the direction of faculty members and a highly trained professional staff. Further information about the Center is in the ANNOUNCEMENT OF THE GRADUATE SCHOOL OF EDUCATION.

SCHOOL OF ENGINEERING AND APPLIED SCIENCE

The Bachelor's degree program is designed to give each student a thorough grounding in the fundamentals of engineering, in the applied sciences and applied mathematics, and an intelligent awareness of the humanities, economics, and social sciences, so that in the future he or she can move into any new technical area with confidence and ability. Engineering is such a broad field and pervades so many aspects of our society that no engineer can be equally familiar with every branch of applied technology. For this reason, the curriculum at the UCLA School of Engineering and Applied Science includes not only the core group of courses which emphasize enduring fundamentals common to all branches of engineering, but also includes a wide variety of additional course options to meet the individual interests and objectives of the student. Specialization is provided at the bachelor's degree level

through elective courses chosen in a major field, which, together with the core courses, provide the student with a base for more advanced study or for entering the professional field directly.

The Faculty of the School always strives for improvement in the undergraduate curriculum, which may be revised in the future. Students entering under the conditions of the current catalog will be permitted to conduct their programs in accordance with the provisions of the curriculum published herein, or, at their choice, to readjust their programs to follow such curr. la as may be developed prior to their graduation.

Instruction is offered in the following major areas: acoustical engineering, aerospace engineering, bioengineering, ceramic engineering, chemical engineering, civil engineering, computer science, control systems engineering, earthquake engineering, electrical and electronics engineering, engineering, environmental engineering, fluid mechanics, geotechnical engineering, information and communications theory, materials science, mechanical engineering, metallurgy, nuclear and plasma engineering, soil mechanics, solid mechanics, structural engineering, systems science, and water resources.

The graduate program may terminate with the Master of Science degree or may be extended to the Engineer/Doctor of Philosophy degree(s) for qualified students. Students who plan to continue to the Master's degree are referred to the section entitled "Graduate Study in Engineering".

Admission Requirements

Applicants for admission to the School of Engineering and Applied Science must satisfy the general admission requirements of the University as outlined in the section entitled "Admission to the University". In the future entrance to the school may be based on the results of a further examination of student grades and test scores.

THE FRESHMAN LEVEL

While many students will take their first two years in engineering at a community college, an applicant may qualify for admission to the School of Engineering and Applied Science in freshman standing. It is important for students expecting to enter the School to include the following subjects in the list of high school courses taken to satisfy the University admission requirements:

Algebra ..... 2 years
Plane geometry ..... 1 year
Trigonometry ..... ½ year
Chemistry or physics with laboratory (It is strongly recommended that both be taken.) ..... 1 year

Deficiencies in the above subjects will delay the normal course of study.

Applicants are encouraged to apply either at the freshman or junior levels. Students who begin their college work at a California community college are urged to remain at the community college to complete the lower division requirements in chemistry, mathematics, physics, and the recommended engineering courses before transferring to the University. Experience indicates that transfer students who have completed the recommended lower division program in engineering at California community colleges are able to complete the remaining requirements for the B.S. degree in six quarters (two academic years) of normal full-time study.

THE JUNIOR LEVEL

Applicants for admission to the School in junior standing should have completed 21 to 23 courses (84 to 92 quarter units) in good standing, including the following minimum subject requirements:

1. Two and one-fourth courses in chemistry, equivalent to UCLA's Chemistry 11A-11B-11BL; 2. six courses in mathematics, equivalent to UCLA's Mathematics 31A-31B-31C and 32A-32B-32C; 3. four courses in physics, equivalent to UCLA's Physics 8A-8D.

Students transferring to the School from institutions which offer instruction in engineering subjects in the first two years, in particular, California public junior colleges, will be given credit for certain of the degree requirements. (See the upper division segment.)

Students who wish to enter the school at the graduate level are referred to the Graduate Study in Engineering section of this bulletin and to the ANNOUNCEMENT OF THE GRADUATE DIVISION.

Requirements for the Degree of Bachelor of Science

The School of Engineering and Applied Science at UCLA awards the Bachelor of Science degree to students who have completed a program of four years of engineering studies in a variety of engineering disciplines.

The curricular requirements for the Bachelor of Science degree consist of the lower division and upper division segments (46¼ courses, 185 units), and the University requirements in scholarship, Subject A (English composition), American History and Institutions, and senior residence. At least a 2.0 grade point average must be achieved in all University courses of upper division level offered in satisfaction of the subject requirements and required electives of the curriculum. The University requirements are described under the section entitled "General Regulations". The lower division and upper division requirements are described below:

The Engineering and Applied Science Curriculum

Lower Division (23¼ Courses, 93 Units)

Freshman Year	Units First Quarter	Units Second Quarter	Units Third Quarter
Chemistry 11A-11B-11BL	4	5	-
Mathematics 31A-31B-31C	4	4	4
Physics 8A-8B	-	4	4
English 1A or 1B	4	-	-
Engineering 10§	-	-	4
Electives*	-	4	4
	12	17	16

*The lower division electives shall include the following: one course in the life sciences, three courses in the humanities-social sciences-fine arts area, and one free elective.

§The Computer Science Department offers a placement examination each quarter during registration week to permit students to demonstrate proficiency in the subject area of Engineering 10 based on outside work experience and/or courses completed elsewhere. Satisfactory performance on the placement examination will exempt students from the Engineering 10 subject requirement, and will allow them to select another course of their choice to satisfy the unit requirement.

Sophomore Year	Units First Quarter	Units Second Quarter	Units Third Quarter
Mathematics 32A-32B-32C‡	4	4	4
Physics 8C-8D	4	4	-
SEAS Core†	4	4	8
Electives*	4	4	4
	16	16	16

*The lower division electives shall include the following: one course in the life sciences, three courses in the humanities-social sciences-fine arts area, and one free elective.

†The SEAS core requirement consists of 8 courses (32 units) to be chosen from 5 subject areas. The core is described immediately following the Upper Division segment of the Curriculum. For courses to be taken in the sophomore year, students should consult their major field advisers.

‡Mathematics 32C may be taken before Mathematics 32A and 32B.

Upper Division (23 Courses, 92 Units)

Prerequisite for junior status: Satisfactory completion of the minimum subject requirements specified under admission to the School at the Junior level.

Junior Year	Units First Quarter	Units Second Quarter	Units Third Quarter
SEAS Core†	8	4	4
Mathematics Elective‡	4	-	-
Electives**	-	12	12
	12	16	16
Senior Year			
Electives**	16	16	16
	16	16	16

†The SEAS core requirement consists of 8 courses (32 units) selected from 5 subject areas subject to the unit restrictions indicated in the table below.

‡To be chosen from an approved list.

**The upper division elective courses shall include the following: 1. Four courses in the humanities-social sciences-fine arts area; 2. Two free electives; 3. Twelve major field electives. For specific requirements within the humanistic and major field areas please refer to the section entitled "Elective Courses."

SEAS Core (8 Courses, 32 Units)

The student is to select 8 core courses (32 units) from the 5 subject areas listed below. The minimum and maximum number of units allowed in each of the 5 subject areas is also given.

Subject Areas (5)	Courses (12)	Unit Range Min.	Max.
Electrical Sciences	Engineering 100. Electrical and Electronic Circuits. (4) Engineering 100B. Engineering Electromagnetics. (4)	4	8
Thermal and Materials Sciences	Engineering 14*. Science of Engineering Materials. (4) Engineering 105A. Engineering Thermodynamics. (4) Engineering 105D. Transport Phenomena. (4)	8	12
Mechanics	Engineering 102. Mechanics of Particles and Rigid Bodies. (4) Engineering 103A. Elementary Fluid Mechanics. (4) Engineering 108. Mechanics of Deformable Solids. (4)	8	12
Systems	Engineering 106B. Introduction to Design and Systems Methodology. (4) Engineering 121C. Systems and Signals. (4) Engineering 127B. Elements of Probability and Information. (4)	4	8
Computer Processes	Engineering 124A. Applied Numerical Computing. (4)	0	4

*Not open for credit to students who have had Engineering 107B.

Transfer Credit for Community College Transfer Students. A sophomore course in circuit analysis will satisfy the course Engineering 100.

A sophomore course in statics and strength of materials will satisfy the course Engineering 108.

A sophomore course in properties of materials will satisfy the course Engineering 14 (or 107B).

A course in digital computer programming, using a higher-level language such as Fortran IV or PL/1, will satisfy the requirement, Engineering 10.

Certain lower division technical courses such as surveying, engineering drawing, engineering measurements, and descriptive geometry will be given credit as free electives. (A maximum of three courses may be free electives.) A course in descriptive geometry or advanced engineering drawing will satisfy part of the design requirement.

Elective Courses. Engineering and Applied Science Curriculum for the Bachelor degree includes provision for 24 elective courses to be chosen within the following categories:

1. Free electives, 3 courses.

Any course yielding credit acceptable to the University of California may be selected.

2. Humanities, Social Sciences, and/or Fine Arts, 7 courses.

Of the seven, at least three courses must be upper division and at least three must be in the same academic department and must reflect coherence with respect to subject matter. Within the coherent group upper division courses should predominate.

In addition, the electives in category 2 shall include one course dealing primarily with engineering and science in society in the 100, 200, or 596 series.

Additional information regarding the humanities electives may be found under the Senior Year Planning Procedure below.

3. Life Science, 1 course.

4. Mathematics, 1 course (upper division).

To be chosen from an approved list.

5. Major Field, 12 courses (upper division).

The major field elective program shall be chosen so as to reflect coherence with respect to subject matter and to prepare the student for an area of specialization (including unified engineering programs). The twelve courses shall include (a) at least a one-course experience in design to be satisfied by parts of not more than two courses in the 100 or 200 series, (b) at least a two-course laboratory experience to be satisfied by two full laboratory courses or a full laboratory course and two courses which include laboratory, and (c) one course in economics chosen from an ap-

proved list of courses given in the Department of Economics (Letters and Science) and the Engineering Systems Department in the 100 series.

Lists of courses approved to satisfy the elective categories specified above are posted on the bulletin board in the Undergraduate Student Office, Boelter Hall 6426.

Senior Year Planning Procedure

1. *Choose the curriculum* under which you wish to graduate. You will normally use the curriculum in effect when you began full-time continuous study in Engineering at UCLA. Any student has the option of selecting the Catalog in effect at graduation. Community college transfers have the additional option of choosing the Catalog in effect at the time they began their community college work in an *engineering* program providing attendance has been continuous since that time.

2. Attend the Junior Conference conducted during the term by the School of Engineering and Applied Science for the purpose of helping you to plan your senior year. The Conference usually is held during the fourth week of the quarter. For time and place consult the Undergraduate Student Office, Boelter Hall 6426.

3. *Plan your electives.* Your regular faculty adviser is available to assist you in planning your electives and for discussions regarding your career objectives. Discuss your elective plan with your adviser and obtain your adviser's approval.

See any member or members of the faculty specially qualified in your major field for advice in working out a program of major field and humanities electives to prepare you for your professional objective. A list of faculty members and their specialties is posted on the Undergraduate Student Office bulletin board.

Whenever possible, students are assigned to advisers by major fields of interest. You may request a specific adviser or an adviser in a particular Engineering Department by submitting a Request for Change of Undergraduate Adviser form available in the Undergraduate Student Office.

Members of the Undergraduate Student Office staff are available to assist you with University procedures and to answer any questions which you may have in regard to general requirements.

4. *Special Notice Regarding Humanities Electives.* The primary objective of the humanities electives is to provide the student with an introductory but basic insight to the fundamental principles of human relationships and their social and aesthetic institutions. These principles form the underlying basis for engineering as a profession, defining as they do the origin of human needs. Since this objective must be met in a limited number of units it is essential that the courses be wisely chosen. A second objective is to develop an interest in the study of humanities so that by continued self-study postgraduation, education in this vital area will be expanded to meet the minimum needs of the practicing engineer 10 to 15 years later.

With few exceptions, courses intended primarily to develop specific skills should be avoided (e.g. dexterity in performance on a musical instrument, ability to manipulate people, grammatical and composition skills, etc.). An exception is effective when the particular "skill" course is prerequisite to another upper division course which is strictly in the humanities or social science (e.g. foreign language and literature courses taught in the language, etc.).

Of the seven courses, at least three (12 units) must be upper division courses. Students from California community colleges (only) may reduce this to two upper division courses (8 units) *provided* they are in the same field: however, *all* students, including California community college transfers must have a minimum total of 7 humanities courses.

To provide some depth, at least three courses (12 units) must be in the same academic department or must otherwise reflect coherence in respect to subject matter. In such a group, upper division courses should predominate.

A list of courses which are normally acceptable individually as humanities electives is available in the Undergraduate Student Office. However, this list is not all-inclusive and in particular cases other courses may be acceptable when taken in context with a complete elective selection.

Certain courses in the humanities departments (e.g., logic), although excellent courses, are not acceptable because either (1) the student's engineering, mathematics, and science courses have already provided an adequate background, or (2) they are not strictly humanities.

5. The Elective Selection form approved by the major field adviser must be filed in triplicate in the Undergraduate Student Office, Boelter Hall, Room 6426, during the last quarter of the junior year. The deadline for high juniors to submit their elective selections is announced each term in the Undergraduate Enrollment Instructions brochure, School of Engineering and Applied Science.

GENERAL INFORMATION

E.C.P.D. *Accreditation.* The Engineering Curriculum is accredited by the Engineers' Council for Professional Development, the nationally recognized accrediting body for engineering curricula.

Honors with the Bachelor's Degree. Students who have achieved scholastic distinction in upper division studies may be awarded the Bachelor's degree with the appropriate honors designation: *Cum Laude, Magna Cum Laude, or Summa Cum Laude.* Based on grades achieved in upper division courses, a student should have a 3.25 upper division grade point average to qualify for *Cum Laude,* a 3.60 for *Magna Cum Laude,* and a 3.80 for *Summa Cum Laude.* To be eligible for an award a student should have completed at least 80 units of upper division studies at the University of California.

Dean's Honor List. Students are eligible to be named to the Dean's list each term who have carried a minimum load of 16 units and have achieved 12 units of A, with additional units of B or Passed permissible, and no grades of C or lower.

Work-Study Program. Engineering and Applied Science education emphasizes the theoretical and scientific basis for professional practice, but the practice of engineering requires sound judgment which is acquired only from experience. Engineers must understand the means by which their work is translated into useful and efficient machines, structures, circuits and processes, and must be able to predict the costs involved. The productivity of labor, the depreciation and obsolescence of machinery, the effect of volume of production on unit costs, and many other factors are more clearly understood by observation than by precept.

The Work-Study Program is a plan wherein students combine periods of regular employment in private industry or government activities (federal, state, county, or city) with alternate periods of study. The work experience becomes a regular, continuing and essential part of their professional education.

Ideally, the Work-Study Plan is designed to work as follows: Students entering the plan must have completed their freshman year. During their sophomore and junior years they will complete three (3) work periods of six (6) months each, alternating with

three (3) study periods of six (6) months each, so that their total work experience will amount to a period of eighteen (18) months. Their entire senior year will be spent in study, so that the plan requires an extra year, or five (5) years instead of the normal four (4) to graduate. Variations of the standard plan may be made to accommodate students entering the plan at later stages than the sophomore year, or who may wish to vary the length of the work or study periods. Such deviations from the standard plan will be made by agreement involving the School of Engineering and Applied Science, the employer and the student.

The plan involves no academic credit for work periods, but students in work periods are encouraged to take such courses as they may be able to arrange, particularly in the Continuing Education Program.

The plan is elective with students and is under the supervision of the Assistant Dean for Undergraduate Studies. Information may be obtained and application for the plan may be made in the Undergraduate Student Office, 6426 Boelter Hall.

Advising. It is mandatory for all students entering the undergraduate program to have their courses of study approved by an Engineering Department adviser. After the first quarter, curricular and career advising may be accomplished on an informal basis. Students with junior standing will be assigned to an adviser by major field of interest whenever possible, and must have their elective course programs approved by the end of the junior year.

Transfer from a Technical Institute. Students who wish to transfer to the School of Engineering and Applied Science from a technical institute or junior college technical education program will be expected to meet the University requirements for admission. Upon consultation with a faculty counselor, they will be placed in courses at a level deemed appropriate. After they have established a satisfactory University record, the School may recommend transfer credit for their previous work to the extent it has been found to have served as preparation for the University work undertaken.

Passed/Not Passed. Engineering undergraduate students may take one course per quarter on a Passed/Not Passed basis if the following conditions are met:

1. The student is in good standing, i.e., not on probation.
2. The student is enrolled in at least 3½ courses for the quarter including the courses taken on a Passed/Not Passed basis.
3. Courses listed in the Engineering and Applied Science Curriculum as required courses cannot be taken on a Passed/Not Passed basis. These courses include the chemistry, mathematics, physics and English courses; Engineering 10 and the SEAS core.
4. In the major field, not more than two courses (8 units) can be taken on a Passed/Not Passed basis.

Evening Information Center. The School of Engineering and Applied Science maintains in Boelter Hall an Evening Information Center (Room 6266) which is open from 5 to 7 p.m. Monday through Thursday throughout the year except for the month of August, and during Christmas and New Year's weeks.

Library Facilities. A branch of the campus library is housed within the complex of engineering buildings. Known as the Engineering-Mathematical Sciences Library, it serves the departments of Engineering, Mathematics, Astronomy, and Meteorology. Open stacks encourage students to explore and use specialized literature.

Student Activities. The abundance and variety of extracurricular activities at UCLA provide many opportunities for valuable experiences in leadership, service, recreation, and personal satisfaction. The Faculty of the School strongly encourages students to participate in such activities, especially those of most relevance to engineering. Among the latter are the student engineering societies such as the Engineering Society, University of California and the Engineering Graduate Student Association; the student publications, and the student-oriented programs of the many technical and professional engineering societies in the Los Angeles area. The UCLA chapter of *Tau Beta Pi,* the national engineering honor society, encourages high scholarship, provides volunteer tutors, and offers many services and programs "to foster a spirit of liberal culture in engineering colleges."

The student body takes an active part in shaping policies of the School through elected student representatives, one for each of the faculty's three major policy committees.

Women in Engineering. Women make up more than nine percent of the undergraduate and graduate enrollment in the School of Engineering and Applied Science. Today's opportunities for women in engineering are excellent, as both employers and educators try to change the image of engineering as a "males only" field. Women engineers are in great demand in all fields of engineering.

The Society of Women Engineers (SWE), recognizing that women in engineering are still a minority, has established a UCLA student chapter to provide for their special needs and interests. This student section of SWE sponsors field trips and engineering-related speakers (often professional women) to provide an introduction to the various options available to women engineers. The UCLA section of SWE, in conjunction with other Los Angeles area schools, also publishes an annual resume book to aid women students in finding jobs.

Graduate Study in Engineering

The School of Engineering and Applied Science offers graduate study and research in many areas of engineering leading to the following degrees: the M.S. in Engineering; the M.S. in Computer Science; the professional degree, M.Engr. (Master of Engineering); the Engineer Degree; and the research degrees, Ph.D. in Engineering, Ph.D. in Computer Science. Additionally the school offers a 'certificate' program on successful completion of which a student will be able to receive a Graduate Certificate of Specialization in one of the fields of Engineering and Applied Science. Graduate students are not required to limit their studies to a particular department and are encouraged to consider related offerings of departments outside the School. Some of the research activities carried out in the departments are part of the advanced instructional program in the School and offer students the opportunity to obtain professional experience and partial financial support. The School is comprised of the following departments which serve as centers of activity.

COMPUTER SCIENCE

Chairman, W. J. Karplus, 3732B, Boelter Hall, telephone 825-2929 or 825-2778.

The School of Engineering and Applied Science, through its Computer Science Department, offers M.S. and Ph.D. degrees in Computer Science as well as major and minor fields for graduate students seeking Engineering degrees. The program includes five basic areas:

Theory. Theoretical models in computer science; automata theory; formal grammars; computability and decidability.

Methodology. Simulation; on-line computation; information storage and retrieval; file management; numerical analysis; optimization; analog and hybrid computers; pattern recognition.

System Architecture. Computer system architecture; digital systems; logic design; memory, arithmetic, control, data transmission and input-output systems design; computer graphics.

Programming Languages and Systems. General and special purpose programming languages; compilers; system programming; syntax, semantics and pragmatics of programming languages.

Computer System Modeling and Analysis. Mathematical modeling, analysis and optimization of computer systems; timesharing systems models; computer scheduling and resource allocation; memory management; data communications; computer-communication networks; performance evaluation (analysis, simulation, measurement).

ELECTRICAL SCIENCES AND ENGINEERING

Chairman, G. C. Temes, 7732B Boelter Hall, telephone: 825-1702.

The courses and research in this department cover five specialty areas:

Applied Plasma Physics. The practical aspects of plasma physics, including plasma production, confinement, and heating; suppression of instabilities; generation, propagation, and interaction of electromagnetic and plasma waves.

Electromagnetics. Study of the interaction of electromagnetic waves with complex media; antennas and microwave components; scattering and diffraction theory; moving media; modern optics; electromagnetic and acoustic wave interaction; magnetic and dielectric properties of matter.

Electric and Electronic Circuits. Analysis and synthesis of active, passive, digital and distributed circuits; computer-aided circuit design and optimization; investigation of electronic circuits using solid state and quantum electronic devices; study and application of electronic signal processing circuits and systems.

Solid State Electronics. Electric, magnetic, conductive and semiconducting properties of matter and the application of these to the investigation of solid state devices. Semiconductor physics, surface studies, device physics and technology, and integrated circuits.

Quantum Electronics. High-powered lasers, high gain media, optical resonator design, laser dynamics, nonlinear optics, and infrared detection.

ENERGY AND KINETICS

Chairman, D. K. Edwards, 5531K Boelter Hall, telephone: 825-5423.

Engineering problems which graduates of the Energy and Kinetics Department are prepared to solve include problems in air-pollution control, atmospheric entry, batteries, corrosion, energy conversion, fast nuclear reactors, fuel cells, nuclear reactor siting and safety, propulsion, sea water desalination, solar energy utilization and space-vehicle temperature control. Areas of specialization within the Department include:

Chemical-Engineering. Kinetics (including catalysis and electrode kinetics), electrochemistry, adsorption, transport properties, combustion, flow through porous media, and separation operations.

Heat and Mass Transfer. Convection, radiation, conduction, evaporation, condensation, boiling, two-phase flow, chemically reacting and radiating flow, turbulent transport, stability of laminar flows, convection under the action of external fields, aerodynamic heating, and reactive flow in porous and fluidized media.

Molecular Dynamics. Molecule-molecule collisions, molecule-surface collisions, low-density free jets, relaxation processes in gases, adsorption processes at solid surfaces, intermolecular potentials, and sampling from combustion systems using molecular-beam techniques.

Nuclear Engineering. Neutron transport, nuclear reactor dynamics and control, nuclear reactor materials and fuels. Fuel element modeling. Nuclear reactor safety and siting, reliability and risk-benefit studies. Fusion reactor technology, safety and environmental effects.

Thermodynamics. Statistical, chemical, and non-equilibrium thermodynamics; cryogenics; magnetic and low-temperature phase transitions; thermodynamics of imperfect gases; superfluid heat transfer; and transport properties of condensed quantum systems.

ENGINEERING SYSTEMS

Chairman, W. D. Van Vorst, 7619A Boelter Hall, telephone: 825-8486

Course work and research are offered in the following areas:

Operations Research. Optimization theory; linear programming; nonlinear programming; dynamic programming; large/scale mathematical programming; network flows and programming techniques; stochastic processes; Markov decision processes; applications to engineering-economic systems.

Applied Dynamic Systems Control. Systems engineering principles and applied mathematical methods for modeling, analysis and design of continuous and discrete time dynamic systems. Emphasis on computation solution methods, simulation and modern applications in engineering, biological and other sciences. Systems concepts; feedback and control principles; stability concepts; applied optimal control; stochastic systems; parameter and state estimation; stochastic control; identification and self-adaptive control; differential games; computer process control. The Biocybernetics option includes application to biology, medicine and pharmacology.

Water Systems Engineering. Water resources engineering; surface and groundwater hydrology; optimization of water resources systems; water quality management; saline water conversion; economic evaluation of water resources development.

Economics, Design and Managment. Professionally oriented interdisciplinary and specialized studies in inhabited environments; energy and resource economics and management; water and sewage treatments; project investment and finance; cost-benefit methodologies; creative and computer-aided design; reliability and maintainability.

Biotechnology. Life/behavioral science foundations to technology; man-equipment-environment interactions; linear and nonlinear models of living systems in the control loop; quantitative and qualitative methods of biotechnical design and evaluation; applications to transportation and biomedical systems.

MATERIALS

Chairman, C. N. J. Wagner, 6531K Boelter Hall, telephone: 825-6265 or 825-5534

Metallurgy. Fracture of steels and composite materials, joining of materials; heat treatment of steel, fracture of weld metal; high temperature and fatigue fracture; mechanics of extrusion, forging and rolling; materials synthesis, vacuum metallurgy, structure-property relationships; crystal growth, casting and modern foundry practice; thin films.

Materials Science. Electron microscopy, x-ray and electron diffraction; theoretical metallurgy, phase transformation in solids; solidification science; irradiation effects on structural materials, strengthening mechanism in solids; high pressure effects on solids; elasticity of crystals and crystal defects; structure of liquid and amorphous alloys, and plastically deformed metals; structure and properties of polymers.

Ceramics. Oxidation kinetics, mechanical properties of oxides; thermodynamics and strength of ceramic solids, application of ceramics; glass science, and electrical properties of amorphous materials.

Materials Recycling. Recycling glass, waste, and plastics.

Bio-Materials. Development of new materials for dental and medical prostheses.

Product Safety. Failure analysis, accident analysis, reliability.

MECHANICS AND STRUCTURES

Chairman, S. B. Dong, 5732B Boelter Hall, telephone: 825-1161 or 825-5353

Dynamics. Rigid and flexible body dynamics; spacecraft and ground vehicle dynamics; kinematics and mechanical design.

Fluids. Experimental and theoretical studies relating to compressible and incompressible flows, stratified flows, turbulent diffusing and noise production, acoustics with emphasis on technical applications.

Solids. Experimental and theoretical studies in micromechanics, wave propagation, fracture, composite materials with emphasis on technical applications, stress and strength analyses.

Soil Mechanics. Experimental and theoretical studies in the dynamics, creep, relaxation, stress-strain laws, soils, engineering seismology, earth structures, foundations, landslides.

Structures. Static and dynamic design and analysis of engineering structures of all types, studies of finite element and other computational techniques, optimization of structures, stability and failure of structures, earthquake effects, soil-structure interaction, composite structural mechanics of materials, field and laboratory experimental techniques.

SYSTEM SCIENCE

Chairman, J. W. Carlyle, 4531E Boelter Hall, telephone: 825-2240 or 825-2360

The Department offers instruction and research in the general areas of *Information, Control, Computing, and Optimization* including: Communications and Coding; Stochastic Processes; Theoretical Computer Science; Computational Techniques in Control and Optimization; System Theory, Modeling and Identification; Biological Control; Control and Coordination in Economics; Queueing Systems and Network Flows; Public Systems and Urban Services.

Specifically established Ph.D. fields iclude:

Automata and Formal Languages. Machines, grammars, languages; applied logic, computational complexity, theory of computing; finite-stage systems, identification and diagnosis, probabilistic machines; context-free languages, families of languages, restricted Turing machines, decision problems, tree automata.

Communication Systems. Information theory, source and channel coding (block and convolutional), signal detection, estimation and filtering, modulation and demodulation, data compression, coherent communication and tracking, radar signal processing, optical communication.

Control Systems. Optimal control and computing techniques, identification, estimation and adaptivity, stochastic control, differential games and cooperative games, interactive control and team theory, distributed systems, applications to aerospace systems, biomedical systems, economic systems, process control and controlled thermonuclear reactions.

Queueing Systems and Network Flows. Point processes; queueing systems, single server queues, priority queues; graphs and network flows, maximum flows in nets, signal and multicommodity flows; applications to problems in information delay networks, satellite and computer communication networks, buffer systems, control systems, operations research, public systems.

System Optimization. Numerical techniques for optimization of systems; stochastic, distributed, etc. Modeling, simulation and identification; pattern recognition and classification. Public system analysis and urban services allocations.

REQUIREMENTS IN GRADUATE STANDING

Engineering graduate students are required to meet the minimum residence requirements of the University.

Graduate students with advanced degree objectives in Engineering or Computer Science are subject to the following time limitations:

A graduate student is expected to complete the requirements for the master's degree within three calendar years after being admitted to the master's program in the School of Engineering and Applied Science.

The Engineer degree student is expected to complete the field requirements within two calendar years from the time of admission to the Engineer degree program; and is required to complete all the requirements for the Engineer degree within a period of three years (9 quarters) from the time of admission.

The Ph.D. student who already has a master's degree will be expected to complete the field requirements within two calendar years from the time of admission to the Ph.D. program and to complete the remaining requirements for the Ph.D. degree within an additional two calendar years.

The Ph.D. student who does not already have a master's degree will be expected to complete the field requirements within five calendar years from the time of admission to the Ph.D. program and to complete the remaining requirements for the Ph.D. degree within an additional two calendar years.

ADMISSION TO GRADUATE STATUS

Applications for admission from graduates of recognized colleges and universities will be considered. The basis of selection is promise of success in the work proposed, which is judged largely on previous college record. Before admission is approved, an application for Engineering graduate study will be referred by the Graduate Admissions Section of the Graduate Division, to the School of Engineering and Applied Science for recommendation. Final approval is granted by the Graduate Admissions Section of the Graduate Division.

In addition to meeting the requirements of the Graduate Admissions Section of the Graduate Division, the entering student in the Master's or Graduate Certificate Program will normally be expected to have completed the requirements for the bachelor's degree with an undergraduate scholarship record equivalent at least to a 3.0 grade-point average (based on 4.0 maximum) for all course work taken in the junior and senior years. An applicant who fails to meet these requirements must complete additional course work before being admitted to graduate status. These additional courses will not be accepted as part of the course requirement for the Master's degree or Graduate Certificate Program.

Admission to the Ph.D. program and Engineer degree program normally is based on a minimum grade point average of 3.25 (based on a 4.00 maximum) at the master's level, evidence of creative ability, and strong supporting letters from cognizant faculty. Exceptional students with research experience and strong evidence of creativity may petition to proceed to candidacy for the Ph.D. degree without the M.S. degree.

In addition to filing an application for admission with the Graduate Admissions Section of the Graduate Division, prospective students are required to file a special application for admission with the School of Engineering and Applied Science. These supplements may be secured by writing to the Assistant Dean for Graduate Studies, School of Engineering and Applied Science.

GRADUATE RECORD EXAMINATION

Applicants for the Graduate Engineering Program are required to take the Aptitude Test and Advanced Test of the Graduate Record Examination in the subjects in which they majored for the Bachelor's degree, or equivalent. Applicants for the Graduate Computer Science Program are required to take the Graduate Record Examination Aptitude Test and Advanced Test in Mathematics. The test is also given in foreign countries.

Applications for the Graduate Record Examination may be secured by applying to the Educational Testing Service, Box 1502, Berkeley, California 94701 (for those living in the western hemisphere) and to the Educational Testing Service, Box 955, Princeton, New Jersey 08540 (for those living in the eastern hemisphere).

The Testing Service should be requested to forward the test results to the Assistant Dean for Graduate Studies, School of Engineering and Applied Science.

There is a fee of $10.50 for each test.

REQUIREMENTS FOR THE GRADUATE CERTIFICATE OF SPECIALIZATION IN ENGINEERING AND APPLIED SCIENCE

Each graduate certificate program consists of five courses, two of which must be at the graduate level, 200 series. No work completed for any previously awarded degree or credential can be applied to the certificate. Successful completion of a certificate program requires an overall minimum "B" average in all courses taken in graduate status on any campus of the University of California and in all courses applicable to a graduate Certificate of Specialization in Engineering and Applied Science. In addition, graduate Certificate candidates are required to maintain a minimum "B" average in 200-series courses. A minimum of three quarters of academic residence is required. The time limitation for completing the requirements of a certificate program is two calendar years. Details regarding the certificate programs may be obtained from the Engineering Graduate Studies Office, Room 6730, Boelter Hall.

Courses completed for a Certificate of Specialization in Engineering and Applied Science may apply subsequently toward master's and/or doctoral degrees.

REQUIREMENTS FOR THE DEGREES MASTER OF SCIENCE IN ENGINEERING MASTER OF SCIENCE IN COMPUTER SCIENCE

Students will meet the requirements by satisfactorily completing appropriate courses chosen in accordance with a plan prepared in conference with a graduate engineering adviser and approved by the School. A majority of the total formal course requirement and a majority of the formal graduate course requirement must consist of courses in engineering (for the M.S. in Engineering) or computer science (for the M.S. in Computer Science). Additionally, students seeking a graduate degree in Computer Science must demonstrate competence in the Computer Science breadth requirement. The student may wish also to complete certain analytical and professional courses on other campuses of the University of California. The fields of study established towards the M.S. degree are as follows:*

Aerothermochemistry
Applied Electromagnetics
Applied Plasma Physics
Astrodynamics
Automata and Formal Languages
Bio-Materials
Biomechanics
Ceramics and Ceramic Processing
Chemical Engineering and Applied Chemistry
Communication Systems
Computer Science: Computer System Modeling and Analysis
Computer Science: Methodology
Computer Science: Programming Languages and Systems
Computer Science; System Design
Computer Science: Theory
Continuum Mechanics
Control Systems
Design
Dynamics
Dynamic Systems Control
Earthquake Engineering
Electronic Circuits
Energy Conversion and Utilization
Engineering Economics
Environmental Effects of Chemical, Nuclear and Thermal Processes
Environmental Engineering Systems
Fluid Mechanics
Human Information Processing
Hydrology
Man-Machine-Environment Systems
Materials Recycling
Mechanical and Aerospace Engineering Thermophysics
Mechanical Engineering Design
Metallurgy and Metal Processing
Nuclear Science and Engineering
Operations Research
Problem Solving and Decison Making
Product Safety and Reliability
Quantum Electronics
Queueing Systems and Network Flows
Science of Materials
Soil Mechanics
Solid State Electronics
Structural Design
Structural Mechanics
System Optimization
Systems Effectiveness Engineering
Thermodynamics
Urban Systems
Water Quality Systems Analysis
Water Resources

*Any student is free to propose to the School any other field of study with the support of his advisor.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ENGINEERING

The requirements for the Master of Engineering degree may be satisfied by completion of the Engineering Executive Program. A limited number of graduate students are selected to enroll in this program at the beginning of each Fall Quarter.

The Engineering Executive Program is a two-year work-study program designed for those engineers who one day will fill high-level executive positions in industry and government. It consists of sequences of graduate-level professional courses (of the 400-series) covering significant aspects and new concepts in the management of technological enterprises.

To be considered for the program, applicants must qualify for regular graduate status in engineering at UCLA. They must have had five years of responsible full-time professional experience in engineering and must have completed some formal study in statistics. Every applicant who meets these requirements will be interviewed by a panel of faculty members. Approximately thirty-five of the applicants will be selected to enter the program. Criteria for selection are educational background, professional experience and potential for a managerial career.

A new group of students is admitted to the Program each fall. They form a class and remain together for two years, taking the same courses and participating in writing two or more group reports. Classes meet between 3:00 and 9:30 p.m. one day a week during the fall, winter, and spring quarters. Special individual and group problems are assigned for the summer quarters.

Applications, including official transcripts of college records, must be received by the Graduate Admissions Section of the Graduate Division by March 15. There is a fee of $350 each quarter. Further information may be obtained from the Office of the Engineering Executive Program, School of Engineering and Applied Science, UCLA, Los Angeles, California 90024. The office is located in Boelter Hall 6288. The telephone numbers are (213) 825-4628 and 825-4471.

REQUIREMENTS FOR THE DEGREES DOCTOR OF PHILOSOPHY IN ENGINEERING DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE

The following information supplements the general requirements of the Graduate Division.

A student who expects to complete all the requirements for the M.S. degree in Engineering or Computer Science at UCLA during the current quarter and who desires to proceed toward the Ph.D. degree or the Engineer degree is required to file a Notice of Intention to Proceed to Candidacy for the Degree Doctor of Philosophy or the Engineer degree by the end of the current quarter. Approval of the Assistant Dean for Graduate Studies in Engineering and Applied Science is needed. This approval is normally based on a minimum grade-point average of 3.25 at the master's level, evidence of creative ability, and strong supporting letters from cognizant faculty. Exceptional students with research experience and strong evidence of creativity may petition to proceed to candidacy for the Ph.D. degree without the M.S.

Students with Master's degrees from other institutions, and who have been admitted to the Ph.D. program by the Graduate Admissions Section of the Graduate Division, are required to file a Notice of Intention to Proceed to Candidacy for the Degree Doctor of Philosophy as early in their program as feasible. Approval by the Assistant Dean is pro forma.

The basic program of study toward the Ph.D. degree in Engineering or Computer Science is built around one major field and two minor fields. The established fields of study are as follows:

Applied Dynamic Systems Control
*Applied Mathematics
Applied Plasma Physics
Automata and Formal Languages
Bioengineering
Ceramics and Ceramic Processing
Communication Systems
*Computer Science: Methodology
*Computer Science: Programming Languages and Systems
*Computer Science: Systems Architecture
*Computer Science: Theory
Computer Systems Modelling and Analysis
Control Systems
Deformable Solids
Dynamics
*Earthquake Engineering
Electric Circuits
Electrochemical Engineering and Applied Electrochemistry
Electromagnetics
Electronic Circuits
Environmental Engineering
Fluid Mechanics
Heat and Mass Transfer
Man-Machine-Environment Systems
Mathematical Theory of Systems
Metallurgy and Metal Processing
Molecular Dynamics
*Nuclear Fuels and Material Behavior
Nuclear Science and Engineering
Operations Research
Quantum Electronics
*Quantum Mechanics
Queueing Systems and Network Flows
Science of Materials
Soil Mechanics
Solid State Electronics
Structures
System Optimization
Thermodynamics
Water Resource Systems Engineering

The School feels that many significant contributions have arisen and will continue to emerge from a reorientation of existing knowledge and, therefore, that no classification scheme can be considered as unique. Thus prospective Ph.D. candidates will be allowed, and in certain cases encouraged, to undertake (as fields of study) areas which have been previously undefined. Approval of a Ph.D. program is based upon the set of fields considered as a whole and is granted by the Assistant Dean for Graduate Studies.

The requirements for a particular field generally may vary with the student's particular objective, although minimum requirements exist for each field. Ordinarily, the student will engage both in formal course study and in individual study in meeting the field requirements.

While the emphasis in a Ph.D. program is on the ability to correlate knowledge, rather than on the mere satisfaction of course requirements, the extent of a properly chosen field of study

*Established Minor Field Only.

is such that the competent student will be able to complete the three field requirements in two years of full-time graduate study or the equivalent.

In general, students in the School of Engineering and Applied Science must earn the M.S. degree before the Assistant Dean for Graduate Studies will consider a proposal for a Ph.D. program. However, the course work leading to the M.S. degree will, if selected properly, aid in meeting the field requirements.

With the aid of his graduate adviser, the student is directed to the faculty members representing the standing committee on the respective fields for the current year or to faculty members who are willing to guide the student in nonestablished fields. After consulting with members of the committees regarding the program of study for the particular fields, the student submits a proposed program of study to the Assistant Dean for Graduate Studies for approval.

PRELIMINARY EXAMINATIONS

After completing the major field (which includes a written examination normally eight hours long) and the minor field requirements outlined by the members of the field committees, in any order the candidate and his adviser determine, the candidate should schedule an oral examination, approximately two hours long, covering all three fields. The oral examination should occur within a four-week period following the completion of the last of the field requirements when classes are in session.

QUALIFYING EXAMINATION

After the student has demonstrated his competence in the three fields, the Assistant Dean for Graduate Studies will notify the Graduate Division of readiness for the qualifying examination and will recommend the committee for this examination, generally as follows: faculty member directing research, chairman; two additional faculty members from engineering or computer science as appropriate; two faculty members from related fields in the University of California but outside the School of Engineering and Applied Science.

The details of the qualifying examination are at the discretion of the committee, but ordinarily will center around a broad inquiry into the student's preparation for research. The qualifying examination is oral, the preliminary examinations usually constituting the written portion as required by the Graduate Division.

DISSERTATION

The candidate shall prepare his dissertation in accordance with the instructions furnished by the Student and Academic Affairs Section of the Graduate Division. The orientation meetings on the format of theses and dissertations are scheduled for the beginning of each quarter in the calendar in the STANDARDS AND PROCEDURES FOR GRADUATE STUDY AT UCLA. For additional information and assistance in the preparation and submission of the final copies of the manuscript, consult the Manuscript Adviser for Theses and Dissertations, Office of the University Archivist, Powell Library.

REQUIREMENTS FOR THE ENGINEER (ENGR.) DEGREE

The Engineer (Engr.) degree program has been established to offer a degree which represents considerable advanced training and competence in the Engineering field, but which does not require the research effort and orientation involved in a Ph.D. dissertation.

For admission, the requirements are the same as for the Ph.D. program. These are that the applicant should have a master's degree and meet the minimum grade-point requirement of 3.25.

The student is required to complete at least five quarters of academic residence in graduate status at the University of California, of which the last two must be spent in continuous residence at UCLA.

The basic program of study for the Engineer degree is built around one major field and two minor fields in Engineering. The student may choose from already established Ph.D. major and minor fields for this purpose. A minimum of 15 courses is required, 9 of which must be in the 200 series, divided among the major and minor fields in the following way:

Major Field: A minimum of 6 (100-200 series courses), at least four of which should be 200-series courses.

Minor Field I: A minimum of 3 (100-200 series courses), at least two of which should be 200-series courses.

Minor Field II: A minimum of 3 (100-200 series courses), at least two of which should be 200-series courses.

All 500-series and seminar courses are not applicable for meeting the minimum course requirements. Courses taken at UCLA in satisfaction of Certificate and/or M.S. degree requirements of the School of Engineering and Applied Science may also be applied toward the course requirements for the Engr. degree.

The student must pass an eight-hour written major field examination which is the same as the Ph.D. preliminary examination in that field and has the same level of achievement for meriting a pass.

After passing the major field examination, the candidate schedules a two-hour oral examination which covers all three fields. The committee for the oral examination will consist of three members from the major field and one each from the two minor fields.

Upon successful completion of course and examination requirements, candidates are eligible for the award of the Engineer degree.

CONTINUING ENGINEERING STUDIES

Continuing education of the practicing engineer is a growing concern of the profession. Continuing Education in Engineering and Science, University Extension, brings to this field the structure and facilities of the statewide University Extension organization. Extension programs of evening classes, conferences, concentrated short courses, correspondence work, sequential certificate plans and special events are constantly available. Continuous evaluation, updating and addition of new and timely subject matter characterize the continuing education program and keep it quickly responsive to developing technology and changing professional needs. For further information, please call 825-3985.

SCHOOL OF LAW

The School of Law offers a three-year curriculum leading to the J.D. degree. The School is accredited by the California Committee of Bar Examiners, is a member of the Association of American Law Schools and is on the approved list of the American Bar Association. Graduates of the School are qualified to become applicants for admission to practice in any state of the United States.

The School is designed to produce lawyers well prepared for the various private and public roles which are assigned to members of the legal profession. Students do not undertake a specific major but have the opportunity to enroll in a wide variety of courses

dealing with various legal fields. In addition to the courses in the regular Law School curriculum, students may take two courses for credit in other disciplines in the University. Concurrent degree programs are available for qualified law students with the Graduate School of Management, the Department of Economics, and the School of Architecture and Urban Planning.

The Law School program also permits students to participate in clinical training. These activities consist of field work in a variety of Federal and State agencies accompanied by seminars in the Law School which seek to analyze and expand upon the agency experience. The School also offers an intern program which gives students the opportunity to work in legal agencies away from the School for as long as six months (including the summer), for which they receive academic credit. Internship programs have been offered in Washington, D.C., Micronesia, Alaska, Hawaii and on Indian reservations.

ADMISSION REQUIREMENTS

Students beginning their professional work are admitted only in the Fall. Applicants must have received the baccalaureate degree from a university or college of approved standing prior to the time at which they begin their work in the Law School. Applicants are also required to take the Law School Admission Test. Admission is on a competitive basis and is determined by the score in the Test and the grades in the last two years of college. Additional information may be obtained in the ANNOUNCEMENT OF THE SCHOOL OF LAW.

GRADUATE SCHOOL OF LIBRARY AND INFORMATION SCIENCE

In December of 1958 the Regents of the University of California authorized the establishment of the School of Library Service on the Los Angeles campus, to begin a course of instruction in September, 1960, leading to the Master of Library Science degree. In January of 1965, the degree, Master of Science in Information Science (Documentation), was approved and added to the School's program. In 1968 a Post-M.L.S. program, leading to a Certificate of Specialization in Library Science, was also approved. Upon revision of the M.L.S. degree program in 1972 the program leading to the Master of Science in Information Science was discontinued because information science (documentation) became a field of specialization.

The School's program has been accredited by the American Library Association since 1962, and has been re-accredited under the 1972 standards.

The M.L.S. (Master of Library Science) degree is based upon a course of study designed to provide basic professional competencies in librarianship, bibliography and information science. Also required is evidence of a field of specialization based upon an academic year of graduate study or its equivalent. A research paper in the field of specialization and a comprehensive examination are degree requirements. Normally, the program requires six quarters of residence, although students with applicable prior graduate work may be able to complete the program in less time.

Programs leading to post-M.L.S. Certificates of Specialization require a minimum of nine courses and three quarters of study.

Requirements for the California State Credential for school librarians may be met concurrently with master's degree requirements provided the student already has the qualifications for a standard teaching credential.

In addition to admission to graduate status, the School has special admission requirements: a satisfactory score on the General Aptitude Test of the Graduate Record Examination, reading competence in foreign languages (equivalent of two years of college level, half of which must be met prior to admission) and college level knowledge of mathematics or statistics, letters of recommendation, an interview, etc. Detailed information, including Fields of Specialization, may be obtained from the Graduate Counselor of the School.

Since the admission of entering students is limited by the available laboratory space and research facilities, selection is on a competitive basis. Candidates are chosen because, in the judgment of the Admissions Committee of the Graduate School of Library and Information Science, they have demonstrated a potential. Criteria of selection by the Admissions Committee are: (1) recency of formal education; (2) undergraduate and graduate scholarship records; (3) score on the Aptitude Test of the Graduate Record Examination; (4) report of an interview of the applicant by the Dean of the Graduate School of Library and Information Science or by a person designated by the Dean to conduct an interview; and (5) letters of recommendation.

Further information may be obtained from the Office of the Graduate School of Library and Information Science.

GRADUATE SCHOOL OF MANAGEMENT

The Graduate School of Management offers curricula leading to graduate degrees at the master's and doctoral levels. The School also offers an Executive Program, research conferences, and seminars for experienced managers. Some courses which may be elected by undergraduate students are offered by the Department of Management.

Graduate Programs

Primary objectives of the Graduate School of Management are:

To provide first-rate professional education for successful management careers in private and public, profit and nonprofit, enterprises.

To prepare highly qualified teachers and research scholars in the field of management and management-related disciplines.

To enlarge through research the body of systematic knowledge about the management process and the environment in which an enterprise functions, and to disseminate this knowledge through publications and improved teaching materials and learning environment.

To provide superior executive education programs for professional managers. Information about these programs may be obtained from the Office of Executive Education. GSM 2381. (213) 825-2001.

Professional Master's Program

The Professional Master's Program (PMP) is a two-year full-time program leading to the MBA degree. The PMP is designed to prepare capable and confident managers and management specialists for roles in organizations of various kinds, including not-for-profit corporations and public institutions as well as business enterprises.

The program aims to develop managerial perspectives and styles of thinking while imparting expertise in a student-selected field of professional specialization. Along with subject matter mastery, the PMP stresses integrating the lessons of various dis-

ciplines, translating theory into practice, questioning the past and innovating for the future, and self-guided learning as a continuing basis for effective managerial work.

The four elements of the program are the *nucleus*, the *common knowledge*, the *concentration*, and *electives*. The nucleus develops professional problem-solving and decision-making skills through experiences ranging from laboratory simulations to consulting projects in on-going organizations. Common knowledge subjects require students to learn the fundamentals of disciplines which underlie the practice of management. The concentration, selected by each student from a wide variety of established alternatives or individually tailored to suit special needs, provides in-depth knowledge and skills for a particular field of management work. The availability of free electives permits students to pursue subjects of personal interest, whether or not they are closely related to the mainstream of the program of studies.

THE NUCLEUS

The nucleus focuses on learning by doing, especially in the general area of problem-solving and decision-making skills. The first-year nucleus is a sequence of three courses, required of all students. The first of these centers around the individual as a decision maker, the second stresses managerial decision making, and the third emphasizes problem solving in complex multi-organizational environments.

The second-year nucleus (also required of all students) consists of a *Management Field Study*, in which a small team of students is placed in a consultant-client relationship with an on-going organization. The student team, working under faculty supervision, conducts a thorough study of a significant management problem of the client organization and prepares a detailed report with action recommendations. This report, which serves in part as the comprehensive final examination (see below) for the members of the student team, is judged by standards applicable to professional management consulting.

COMMON KNOWLEDGE

Within the first three quarters of study, each student must satisfy common knowledge requirements in (1) Accounting and Finance, (2) Computer Programming, (3) Managerial Economics: The Firm, (4) Managerial Economics: Forecasting, (5) Organizational Behavior and Management Processes, (6) Model Building, and (7) Statistics.

Each of these requirements can be fulfilled in any of four ways: (1) by passing a common knowledge waiver examination, (2) by completing a common knowledge course, (3) by completing a more advanced course in the same field which is an approved common knowledge substitute, or (4) by completing a self-paced modularized learning sequence in the GSM Learning Centre. Detailed information about this last alternative can be obtained from the GSM Learning Centre, Graduate School of Management, UCLA, Los Angeles, California 90024.

The prerequisite requirements of almost every concentration include one or more common knowledge substitutes. To satisfy common knowledge requirements, these or other substitutes must ordinarily be taken in residence at the Graduate School of Management.

Schedules, application forms, and syllabi for common knowledge waiver examinations are available from the Student Affairs Office, Graduate School of Management, UCLA, Los Angeles, California 90024. One offering of all examinations occurs shortly before the beginning of classes in the fall. These examinations may be taken by persons who have not yet been admitted to the program (for a fee, and with the understanding that passing such examinations does not ensure admission).

A final common knowledge requirement, which cannot be waived by examination, is the course *Policy and Organizational Environment* (or approved substitute).

CONCENTRATION

The concentration focuses on a field of professional specialization within the broad realm of management. In addition to the widely varied established concentrations, a student can design an individualized concentration, in collaboration with interested faculty members. Individualized concentrations may include courses offered elsewhere on campus. Recent individualized concentrations include Real Estate Finance, Health Systems Administration, Entrepreneurship, and Public and Not-for-Profit Management.

A concentration consists of prerequisites and advanced course work. The prerequisites total about 20 units and provide necessary preparation for advanced study in the field concerned. Prerequisite requirements can be satisfied either by completion of courses, by waiver on the basis of previous work, or in some cases by examination.

The advanced course work for a concentration consists of at least 24 units, prescribed in a way which allows some flexibility for the student. This work must be done in residence at GSM.

ELECTIVES

Each student must select at least two free electives, subject only to general University regulations. These electives normally must be taken while enrolled in the PMP. They may support or complement the remainder of the student's program of studies.

GENERAL REQUIREMENTS

At least 96 units of work are required for the MBA, of which as many as 40 units of preliminary graduate work (common knowledge and concentration prerequisites) may be waived on the basis of previous work and/or by examination. A 3.0 grade-point average (B) is required for graduation. The PMP normally requires six quarters of full-time work and must be completed within two calendar years after admission. Students with advance preparation may be able to attain the MBA in fewer than six quarters.

COMPREHENSIVE EXAMINATION

The comprehensive examination for the completion of the MBA program consists of the student's demonstration of professional management proficiency through the final written report of the Management Field Study. This may be supplemented by further requirements of the student's field of concentration.

FURTHER INFORMATION

The preceding paragraphs are intended only to describe the Professional Master's Program and *not* to provide the basis for planning detailed programs of study. More complete information is given by the document "Planning Your MBA Program," which is available from the Student Affairs Office, Graduate School of Management, UCLA, Los Angeles, California 90024. Further questions can be resolved by the Assistant Dean, Professional Master's Program, or the Assistant Dean, Student Affairs.

PMP FOR THE FULLY EMPLOYED

A part-time version of the Professional Master's Program is available for a *limited* number of fully-employed persons. Students in this program proceed on an approximately half-time basis, requiring nine to twelve quarters to attain the MBA. The program's basic time format is Tuesday-Thursday, 3:30-10:00 p.m. It may also be necessary to take Monday or Wednesday evening classes. Full information is available from the Assistant Dean, Student Affairs, Graduate School of Management, UCLA, Los Angeles, California 90024.

Academic Master's Program

The primary objective of the Academic Master's Program, which leads to the degree Master of Science (M.S.) in Management, is to offer intense study in a specialized field and to prepare students to conduct substantive research.

This course of study is closely related to the Doctoral Program and, in some cases, can constitute the first stage of doctoral work in management. Studies in the fields of Business Economics and Management Science currently are offered as specializations within the Academic Master's Program. Some students will enter the program with the goal of eventual acceptance into the Doctoral Program. Other students who have not defined their career goals, or whose applications for the Doctoral Program are not strong enough for admission, will be advised to begin work in the Academic Master's Program. In the latter case, a decision on the student's admission to the Doctoral Program is delayed until the student has worked in his chosen field of specialization. For other students, the Academic Master's Program will result in a terminal degree. In every instance, the program's emphasis will be on advanced specialized training and the development of research capability. Residence for the Academic Master's Program is required for at least one academic year.

PLAN OF STUDY

An essential component of successful graduate study in the Academic Master's Program is close work with faculty members of the Graduate School of Management. Incoming students are urged to establish working relationships with faculty members in order to plan their studies. Study toward the M.S. degree in Management consists of prerequisites, specialization, and a research requirement which will culminate in a master's thesis.

PREREQUISITES

Prerequisites represent fundamental levels of competence which the Academic Master's student must possess before proceeding with his specialized study. Each field offered in the Academic Master's Program will specify the courses in mathematics, statistics, economics, and other subjects which constitute the prerequisites for that field. A student can demonstrate the required knowledge in these prerequisites by (1) prior advanced course work in the subject, (2) successfully completing the course itself, or (3) successfully completing certain more advanced courses.

SPECIALIZATION

Each field offered in the Academic Master's Program will specify courses and other work to satisfy the specialization. The minimum number of courses required for a specialization is nine, at least five of which must be at the graduate level. Students entering the Academic Master's Program with strong prerequisite backgrounds may be able to complete the specialization in three or four quarters. Length of the program for students entering without prerequisite backgrounds necessarily will be longer.

RESEARCH REQUIREMENT

Each field will specify the courses and other work necessary to satisfy the research requirement. Students must demonstrate research capability by submitting a master's thesis, which involves organizing research activity, applying the appropriate research tools and carrying the project to a logical completion. For students continuing into the Doctoral Program, the master's thesis may be submitted as the research paper for that program.

Cooperative Master's Degree Programs

Four degree programs are offered by the Graduate School of Management in conjunction with other schools and departments of the campus.

COMPREHENSIVE HEALTH PLANNING

The master's program in Comprehensive Health Planning, leading to the M.S. degree, is sponsored jointly by the Graduate School of Management, the School of Public Health, the Department of Political Science, the School of Medicine, and the School of Architecture and Urban Planning.

This program is designed to acquaint students with policy issues and operational problems in health systems, to develop skills in the use of quantitative and computer methods for planning, and to enhance understanding of the social and technological environments in which health systems must function. The curriculum's sequence stresses, first, concepts and methods of planning and implementing of plans, then, substantive knowledge about health delivery systems and, finally, application of this knowledge and experience to comprehensive planning for health programs.

The program requires two academic years (six quarters) plus a summer field placement.

For further information, write: Director, Comprehensive Health Planning Program, School of Public Health, UCLA Center for Health Sciences, Los Angeles, California 90024.

LATIN AMERICAN STUDIES

A three-year full-time program is offered, leading both to the MBA (with a concentration in International and Comparative Management) and the MA in Latin American Studies. Applicants must be qualified to enter both the Professional Master's Program and the MA program in Latin American Studies. For further information, contact the Assistant Dean, Student Affairs, Graduate School of Management, and the Graduate Adviser, Latin American Studies, 10359 Bunche Hall, UCLA, Los Angeles, California 90024.

LAW

The School of Law and the Graduate School of Management jointly offer a program which makes it possible to earn the Doctor of Law (JD) and MBA degrees simultaneously in four academic years. The program is designed to prepare students for career areas where there is need for strong professional skills in both law and management. All first-year JD program courses are taken in the first year of the program. In the second year, the first-year MBA core requirements and four concentration courses are taken.

Second-year MBA core requirements, four MBA concentration courses, and 61 elective units in the School of Law are completed during the third and fourth years.

Application for admission to the JD-MBA program must be made concurrently to both the School of Law and the Graduate School of Management in accordance with the admission procedures specified by each school. Applicants must be admitted to both schools in order to be admitted to the program. First-year law students may apply for admission to the program prior to April 15 of their first year of law study and must have taken the Graduate Management Admission Test no later than March of the same year. For further information, contact the Assistant Dean, Student Affairs, Graduate School of Management, or the Associate Dean, School of Law, UCLA, Los Angeles, California 90024.

MANAGEMENT IN THE ARTS

The master's program in Arts Management, leading to the MBA degree, is offered in cooperation with the College of Fine Arts. It is designed for students who are interested in management careers in opera companies, theaters, symphony orchestras, dance companies, museums, arts councils, or other arts organizations. The management core offered by the Graduate School of Management is complemented by studies in the College of Fine Arts.

Applicants for this program must demonstrate comprehensive knowledge of an art form, either through completion of a bachelor's degree in an art field or on the basis of experience with an organization devoted to artistic or cultural purposes. In addition, applicants must meet the requirements for admission to the Graduate School of Management.

The program requires full-time commitment for two years. Internships are provided where feasible by appropriate arts organizations and by public and private agencies which support cultural activities.

For further information, contact: Ichak Adizes, Director, Management in the Arts Program, Graduate School of Management, University of California, Los Angeles, California 90024, (213) 825-2014.

Doctoral Program

The Doctoral Program in Management is an advanced curriculum which leads to the Doctor of Philosophy (Ph.D.) degree in Management. The program includes intensive training in research methods applicable to problems of formally organized enterprises in both the private and public sectors. The program prepares students for careers in university teaching and research or as staff specialists in business firms and other organizations.

A minimum of six quarters of academic residence in graduate status at the University of California is required for the doctoral degree, including one year (ordinarily the second) in continuous residence at UCLA. Graduate students are in academic residence if they complete at least two courses (8 units) in graduate or upper division work during a quarter. Doctoral students are expected to be on campus full-time during the early phases of their doctoral studies.

PLAN OF STUDY

An essential component of successful graduate study in the Doctoral Program is close work with faculty members of the Graduate School of Management and/or other departments at UCLA. Incoming doctoral students are urged to establish working relationships with faculty members in order to plan their programs. Study toward the doctoral degree in Management consists of a major field, two minor fields, a research requirement, and a doctoral dissertation. These requirements begin with a basic competence demonstrated in certain management core courses. Emphasis within each major field of study is placed on understanding of fundamental problems within that field, on familiarity with state-of-the-art methodologies for attacking such problems, and on relating the major field to the broader context of management and other disciplines. The minor fields and research requirement should be designed to facilitate and support the major field of study, as well as to broaden the capabilities of the doctoral student. In meeting these requirements, the student will typically engage in both formal courses and individual study with faculty members.

The following fields of study are currently offered for the major and minor field requirements within the Doctoral Program:

- Accounting Information Systems
- Business Economics
- Computers and Information Systems
- Finance
- Human Systems Studies
- Industrial Relations
- International and Comparative Management
- Management Science/ Operations Management
- Management Theory
- Marketing
- Urban Land Economics

MANAGEMENT CORE

Management Analysis. The management analysis portion of the management core consists of at least three courses which provide the student with a broadening perspective in management disciplines. Each individual curriculum field has detailed guidelines for the completion of this requirement and the extent to which prior course work or experience can be used to satisfy the requirement.

Research Preparation. The research preparation requirement consists of five courses in research methods and their application which develop research capability and culminate in the preparation of a research paper by the student. The requirement is designed to ensure that the doctoral student has the necessary capabilities to proceed with a doctoral dissertation.

MINOR FIELDS

The two minor fields can be drawn from the above list of established fields at the Graduate School of Management or from other departments within the University of California. Ad hoc minor fields are acceptable when properly justified. One minor field should clearly be supportive of the doctoral student's major field of study, while the other minor field should be used to broaden the doctoral student's overall capabilities. The level of competence required in a minor field is that needed for first-rate instruction of basic courses in that field. A master's degree at another institution can be used to satisfy part or all of one minor field.

MAJOR FIELD

The level of competence required in the major field is that of a professional scholar specializing in the field and contributing to its progress through research. This implies a broad knowledge of the field and its literature, and a detailed understanding of current research in at least one subfield. Preparation for the major field normally requires the equivalent of at least one year of full-time advanced study. Doctoral students may choose major fields from the above list of established fields of study. A student may choose to take two extended major fields in lieu of one major and two minor fields. A student choosing the option of two major fields must pass both fields by written examination. Specially designed

major fields also may be permitted, provided the student can demonstrate that a proposed major field consists of a related body of knowledge, of suitable quantity and quality, and leads to a research area in which adequate dissertation guidance is available.

ORAL QUALIFYING EXAMINATION

The oral qualifying examination, which is conducted by the student's Doctoral Committee, includes a broad inquiry into the student's preparation for research. The examination can also be used as an opportunity to discuss the proposed dissertation of the doctoral student. After successfully completing the oral qualifying examination, the doctoral student will be advanced to candidacy for the doctoral degree. All students advanced to candidacy are eligible to receive the Candidate of Philosophy (C.Phil.) degree. This degree gives official recognition of the successful completion of all requirements which precede the doctoral dissertation. The Candidate of Philosophy degree is not a terminal degree.

DOCTORAL DISSERTATION

The student works closely with the Doctoral Committee in designing and conducting the doctoral dissertation. The dissertation is the culmination of doctoral study, and it should satisfy the important criteria of original research. The dissertation is defended by the doctoral student at a final oral examination.

Undergraduate Preparation

As a graduate professional school of the University, the Graduate School of Management admits students only after they have completed a baccalaureate degree. Previous collegiate work in business administration or management is neither required nor encouraged.

At UCLA undergraduate students may elect courses from a limited offering in the Graduate School of Management. Detailed information about preparation for graduate programs in management may be obtained from the Student Affairs Office, GSM 3371.

Admission

A candidate for admission to the Graduate School of Management must hold a bachelor's degree from a college or university of fully recognized standing. Although no specific undergraduate major or series of courses is required for entrance, it is strongly recommended that students include in their undergraduate programs courses in mathematics and, if possible, in statistics and social science.

For admission to the Professional Master's Program (MBA) consideration is given to the applicant's academic record; score on the Graduate Management Admission Test (GMAT) and, for applicants whose native language is not English, the Test of English as a Foreign Language (TOEFL); potential for management as evidenced by work experience and community, extracurricular, or other leadership experience; recommendations (optional).

The admissions decision is based on each applicant's total application, and, therefore, minimum required undergraduate academic averages and GMAT scores have not been established.

Many students have found that having had some work experience related to the field of management before beginning the Professional Master's Program has helped them focus their activities and get more meaning from their experience in the School. Students admitted directly from baccalaureate programs who choose to work before entering graduate school will have their admission honored for three full years.

The Academic Master's Program (M.S.) is intended for mature students who have a strong desire to pursue research in a particular field of study, and who can devote full time to academic work. Applicants must hold a bachelor's degree from an accredited institution, with a scholastic average of at least B. Although no specific undergraduate major is required, it is recommended that students entering the Academic Master's Program have prior training in mathematics, statistics, and the social sciences. The Graduate Management Admission Test (GMAT) and recommendations are required of all candidates. Only a limited number of applicants are admitted to the program each year.

The Doctoral Program (Ph.D.) is intended for mature students with demonstrated intellectual capacity, who can devote full time to academic work. Applications are welcomed from persons with prior work in the various social, behavioral, and technological sciences, other academic fields, or from those persons who have done their prior work in schools of management. To be considered for admission, an applicant must hold a bachelor's degree from an accredited institution, with a scholastic average of at least B; an average of B+ in any prior graduate work is required. A master's degree is desirable but not necessary for admission. The Graduate Management Admission Test (GMAT) is required of all candidates to the program. Only a limited number of applicants are admitted to the Doctoral Program each year. Admission is based on a scholastic record of distinction both in undergraduate and in any completed graduate work, score on the GMAT, recommendations, and expressed interest in conducting individual research.

ADMISSIONS PROCEDURES

Write for information and application forms to the Assistant Dean, Student Affairs, Graduate School of Management, UCLA, Los Angeles, California 90024. To make application to the MBA program, follow the instructions given in the "Application for Admission to the MBA Program." To make application to the M.S. or Ph.D. program, use the following procedures.

1. (a) Complete the two application forms. (b) Send the application for admission to the Graduate Division to Graduate Admissions, 1247 Murphy Hall, UCLA, with the required nonrefundable fee of $20, payable to *The Regents of the University of California.* (c) Official transcripts of record, in duplicate, covering all collegiate and university work completed, together with evidence of the degree(s) conferred, must be sent by the granting institution to Graduate Admissions. (UCLA students need request only one copy of the undergraduate record.) (d) Send application for the M.S. or the Ph.D. program to the Assistant Dean, Doctoral Program, Graduate School of Management, UCLA, Los Angeles, California 90024.

2. Take the Graduate Management Admission Test and request that the score be sent to the Assistant Dean, Student Affairs, Graduate School of Management, UCLA, Los Angeles, California 90024. The test is offered four times each year at various places in the USA and in foreign countries. For detailed information on the test, write Educational Testing Service, Box 966, Princeton, New Jersey 08540. Deadlines for registration to take the test are important because the test score must be received before an application can be processed.

3. Applicants for the M.S. or the Ph.D. program must provide at least three letters of recommendation, two of which preferably should be from present or former college instructors of the applicant. Both applications and letters of recommendation must be sent to the Assistant Dean, Doctoral Program, Graduate School of Management, UCLA, Los Angeles, California 90024.

APPLICATION DATES

You are advised to make early application with complete documentation as specified in "Application for Admission to the MBA Program" or in the foregoing procedures for M.S. or Ph.D. program applicants. Admission to the MBA program is in the fall quarter only. Completed applications must be filed with UCLA by:

Quarter	MBA	M.S. and Ph.D.
Fall	April 15	December 30
Winter, Spring		August 30

Note: All applications from foreign students must be filed by January 15.

SCHOOL OF MEDICINE

The School of Medicine on the Los Angeles campus admits 144 freshman students each fall. Application cards and medical school catalogues for the class entering September 1977 are available from the Office of Student Affairs, UCLA School of Medicine, Los Angeles, California, 90024, June 1-October 15, 1976. Applications are available from the American Medical College Application Service (AMCAS). The $30 fee charged by AMCAS for application to any five participating medical schools covers UCLA's initial screening of applications. If an applicant is granted an interview, a non-refundable fee of $20 is required.

THE CURRICULUM

The School of Medicine operates on a quarter system with a four-year curriculum. The freshman year consists of three quarters of courses in basic medical sciences, social medicine and behavioral sciences, followed by a summer quarter of vacation. The sophomore year, also three quarters, includes further study in basic medical sciences, clinical fundamentals, and pathophysiology of disease. The junior and senior years are a continuum of education of 94 weeks total: 48 weeks of required clinical clerkships, 30 weeks of electives which stress the scientific basis of diseases of specific organ systems; advanced clinical clerkships and clerkships in primary medicine. Schedule choices are submitted by students and computer system is employed to arrange students' programs as equitably as possible.

BASIS OF SELECTION

Candidates will be selected on the basis of the following considerations:

1. Undergraduate and, where applicable, graduate academic achievement.
2. Score on the Medical College Admission Test, which is administered for the Association of American Medical Colleges by the Psychological Corporation.
3. Interview by a member or members of the Admissions Committee.
4. Evaluation of the applicant's accomplishments and character in letters of recommendation.

The Committee on Admissions selects candidates who present the best evidence of broad training and strong achievements in college, a capacity for mature interpersonal relationships, and the traits of personality and character conducive to success in medicine. Preference is not given to students who major in natural science, since study in the social sciences and humanities is considered equally valuable.

REQUIREMENTS FOR ADMISSION

Ordinarily a baccalaureate degree is required for admission; but in certain instances outstanding students who have completed three full academic years at an accredited college or university are accepted. College years should be devoted to obtaining as broad an education as possible. The major objectives should be the following: (1) competence in English, written and spoken; (2) capacity for quantitative thinking represented by mastery of mathematics; (3) such training in physical and biological science as will facilitate comprehension of medical science and the scientific method; and (4) insight into human behavior, thought and aspiration from study in the social sciences and humanities.

These objectives will ordinarily require completion of the following studies:

	Quarter Units	Semester Units
English	12	6
Physics	12	8
Chemistry		
Inorganic chemistry	12	8
Organic and quantitative chemistry	12	8
(Physical chemistry is highly recommended)		
Biology		
Biology	12-14	8-10
Genetics	4-5	3
Mathematics (including college algebra)	6	4
(Introductory calculus is highly recommended)		

Courses (e.g., human anatomy) which overlap in subject matter with those in the School of Medicine are not advised. However, advanced or specialized courses in biological science (e.g., cellular physiology) are desirable.

COMPLETION OF REQUIREMENTS

The student must complete the premedical requirements before beginning the first year of medical studies, although these requirements need not be completed at the time the application for admission is filed.

PHYSICAL EXAMINATION

Accepted candidates must pass a physical examination before registering.

FEES

For residents of California the total fee for each quarter is $228.00. For non-residents the total fee for each quarter is $728.00. These fees are subject to change without notice.

ADMISSION TO ADVANCED STANDING

Transfer students are accepted into the junior year only. Transfer applications may be submitted October 1-February 28 to the Office of Student Affairs.

INDIVIDUAL PROGRAMS OF STUDY IN THE MEDICAL CURRICULUM

Special programs of study for individual students may be arranged within the framework of the medical school curriculum. Normally these programs are available only after the student has completed his first year and with the approval of the Dean's Office and the chairman of the department responsible for the additional course work. Every effort is made to maintain flexibility within the medical school curriculum, although extensive changes in the course of study can be arranged for only a limited number of students.

Graduate work leading to the M.S. and/or Ph.D. degrees is offered, either separately or in conjunction with the M.D. program, in anatomy, biological chemistry, biomathematics, microbiology and immunology, pathology, pharmacology, physiology, psychiatry, and radiology. Students in other graduate divisions who have completed courses in the School of Medicine must apply to the first year class in order to be considered by the Admissions Committee. See the departmental announcements elsewhere in this catalog for further information. For details concerning the medical curriculum, consult the UCLA ANNOUNCEMENT OF THE SCHOOL OF MEDICINE.

SCHOOL OF NURSING

The School accepts students for a curricula leading to the degrees of Bachelor of Science and Master of Nursing.

Curricula

THE BACCALAUREATE PROGRAM

The baccalaureate 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 under the guidance of faculty members is provided in hospitals, outpatient clinics, homes, and community health centers. Students who are licensed nurses will complete the same curriculum as other students in the baccalaureate program. However, registered nurses and licensed vocational nurses may challenge nursing courses in the curriculum.

Requirements for acceptance. (1) Admission to the University; (2) completion of 21 courses of college work, including courses required by the School of Nursing. Eligibility for the study of nursing as determined by demonstrated aptitude, recommendations and scholastic attainment. (See the UCLA ANNOUNCEMENT OF THE SCHOOL OF NURSING.) In addition for registered nurses: graduation from an accredited school of nursing and evidence of the fulfillment of the legal requirements for the practice of nursing.

GRADUATE PROGRAM

Under the jurisdiction of the Graduate Division, the School of Nursing administers a program leading to the Master of Nursing degree. Courses provide the opportunity for advanced study in several areas of nursing and research training for increased professional competence. Students specialize in a clinical field and may elect functional preparation in teaching and administration. The Thesis Plan or the Comprehensive Examination Plan is followed in the Master of Nursing program. For further information about the graduate program in nursing, consult the UCLA ANNOUNCEMENT OF THE GRADUATE DIVISION and the UCLA ANNOUNCEMENT OF THE SCHOOL OF NURSING.

Requirements for acceptance. (1) Completion of an accredited baccalaureate program satisfactory to the UCLA School of Nursing and to the UCLA Graduate Division; (2) evidence of status as a registered nurse; (3) an undergraduate scholarship record satisfactory to the UCLA School of Nursing, and to the UCLA Graduate Division; and (4) personal and professional recommendations as requested by the UCLA School of Nursing.

ADMISSION

Applications for acceptance to the baccalaureate program in the School of Nursing should be filed not later than December 31 for the fall quarter. Applications to the graduate program should be filed not later than February 15 for the fall quarter, October 1 for the winter quarter, and December 30 for the spring quarter. The School of Nursing reserves the right to accept students on the basis of scholarship, recommendations and demonstrated aptitude.

Applications for admission to the University in undergraduate status (accompanied by a $20 application fee) should be filed with the Office of Undergraduate Admission, University of California, Los Angeles, California 90024.

Applications for admission to the graduate program (accompanied by a $20 application fee) should be filed with Graduate Admissions Office, Graduate Division, University of California, Los Angeles, Calfornia 90024.

Application for Acceptance to the School of Nursing: A supplemental application is required for both undergraduate and graduate programs. The application may be obtained from the School of Nursing, 12-139 CHS, University of California, Los Angeles 90024.

Requirements for the Degree of Bachelor of Science

The Bachelor of Science degree will be granted upon fulfillment of the following requirements:

1. The candidate shall have completed at least 45 courses of college work and shall have satisfied the general University requirements.
2. The candidate shall include, in the required 45 courses, at least 21 courses in general education.
3. The candidate shall have completed at least 23 upper division courses toward the degree.
4. The candidate shall have maintained at least a C (2.0) average in all courses taken.
5. The candidate shall have completed all required nursing courses in the School of Nursing and shall have maintained an average grade of C in all clinical nursing courses.
6. The candidate is required to have been enrolled in the School of Nursing during the final three quarters of residence; the last nine courses must be completed while so enrolled.

HONORS

The faculty of the School of Nursing, or a duly authorized committee thereof, shall recommend candidates for the bachelor's degree who meet the criteria determined by the faculty of the School of Nursing for honors or highest honors.

Requirements for the Degree of Master of Nursing

The Master of Nursing degree will be granted upon fulfillment of the following requirements:

1. The candidate shall have met the general requirements of the Graduate Division.

2. The candidate shall have completed in graduate status at least ten courses in upper division and graduate level courses; eight courses must be in nursing with five courses in the 200 and 400 series. Courses 205A, 410, 420 and 470 are required for all students. The additional courses may be distributed among courses in the 100, 200 or 400 series subject to approval of the student's faculty adviser.

3. A comprehensive examination or a thesis is required.

For further information concerning graduate work consult ANNOUNCEMENT OF THE GRADUATE DIVISION.

SCHOOL OF PUBLIC HEALTH

General Information

Public Health is a broad, multidisciplinary field of study directed toward understanding and controlling factors affecting the health of populations. The mission of the School of Public Health is to develop and teach the application of the sciences to the solution of community health problems. One feature of the field of public health is a reliance on research methods to identify important health relationships. Another feature is a community or social approach to the problems of health and disease in their preventive or therapeutic aspects. The concerns of public health cut across national boundaries and include the functions of both voluntary and governmental agencies and of research and teaching institutions.

There are many areas of emphasis in the field, and five may be singled out as follows: (1) nature, extent and distribution of disease; (2) quantitative methods of description and analysis; (3) environmental hazards, their identification and control; (4) the organization and delivery of community health services—emphasis is on the development of strategies for optimal provision of health care of high quality for all members of society; (5) basic biological and psychosocial processes that affect the health and well-being of populations.

The purpose of programs of instruction in the field of public health is to provide opportunity to develop understanding of the theoretical foundations and philosophy of the field, and to permit specialization in fields of professional service or research. This is achieved through required and elective courses that stress broad exposure to basic issues as well as intensive study in selected specialties.

Because of multidisciplinary concerns, programs of study are available to students whose academic preparation has been in one of various physical, biological or social science areas: for example, bacteriology, medicine, nursing, dentistry, veterinary medicine, optometry, pharmacy, engineering, mathematics, statistics, sociology, psychology, economics, political science, etc.

Through organized programs in the School of Public Health, students entering the field may thus prepare themselves for careers in such basic specialties as epidemiology, biostatistics, nutritional science, and environmental health. They may also prepare themselves for the newer challenges of community well-being such as the operation of hospitals, health maintenance in industry, the health education of the public, organization of medical care, behavioral sciences in public health, and community health administration.

The School of Public Health offers the following degrees: Bachelor of Science in Public Health, Master of Public Health, Doctor of Public Health, Master of Science in Public Health, Doctor of Philosophy in Public Health, Master of Science in Biostatistics, and Doctor of Philosophy in Biostatistics.

Bachelor of Science Degree

Candidates for the degree Bachelor of Science must have completed at least 45 courses (180 quarter units) of college work, of which at least the last 9 courses (36 units) must have been completed while enrolled in the School of Public Health. At least 13 courses (52 quarter units) must be in upper division courses (numbered 100 through 199). The student must attain at least a C (2.00) gradepoint average in all courses undertaken in this University.

Candidates must secure approval from their adviser and the Assistant Dean of Students before enrollment in PH 199, Special Studies. This is also applicable to any 200 or 400 series course, unless a course in these series is required in the major area of concentration.

PREPARATION FOR THE MAJOR

Except for the major in health records science, admission is limited to undergraduate students within the University of California who have satisfactorily completed at least 84 quarter units of work in one of the colleges of the University, or who have transfer credits evaluated as equivalent. Applicants should have completed the general University requirements, as well as the following subject requirements or their equivalents: English 1A, 1B or 2, Humanities 2A or 2B; Chemistry 1A, 1B, 1C (or Chemistry 1A, 1N, and an elective course in a physical science for students who plan to specialize in health education); Mathematics 1B or 3A; Biology 1A-1B; three courses in social sciences; three courses in humanities; additional courses in chemistry, mathematics or physics as recommended by the student's adviser. Chemistry 21, 22, and 24 required for students who plan to major in nutritional science and coordinated undergraduate dietetics.

THE MAJOR

1. The following courses are required: Public Health 100, 101 (or equivalent), 110 (not required for nutritional science students), 147, 160A; Public Health 153 or Bacteriology 101 required for nutritional science students; Bacteriology 10 recommended for Health Education and Health Record Science students.

2. In addition to the above requirements, those of one of the following areas of concentration must be met.

Biostatistics: The biostatistics program prepares students in the application of biostatistics to the broad field of public health and the evaluation of health programs. Mathematics 31A, 31B, 31C, 32A, 32B, 32C, 152A, 152B; Public Health 160B, 160C, 160D, 161. Every student will be required to take courses and study in depth at upper division level in an additional subject area as a basis for application of statistical methods and theories.

Health Education: The program provides an undergraduate major for health education in schools, colleges and the community. English 2 or Speech 1; Kinesiology 1 (three quarters); Public Health 44, 101, 109, 110, 111 or 113, 130A, 130B, 148, 149; Psychology 130 or 133A (or Education 112), 135 or 189. Eight units (4 units in each of 2 areas) selected from: Psychology 120, 122, 125, 134, 149; Sociology 120, 122, 123, 124, 125, 142, M143, 151, 152, 154, 155, 157; Anthropology 100, 131, 143, 145, 150, 160.

Health Record Science: The health record program prepares students for administrative and research positions in hospitals, health centers and other health agencies. Knowledge and skills are acquired for organization and maintenance of systems relative to

records and reports for patient care, research, teaching and for planning and evaluation of health programs. Mathematics 3B, 3C; Public Health 101, 102A, 102B, 199, 402A, 402B; Bacteriology 10; Management 190 (or Political Science 185), Management 113A, 182 (or Sociology 152) and a course in Anatomy-Physiology.

Nutritional Science: In this program students become acquainted with the basic nutritional factors and components of health. Mathematics 3B, 3C; Chemistry 21, 22, 24; Physics 3A, 3B, 3C (or 6A, 6B, 6C); Public Health 108, 114A, 114C, 114D. Electives will be chosen in consultation with academic adviser.

Coordinated Undergraduate Dietetics Program: This program emphasizes the scientific and sociological principles of nutrition. Students are prepared for membership in the American Dietetic Association and registration as a dietitian. Two areas of specialization are offered: Clinical Dietetics and Community Nutrition. Biology 177, Public Health 114A, 114C, 114D, 118, 119A, 119B, 120A, 120C, 120D, 121A, 121B, 121C. Electives will be chosen in consultation with academic adviser.

Fields of Concentration

The School of Public Health offers Master of Public Health degree programs in the following areas of concentration: Biostatistics, Environmental and Nutritional Sciences, Epidemiology, Health Education, Health Services and Hospital Administration, and Population, Family and International Health.

The Master of Science in public health degree programs are offered in Behavioral Sciences and Health Education, Environmental and Nutritional Sciences and Epidemiology.

Master of Science in Public Health

The Master of Science program provides research orientation within the general field of public health. It is intended to prepare the student in depth within a specialty, culminating in research activity and a thesis or a comprehensive examination. If the student's undergraduate course has been deficient in breadth of fundamental training and fails to provide a proper foundation for advanced work in the special area of his choice, it probably will be necessary for him to take specified undergraduate courses.

A student seeking admission to the Master of Science program at UCLA should hold a bachelor's degree from an institution of acceptable standing, and have demonstrated competence by satisfactory performance on the Graduate Record Examination Aptitude Test. His academic work should be substantially equivalent, in distribution of subject matter and in scholastic achievement to the requirements for a comparable degree at the University of California.

GENERAL REQUIREMENTS FOR THE DEGREE

Only courses in which the student is assigned grades A, B, or C are counted in satisfaction of the requirements for a master's degree, and the student must maintain a B average to remain in graduate status.

The Master of Science in Public Health requires one to two years and must include at least three quarters in academic residence. The program will be planned on an individual basis, according to the student's need, and will include formal courses and research leading to a thesis or a comprehensive examination and written report.

A minimum of nine courses (36 quarter units) is required of which at least five must be graduate level (courses numbered in the 200 or 500 series) although some programs may involve more than this. A comprehensive examination in the area of specialization and the preparation of a written report are also required. With the consent of the adviser, the student may substitute a thesis for this requirement.

Mandatory courses for the Master of Science in Public Health include the following subjects: (1) epidemiology (Public Health 147); (2) biostatistics (Public Health 160A, 160B); (3) research methods (Public Health M245A or another appropriate research course); (4) one additional research methods course in public health or in an appropriate cognate field.

Master of Science in Biostatistics

For admission to the Master of Science program in Biostatistics the student must have completed the bachelor's degree with a major in statistics, mathematics, or in a field of application of biostatistics, and have demonstrated competence by satisfactory performance on the Graduate Record Examination Aptitude Test. Undergraduate preparation for the program should include Mathematics 31C, 32A-32B-32C or equivalent (second-year calculus). The upper time limit for the completion of all degree requirements is 9 quarters.

GENERAL REQUIREMENTS FOR THE DEGREE

A minimum of nine courses (36 quarter units) is required, at least five of which must be graduate level (200 or 500 series) in biostatistics or mathematical statistics, including at least three courses in biostatistics. Only courses in which the student is assigned grades A, B, or C are counted in satisfaction of the requirements for a master's degree, and the student must maintain a B average to remain in graduate status. A comprehensive examination is also required. Under some conditions a thesis plan may be substituted for the comprehensive examination plan.

DEGREE REQUIREMENTS

1. Public Health 163A, 163B (Basic Biostatistics), 160C (Introduction to Biostatistics)
2. Public Health 240A-240B-240C (Biostatistics)
3. Public Health 269A-269B-269C (Seminar in Biostatistics)
4. Mathematics 152A, 152B (Applied Mathematical Statistics) or Mathematics 150A-150B-150C (Probability and Statistics)

Other courses are selected with the adviser's consent. These may be additional courses in biostatistics or mathematical statistics, or they may be courses in related areas such as biology, mathematics, physiology, public health, or sampling theory.

Master of Public Health

Candidates to be admitted for the degree of Master of Public Health must demonstrate competence by satisfactory performance on the Graduate Record Examination Aptitude Test and may be:

1. Holders of professional doctoral degrees in medicine, dentistry, optometry, pharmacy, or veterinary medicine (with or without a prior bachelor's degree) from an acceptable school.

2. Holders of a bachelor's degree from an acceptable institution, with adequate preparation in sciences basic to public health. Such sciences basic to public health include various combinations of: (a) Life sciences; (b) Physical sciences and mathematics; (c) Social sciences; (d) Behavioral sciences. (Applicants are not expected to be prepared in all four of these fields, but a background in a suitable combination of these sciences is required.)

3. Physicians at UCLA in the General Preventive Medicine Residency Program in either Epidemiology or Health Services Administration.

4. Qualified students in the Latin American Studies articulated degree program.

No field experience is required as a condition of admission although a background of public health experience may be considered as a factor in evaluation of eligibility for admission.

Upper time limit for completion of all requirements is 7 quarters of enrollment.

GENERAL REQUIREMENTS FOR THE DEGREE

Only courses in which the student is assigned grades A, B, or C are counted in satisfaction of the requirements for a master's degree, and the student must maintain a B average to remain in graduate status.

Award of the M.P.H. degree requires: (1) A minimum of 11 courses (44 quarter units) at least five of which must be graduate level (200, 400, or 500 series). Students majoring in hospital administration are required to take an administrative residency of one year in addition to three quarters in academic residence. Other special programs may also require two years to complete. (2) Mandatory courses of at least one quarter in each of the following subjects: (a) biostatistics (usually Public Health 160A); (b) epidemiology (Public Health 147); (c) health services organization (Public Health 450A). (3) The remaining courses (at least 8 courses, 32 units of credit) are determined by the student's choice of an area of specialization and include the requirement of one course in the 400 series. (4) A comprehensive final examination. (5) Field training in an approved public health program of up to 10 weeks is required of candidates who have not had prior field experience.

Doctor of Public Health

The Dr.P.H. program is offered to provide education for higher level research, teaching, or professional service in public health than is attainable through the master's level programs.

High scholastic performance at undergraduate and master's level and a favorable recommendation by a faculty member in whose field the student intends to do his major concentration, and acceptance by a faculty review committee, as well as completion of the Master of Public Health curriculum requirements or their equivalent, or a master's degree in an appropriately related field such as education, social work, psychology, physical and life sciences, etc., and demonstrated competence by satisfactory performance on the Graduate Record Examination Aptitude Test are required for admission.

GENERAL REQUIREMENTS

A student must select two areas of concentration, a major area and a minor area. The major area may be slected from the following: Biostatistics, Environmental Health, Epidemiology, Health Administration, Health Education, and Nutritional Sciences.

In general, two or more years of study in residence are required beyond the master's degree. In the first of these years, a full program of formal courses is ordinarily required for three quarters. In the second year, a minimum of one course per quarter for three quarters is required together with substantial concentration on research for the dissertation.

Maximum time allowable from enrollment in the doctoral program to award of the degree is 20 quarters.

Academic preparation for the Dr.P.H. is directed toward general competence and depth of understanding in the major and minor areas as well as general understanding of the scope and aims of the broad field of public health. Instruction will include at least the mandatory course work required for the master's degree in the major as well as appropriate study in the minor.

On the recommendation of his major faculty adviser, a doctoral committee of five faculty members is appointed by the Dean of the Graduate Division for each doctoral candidate. This committee advises the student on his course of study, reviews his dissertation and conducts the necessary examinations. Written and oral qualifying examinations are held near the conclusion of the academic preparation, before advancement for the degree and normally before extensive work is started on the dissertation.

FIELD TRAINING

Field study in the major field may be required for a period up to 10 weeks dependent on the student's previous work and future objectives.

DISSERTATION

The Dr.P.H. program culminates in a dissertation based on original research leading to a final examination. The subject of the dissertation should bear on some aspect of the student's field of major concentration and should demonstrate ability to plan and carry out independent investigation. Work on the dissertation is ordinarily started after successful completion of the qualifying examinations. The dissertation must be completed in no more than five years after his advancement to candidacy.

Copies of the dissertation are submitted to the Graduate Division for approval and one copy is filed with the Office of Student Affairs, School of Public Health.

Doctor of Philosophy

BIOSTATISTICS

A program of study leading to the degree of Ph.D. in biostatistics is offered. Reference should be made to the UCLA ANNOUNCEMENT OF THE GRADUATE DIVISION for general University requirements. The student's program of study must be approved by the Division of Biostatistics and by the Graduate Council and it must include at the graduate course level three areas of knowledge: biostatistics, mathematical statistics, and a biomedical field such as biology, epidemiology, infectious diseases, medicine, microbiology, pharmacology, physiology, psychology, zoology or public health. Recommendation for the degree is based on the attainments of the candidate rather than on the completion of specified courses.

Admission of students who have completed the M.S. program in Biostatistics at UCLA is determined partly on the basis of their performance on the M.S. comprehensive examination, and on competence as demonstrated by satisfactory performance on the Graduate Record Examination Aptitude Test. Students who enter the Ph.D. program from other Master's programs are required to pass a written comprehensive examination comparable to the M.S. in Biostatistics comprehensive examination within one year of their admission. Within three years after this examination, the student must be advanced to candidacy; before advancement to candidacy the student must pass three written examinations (Biostatistics, Mathematical Statistics, and the selected biomedical field) and then a qualifying oral examination. Completion of the dissertation and the final oral examination must take place within three years from the date of advancement to candidacy.

Copies of the dissertation are submitted to the Graduate Division for approval and one copy is filed with the Office of Student Affairs, School of Public Health.

PUBLIC HEALTH

A program of study in some specialty areas leading to the degree of Ph.D. in public health is available in behavioral sciences, environmental health science, epidemiology, health services administration, and nutritional sciences.

Qualifications for admission to this degree are: (1) the currently specified requirements of the Graduate Division; (2) competence as demonstrated by satisfactory performance on the Graduate Record Examination Aptitude Test; and (3) other requirements prescribed by the faculty of the School of Public Health.

Completion of requirements for the M.S. degree in public health, or the equivalent, will be necessary before admission to the Ph.D. program. For some students prerequisites for graduate study in a particular area of specialization may need to be satisfied, particularly if the M.S. degree has been in another area. Students in the M.P.H. program, or those with M.P.H. degrees, will need to satisfy the requirements of the M.S. program before admission to the Ph.D. program.

Academic preparation for the Ph.D. is directed toward in depth competence and understanding in the major and minor areas. The minor area must be a cognate area to the major area and be taken in a department offering a Ph.D.

Prior to taking the oral qualifying examination, the student will be required to pass an examination in a foreign language acceptable to his Committee of Advisers and to the Dean of the Graduate Division.

From graduate admission to the written and oral qualifying examinations, advancement to candidacy, and approval of the dissertation prospectus normally takes 9 quarters. From advancement to candidacy to the final oral examination normally requires 3 quarters. Usually 12 quarters are required from graduate admission to award of the degree.

Copies of the dissertation are submitted to the Graduate Division for approval and one copy is filed with the Office of Student Affairs, School of Public Health.

SCHOOL OF SOCIAL WELFARE

The School of Social Welfare offers a two-year graduate program leading to the Master of Social Welfare degree. The curriculum deals with four major areas of study: Human Behavior, Social Welfare Services and Policy, Social Work Methods Theory and Social Work Research. In addition to academic courses in the above subjects, the curriculum provides for field instruction in selected social agency programs under tutorial direction. The School offers curriculum concentrations in Social Casework and Community Organization. Students are expected to enroll in the same concentration for two years of study.

ADMISSION REQUIREMENTS

The School of Social Welfare offers courses on the graduate level only. *Admission to the School is scheduled in the Fall Quarter only, and applications for admission should be filed by February 15 for the following Fall Quarter.* Applicants must file an Application for Admission to Graduate Status with Graduate Admissions, and, in addition, must file an application with the School of Social Welfare and submit other specified information.

Candidates are expected to meet the general requirements of the Graduate Division for admission to graduate status.

The Graduate Record Examination is required by all applicants for the Master of Social Welfare Degree. Results from this Exam must be submitted to the School prior to any evaluation of your application for admission. The Graduate Record Examination is given several times a year in various locations in the United States and foreign countries. Applications and information may be secured either from the Graduate Admissions Office of UCLA or a geographically convenient school, or from the Educational Testing Service. The Southern California Regional Office of the Educational Testing Service is located at 2200 Merton Ave., Los Angeles, California 90041.

The School requires a minimum of 22.5 quarter units (or 15 semester units) in the social sciences or a combination of social science and social welfare subjects as prerequisite undergraduate preparation for graduate study in the field of social work. Completion of courses in psychology, sociology and statistics is ordinarily expected.

In addition to an acceptable academic record and completion of the above preparatory courses, the School of Social Welfare applies the following criteria in the selection of candidates: personal suitability for professional education and potential for successful social work practice, as defined by the School; a satisfactory state of health, as determined by a physical evaluation prior to the date instruction begins, and assessment on an individual basis of the candidate's previous education and work experience.

APPLICATIONS FOR TRANSFER

Opportunities for transfer from other schools of social work into the second-year program of study will be extremely limited in number and will be determined by the credentials and potentialities of the individual candidate.

Such applicants must have successfully completed the first year of the master's program in an accredited school of social work within five years immediately preceding request for admission to the School. In addition, candidates must meet all other admission requirements of the School.

The School will prescribe the program required to qualify for the Master of Social Welfare degree. Candidates may be required to make up courses lacking for fulfillment of the degree requirements or to audit courses for up-dating of knowledge even though credit may have been granted for a similar course in another school.

A written evaluation of the candidate's first year of study will be requested from the institution in which the student completed his first year's work.

APPLICATIONS FOR READMISSION

Applications for candidates who have completed the first-year program in the UCLA School of Social Welfare at some prior time and wish to return for completion of work toward the master's degree in social welfare will be considered on an individual basis. If more than five years have elapsed since completion of the first year's work, candidates may be required to enroll for the full two-year program.

PART-TIME STUDY

Because of the continuing high demand for admission to full-time study for the M.S.W. degree program, enrollment on a part-time study basis has been suspended for the present.

FINANCIAL AID

A number of federal, state, and local agencies make available scholarships and traineeships to graduate students in social welfare. Applications are for the most part made directly to the School. Additional information regarding these resources may be obtained from the Admissions Office of the School.

Financial aid offered by UCLA includes scholarships, loans, grants and work-study. One basic application suffices for all available financial aid. When the student applies for aid, a suitable combination of available funds for which he qualifies may be offered. Awards are based on financial need as determined by national financial aid criteria. University Financial Aid Forms will be sent to applicants who have indicated need and who are offered admission. Forms are to be completed after student "Statement of Intent to Register" has been submitted.

MASTER OF SOCIAL WELFARE

The degree of Master of Social Welfare will be granted upon fulfillment of the following requirements:

1. The candidate shall have fulfilled the general requirements of the Graduate Division and the University.
2. The candidate shall have satisfactorily completed the School's prescribed program of classroom and field instruction, in either the Social Casework or Community Organization curriculum concentration. This includes satisfactory completion of the required courses in the Research sequence and of a research project to be undertaken during the second year of study.
3. The candidate shall have achieved a minimum grade average of B in academic courses and in field instruction.
4. The candidate shall have spent a minimum of one year (three quarters) of study in residence at UCLA.
5. The candidate shall have satisfactorily passed a comprehensive final examination in the field of social welfare.

Graduate Adviser: Consult the departmental Office of Admissions, 238 Dodd Hall.

DOCTOR OF SOCIAL WELFARE DEGREE

The School of Social Welfare offers a doctoral program leading to the degree of D.S.W. (Doctor of Social Welfare). The program is designed to prepare students for careers in policy development, administrative positions related to social welfare, practice, research, and teaching. The curriculum is organized into the following major areas: social welfare policy and planning; research; social work practice theory; and the integration of social and behavioral science content for social work use. Programs of study are planned in relation to the special interests of students.

Admission requirements include meeting the general admission standards of the Graduate Division, and an M.S.W. from an accredited School of Social Work and the Graduate Record Examination Aptitude Test. Students possessing a Master's degree in social science may also be admitted under a plan which involves a period of study in the M.S.W. program to provide the necessary foundation in the distinctive subject matter of the profession. The length and nature of the program is to be determined by the Doctoral Committee in relation to the special needs of students. Enrollment in the doctoral program is limited, and it may not be possible to accept all applicants who meet the formal qualifications for admission.

Additional information may be obtained by writing to: Chairman, Doctoral Program Committee, School of Social Welfare, UCLA.

For information concerning courses and curricula, see the UCLA ANNOUNCEMENT OF THE SCHOOL OF SOCIAL WELFARE and Social Welfare in this bulletin.

THE GRADUATE DIVISION

UCLA offers graduate programs, departmental and interdepartmental, leading to the Master of Arts and Master of Science degrees in a wide range of fields; to the intermediate degree, Candidate in Philosophy; to the Doctor of Philosophy degree; to professional master's degrees in Architecture, Education, Engineering, Fine Arts (in Art, Music, and in Theater Arts), Library Science, Management, Nursing, Public Administration, Public Health, Social Psychiatry, and Social Welfare; to the Engineer Degree; to professional doctorates in Education, Environmental Science and Engineering, Public Health, and Social Welfare; to certificates in Engineering and Applied Science, Library Science, Medicine, and Teaching English as a Second Language; to certificates of residence for foreign students; and to certificates of completion for the elementary, secondary, and junior college teaching credentials and other advanced credentials for public school service. For more detailed information on requirements, consult the school and departmental sections of this catalog, and the Graduate Division publication, STANDARDS AND PROCEDURES FOR GRADUATE STUDY AT UCLA.

Requirements for Graduate Degrees

PREPARATION

An applicant for any advanced degree must possess a bachelor's degree from an institution of acceptable standing and must have completed the prerequisites for graduate study in his field at UCLA. He should consult the department in which he wishes to study concerning special departmental requirements or other aspects of graduate study in addition to those common to all UCLA graduate programs.

Full-Time Graduate Program

Graduate students (except Teaching and Research Assistants) are considered in full-time enrollment if they take at least two full courses in graduate and/or upper division work per quarter, or the equivalent of eight quarter units. Whenever possible, students are encouraged to expedite progress toward their degrees by taking the optimal program of three courses per quarter.

Teaching and Research Assistants are required to take at least one course per quarter, or the equivalent of four quarter units, throughout their appointments, and are considered in full-time enrollment with this minimum. During the first quarter of their appointment they may not take more than two courses or the equivalent of eight quarter units. A student is required to be registered throughout his appointment. If a Teaching or Research Assistant finds it necessary to request a leave of absence or to withdraw, his appointment is terminated.

Graduate students holding fellowships administered by the University are required to take at least two courses per quarter or the equivalent of eight quarter units, both before and after advancement to candidacy. These courses may be in the 500 series of individual study or research.

Prospective graduate students who are eligible for federal or state subsidy may consult the UCLA Office of Special Services regarding definition of full-time program for these purposes.

Master's Degrees

The **Master of Arts** is offered in the following fields:

*African Area Studies
Anthropology
*Archaeology
Architecture and Urban Planning
Art
Astronomy
†Astronomy (M.A.T.)
Biology
Classics
*Comparative Literature
Dance
Economics
Education
English
*Folklore and Mythology
French
Geography
German
Greek
History
*Islamic Studies
Italian
Latin
*Latin American Studies
Linguistics
Luso-Brazilian Language and Literatures
Mathematics
†Mathematics (M.A.T.)
Microbiology
Music
Near Eastern Languages and Literatures
Oriental Languages
Philosophy
†Physics (M.A.T.)
Political Science
Psychology
Romance Linguistics and Literature
Scandinavian
Slavic Languages and Literatures
Sociology
Spanish
Teaching English as a Second Language
Theater Arts

The **Master of Science** is offered in the following fields:

Anatomy
Biochemistry
Biological Chemistry
Biomathematics
Biostatistics
Chemistry
*Comprehensive Health Planning
Computer Science
Engineering
*Geochemistry
Geology
Geophysics and Space Physics
Kinesiology
Management
Medical Physics
Meteorology
Microbiology and Immunology
Oral Biology
Pharmacology
Physics
Physiology
Preventive Medicine and Public Health
Public Health

Other master's degrees offered:

Architecture (M.Arch.)
Art (M.F.A.)
Education (M.Ed.)
Engineering (M.Engr.)
Library Science (M.L.S.)
Management (M.B.A.)
Music (Performance Practices) (M.F.A.)
Nursing (M.N.)
Public Administration (M.P.A.)
Public Health (M.P.H.)
Social Psychiatry (M.S.P.)
Social Welfare (M.S.W.)
Theater Arts (M.F.A.)

†Master of Arts in Teaching.
*Interdepartmental Programs.

PLAN

At the option of his major department, the student follows either the Thesis Plan or the Comprehensive Examination Plan. The University minimum standards are the same under either plan. A department, however, may require a higher scholarship average and courses and examinations in addition to the minimum requirements of the Graduate Division.

UNIVERSITY MINIMUM STANDARDS

*Courses.** The program of courses consists of at least nine graduate and upper division courses completed in graduate status, including at least five graduate courses. For the Master of Arts, Master of Science, and Master of Arts in Teaching, the five graduate courses may be in the 200 series (graduate courses and seminars) and the 500 series (directed individual study or research for graduate students). For other master's degrees, they may be in the 400 series (graduate professional courses) as well as in the 200 and 500 series. The application of 500-series courses to master's degrees is subject to limitations approved by the Graduate Council. Courses numbered in the 300 series are professional courses or preprofessional experience and are not applicable to University minimum requirements for graduate degrees.

Standard of Scholarship. UCLA requires at least a B average in all courses taken in graduate status on any campus of the University of California and in all courses for the master's degree.

Transfer of Credit. By petition, courses completed in graduate status on other University of California campuses may apply to master's programs at UCLA. If approved, such courses may fulfill up to one-half the total course requirement, one-half the graduate course requirement, and one-third the academic residence requirement.

Also by petition, courses completed with a minimum grade of B in graduate status at institutions other than the University of California may apply to UCLA master's programs. A maximum of two such courses (the equivalent of eight quarter units or five semester units) may apply, but these courses may not be used to fulfill either the five-graduate-course requirement or the academic residence requirement.

Courses in University Extension (100 series) taken *before* July 1, 1969 (identified with an asterisk in the University Extension bulletin of the appropriate year), may apply on approval by the department and the Dean of the Graduate Division. No more than two such courses (8 units) may apply, and they must have been completed after the student received his bachelor's degree. University extension courses taken *after* July 1, 1969 may not apply to the University minimum of 9 courses required for master's degrees, with the following exception: By petition to the Dean of the Graduate Division and with the recommendation of the major department, a maximum of two concurrent** courses (100, 200, or 400 series) completed through the University Extension, (with a grade of B or better, after the student has received his bachelor's degree) may be counted toward the nine-course University minimum requirement and toward the five-graduate-course requirement for the master's degree. However, the program for the master's degree shall include at least two graduate courses in the

*Under the Quarter System at UCLA, the term "course" refers to a full course (4 quarter units). With this as a standard, departments may offer a half course (2 quarter units), a course and a half (6 quarter units) or a double course (8 quarter units). The requisite nine-course minimum for a master's degree may be fulfilled through combination of such courses.

** Concurrent courses are courses which are offered by the University for regularly registered students in degree programs, and in which Extension students also enroll.

200 or 400 series completed after admission to regular graduate status. Any program which requires more than nine courses for the master's degree may accept concurrent courses completed through Extension, (with a grade of B or better, after the student has received his bachelor's degree) to meet one-half the course requirements over and above the University minimum of nine. Grades earned in University Extension are not included in computing grade averages for graduate students nor for the removal of graduate scholarship deficiencies. Correspondence courses are not applicable to graduate degrees.

See also Enrollment in Summer Session courses.

Academic Residence. The student completes at least three quarters of academic residence in graduate status at the University of California, including at least two quarters at UCLA. He is in academic residence if he completes at least one course (4 units) in graduate or upper-division work during a quarter.†

Foreign Language. If the degree program includes a foreign language requirement, every effort should be made to fulfill this before the beginning of graduate study or as early as possible thereafter so that the language skill will be of maximum benefit. The student normally meets these requirements by completing one or more examinations. In French, German, Russian and Spanish he takes examinations which the Educational Testing Service (ETS) offers at UCLA and at other locations throughout the United States several times a year. In other languages, examinations are administered by foreign language departments at UCLA. When language requirements are to be fulfilled by ETS examinations, prospective graduate students are normally encouraged to take these examinations, while still juniors and seniors if possible, and their scores, if sufficiently high, may be used to satisfy foreign language requirements for their graduate degrees. UCLA requires a minimum ETS score of 500 for passing.

Questions on foreign language requirements should be addressed to departments; questions about the examinations should be directed to the Language Examination Coordinator, Student and Academic Affairs Section, Graduate Division, or to the Educational Testing Service, Princeton, New Jersey 08540. See also the ANNOUNCEMENT OF THE GRADUATE DIVISION for a chart summarizing departmental foreign language requirements.

Advancement to Candidacy. Advancement to candidacy takes place after formal approval of the student's program, which may include work in progress. He files for advancement to candidacy no later than the second week of the quarter in which he expects to receive the degree. In case of unexpected delay in completing work in progress during the final quarter, he may have up to one additional year in which to complete all requirements.

THESIS OR COMPREHENSIVE EXAMINATION

Under the Thesis Plan, the student's thesis is a report of the result of his original investigation. Before beginning work on the thesis, the student obtains approval of the subject and general plan from the faculty members concerned and from his Thesis Committee. This Committee, consisting of three members appointed by the Dean of the Graduate Division, is responsible for final approval of the thesis. The Manuscript Adviser for Theses and Dissertations and the Graduate Division publication, STANDARDS AND PROCEDURES FOR ADVANCED DEGREE MANUSCRIPT PREPARATION, provide guidance in the final preparation of the manuscript.

Under the Comprehensive Examination Plan, the examination is administered by a committee, consisting of at least three members, appointed by the department. In certain fields this examination may also serve as a screening or qualifying examination for a doctoral program.

DEPARTMENTAL SCHOLAR PROGRAM

Departments may nominate exceptionally promising undergraduates (juniors and seniors) as Departmental Scholars to pursue bachelor's and master's degree programs simultaneously.

Qualifications include the completion of 24 courses (96 quarter units) at UCLA—or the equivalent at a similar institution— and the requirements in preparation for the major. To obtain both the bachelor's and master's degrees the Departmental Scholar must be provisionally admitted to the Graduate Division. He will fulfill requirements for each program and maintain a minimum average of B. He may not use any course to fulfill requirements for both degrees.

Departmental nominations are submitted to the Student and Academic Affairs Section of the Graduate Division, for approval by the Dean, on or before the application dates for admission to graduate standing. Interested students should consult their departments well in advance of these dates.

Under provisional admission to the Graduate Division, Departmental Scholars are not eligible for leaves of absence or participation in the Intercampus Exchange Program.

MASTER'S DEGREES OTHER THAN THE M.A. AND M.S.

For master's degrees other than the M.A. and M.S. there may be specific University minimum requirements in addition to the foregoing. Information on these may be obtained from the departmental graduate adviser.

Candidate in Philosophy Degree

In those departments for which the Graduate Council has approved formal proposals for its award, the intermediate degree Candidate in Philosophy (C.Phil.) may be awarded qualified students upon advancement to candidacy in Ph.D. programs. Requirements for the C.Phil. are identical with those for advancement to candidacy for the Ph.D., with the exception that the student must have completed four quarters of academic residence, including three quarters (ordinarily the last three) in continuous residence at UCLA. Applicants may obtain further information from the department in which they wish to study.

The **Candidate in Philosophy** is offered in the following fields:

- Biochemistry
- Chemistry
- Classics
- Economics
- English
- French
- Geography
- Geology
- Hispanic Languages and Literatures
- History
- *Indo-European Studies
- *Islamic Studies
- Italian
- Linguistics
- Management
- Mathematics
- Meteorology
- Music
- Near Eastern Languages and Literatures

† Enrollment in two six-week Summer Sessions (must be *consecutive* for doctoral candidates) counts as one quarter of residence provided the candidate is enrolled in each session for the equivalent of at least two units of upper division and/or graduate work as given in a regular quarter. Enrollment in an eight-week Summer Session counts as one quarter of residence provided the candidate is enrolled for the equivalent of at least four units of upper division and/or graduate work as given in a regular quarter. Academic residence that is earned through enrollment in Summer Session is limited to one-third of the degree requirements.

* Interdepartmental Programs.

Oriental Languages
Philosophy
Political Science
Psychology
*Romance Linguistics and Literature
Sociology
Theater Arts

Doctoral Degrees

The doctorate is awarded candidates who have displayed understanding in depth of the subject matter of their discipline as well as ability to make original contributions to knowledge in their field. The degree is an affidavit of critical aptitude in scholarship, imaginative enterprise in research, and proficiency and style in communication.

The Individual Ph.D. Program

The Individual Ph.D. Program has been established to allow superior students to pursue well-defined, scholarly, coherent programs that cannot be carried out within any existing doctoral program on any campus of the University of California. To be approved for an Individual Ph.D. Program, a student submits a proposal to the Graduate Council after having been a full-time graduate student at UCLA for at least one year, having proved qualified to pursue a departmental Ph.D. program, and having gained the support of at least three sponsoring members of the faculty as the result of the special efficacy of his dissertation proposal. University minimum standards with regard to courses, standards of scholarship, residence, and the dissertation apply.

Students should be aware of the fact that individual doctoral degrees may be of less value in the marketplace than standard departmental degrees. As a rule, departments in universities and colleges prefer to make appointments to individuals whose training is in a traditional field. It is likely that the same preference holds in relation to other opportunities for employment.

Further information regarding this program and the requirements for approval are available from the Graduate Division, 1225 Murphy Hall, University of California, Los Angeles, California 90024.

The **Doctor of Philosophy** is offered in the following fields:

Anatomy
Anthropology
*Archaeology
Art History
Astronomy
Biochemistry
Biological Chemistry
Biology
Biomathematics
Biostatistics
Chemistry
Classics
*Comparative Literature
Computer Science
Economics
Education
Engineering
English
Experimental Pathology
French
*Geochemistry
Geography
Geology
Geophysics and Space Physics
Germanic Languages
Hispanic Languages and Literatures
History
*Indo-European Studies
*Islamic Studies
Italian
Linguistics
Management
Mathematics
Medical Physics
Meteorology
Microbiology
Microbiology and Immunology
*Molecular Biology
Music
Near Eastern Languages and Literatures
*Neuroscience
Oriental Languages
Pharmacology
Philosophy
Physics
Physiology
Political Science
Psychology
Public Health
*Romance Linguistics and Literature
Slavic Languages and Literatures
Sociology
†Special Education
Theater Arts
Urban Planning

Other doctoral degrees offered:

Education (Ed.D.); Environmental Science and Engineering (D.Env.); Public Health (Dr. P.H.); Social Welfare (D.S.W.).

UNIVERSITY MINIMUM STANDARDS

Courses. The student takes whatever formal courses his department may require or recommend for knowledge in his field and preparation for qualifying examinations. The University has no general minimum course requirements for doctoral degrees other than the academic residence requirement. The 500 series of directed individual study or research courses is designed for graduate research, preparation for examinations, and preparation of the thesis or dissertation.

Standard of Scholarship. UCLA requires at least a B average in all courses taken on any campus of the University of California for the entire time the student has been in graduate status.

Academic Residence. The student completes at least two years of academic residence in graduate status at the University of California, including one year, ordinarily the second, in continuous residence at UCLA. In most cases a longer period of academic residence is necessary, however, and from three to five years is generally considered optimal. A graduate student is in academic residence if he completes at least one course (4 units) in graduate or upper-division work during a quarter.‡

Foreign Language. Every effort should be made to complete foreign language requirements before the beginning of graduate study or as early as possible thereafter so that the language skill will be of maximum benefit. In any case, students in doctoral programs requiring one or more languages must complete at least one language before the oral qualifying examination. The student normally meets these requirements by completing one or more examinations. In French, German, Russian and Spanish he takes examinations which the Educational Testing Service (ETS) offers at UCLA and at other locations throughout the United States several times a year. In other languages, examinations are administered by foreign language departments at UCLA. When language requirements are to be fulfilled by ETS examinations, prospective graduate students are normally encouraged to take these examinations while still juniors and seniors if possible, and their scores, if sufficiently high, will satisfy foreign language requirements for their graduate degrees. UCLA requires a minimum ETS score of 500 for passing.

* Interdepartmental Programs.
† Joint program with California State College at Los Angeles.

‡ Enrollment in two-six week Summer Sessions (must be *consecutive* for doctoral candidates) counts as one quarter of residence provided the candidate is enrolled in each session for the equivalent of at least two units of upper division and/or graduate work as given in a regular quarter. Enrollment in an eight-week Summer Session counts as one quarter of residence provided the candidate is enrolled for the equivalent of at least four units of upper division and/or graduate work as given in a regular quarter. Academic residence that is earned through enrollment in Summer Sessions is limited to one-third of the degree requirements.

Questions on foreign language requirements should be addressed to departments; questions about the examinations should be directed to the Language Examination Coordinator, Student and Academic Affairs Section, Graduate Division, or to the Educational Testing Service, Princeton, New Jersey 08540. See also the ANNOUNCEMENT OF THE GRADUATE DIVISION for a chart summarizing departmental foreign language requirements.

Qualifying Examinations. At an appropriate time in the doctoral program, written qualifying examinations are administered by a departmental guidance committee. After successful completion of these examinations and of part or all of the foreign language requirement, a doctoral committee is formally appointed by the Dean of the Graduate Division to conduct the oral qualifying examination and supervise the research and writing of the dissertation.

Advancement to Candidacy. After the student has successfully completed the oral qualifying examination, he is eligible for advancement to candidacy.

Dissertation. The candidate demonstrates his ability for independent investigation by completing a dissertation in his principal field of study. His choice of subject must be approved by his doctoral committee, which also reviews and approves the dissertation prospectus and guides him in the research and writing. The Manuscript Adviser for Theses and Dissertations and the UCLA publication, STANDARDS AND PROCEDURES FOR ADVANCED DEGREE MANUSCRIPT PREPARATION, provide guidance in the final preparation of the manuscript. Members of the Doctoral Committee and the Dean of the Graduate Division approve the completed dissertation.

Final Oral Examination. A final oral examination may be required at the option of the members of the Doctoral Committee who are to approve the dissertation, and in some departments it may be required of all candidates. Students should consult their Doctoral Committee chairman or departmental graduate adviser for further information.

Doctoral Degrees Other Than the Ph.D.

For doctoral degrees other than the Ph.D. there may be specific University minimum requirements in addition to the foregoing. Requirements for these degrees are described in the sections of this catalog devoted to the appropriate schools, and further information may be obtained from the announcements of these schools and from the graduate advisers.

Concurrent Degree Programs

Concurrent degree programs have been established in the disciplines listed below. Concurrent programs have the advantage of allowing the student to acquire the two degrees in less time than normally required if the courses of instruction are taken in sequence. The aim of these programs is to provide an integrated curriculum of greater breadth between the two disciplines. Inquiries should be directed to the departments or schools involved.

Economics, M.A.—Law, J.D.
Latin American Studies, Interdepartmental M.A.—Management, M.B.A.
Law, J.D.—Architecture and Urban Planning, M.A.
Management, M.B.A.—Law, J.D.

Interdepartmental Degree Programs

In addition to graduate degree programs offered in Schools and Departments, interdisciplinary graduate programs, involving two or more participating departments, are also offered. These programs are administered by interdepartmental faculty committees appointed by the Dean of the Graduate Division, acting for the Graduate Council.

African Area Studies (M.A.)
Archaeology (M.A., Ph.D.)
Comparative Literature (M.A., Ph.D.)
Comprehensive Health Planning (M.S.)
Environmental Science and Engineering (D.Env.)
Folklore and Mythology (M.A.)
Geochemistry (M.S., Ph.D.)
Indo-European Studies (Ph.D.)
Islamic Studies (M.A., Ph.D.)
Latin American Studies (M.A.)
Molecular Biology (Ph.D.)
Neuroscience (Ph.D.)
Romance Linguistics and Literature (M.A., Ph.D.)

Courses of Instruction

CLASSIFICATION AND NUMBERING

A capital "M" before the initial number of a course indicates multiple course listings in two or more different departments.

The classification and numbering of courses are described below.

Undergraduate Courses

Undergraduate courses are classified as lower division and upper division. Lower division courses (numbered 1-99) are open to freshmen and sophomores, and are also open to upper division students but without upper division credit. Upper division courses (numbered 100-199) are ordinarily open to students who have completed at least one lower division course in the given subject, or two years of college work. Courses in the 100 series may be offered in partial satisfaction of the requirements for the master's degree by a student registered in graduate status, if taken with the approval of the major department.

Courses numbered 198 are structured special studies courses for groups. They are not listed in the catalog because they vary in content and are offered irregularly.

Graduate Courses

Graduate courses (numbered 200-299) are ordinarily open to students admitted in 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.

Individual study or research graduate courses (numbered 500-599) may be used to satisfy minimum higher degree requirements within the limitations prescribed by the major department and approved by the Graduate Council.

Professional Courses

Teacher-training courses (numbered 300-399) are highly specialized courses dealing with methods of teaching, and are acceptable toward the bachelor's degrees only within the limitations prescribed by the various colleges or schools. Courses in this series do not yield credit toward a higher degree.

Courses numbered 400-499 are professional courses other than teacher-training courses. They are acceptable toward academic degrees only within the limitations prescribed by the various colleges, schools, or Graduate Division, Los Angeles.

University Extension Courses

University of California Extension courses bearing numbers 1-199, prefixed by X, XB, XD, XI, XL, XR, XSB, XSC, XSD yield credit toward the bachelor's degree. They are rated, with respect to the general and specific requirements for the degree, on the same basis as courses taken in residence at collegiate institutions of approved standing. Concurrent enrollment in resident courses and in University Extension courses (or courses at another institution) taken with a view to credit toward a degree is permitted only when the entire program has been approved in advance by the dean of the student's college.

Course Listings

Each course in the following listings by departments, as in the samples that follow, has the credit value of a full course unless otherwise noted. Thus a listing, **Mathematics 11A-11B-11C, Calculus and Analytic Geometry.**, indicates three full courses, 11A, 11B, and 11C; while a listing, **Dance, 114A-114F, Advanced Contemporary Dance. (½ course each)**, indicates six half courses, 114A, 114B, 114C, 114D, 114E, and 114F. Some courses have a variable value; for example, **Management 596A-596N. Research in Management. (¼ to 2 courses)**, where within the limits indicated, the exact value of the course is fixed for each individual student when he enrolls.

Where noted, credit for a specific course is dependent upon completion of a subsequent course.

Credit for Courses

The normal undergraduate program is four courses each quarter and a minimum of 45 courses is required for the bachelor's degree. At least nine courses are required for the master's degree. The credit value of a course is equivalent to 4.0 quarter units. Fractional or multiple courses are equivalent to proportionate numbers of quarter units.

■ AEROSPACE STUDIES

(Department Office, 251 Dodd Hall)

Ronald E. Haggler, M.B.A., *Lt. Colonel, U.S. Air Force, Professor of Aerospace Studies (Chairman of the Department).*

Steven W. Hoagland, M.A., *Captain, Assistant Professor of Aerospace Studies.*

Lawrence Pace, M.S., *Captain, Assistant Professor of Aerospace Studies.*

Stephen E. Sample, M.B.A., *Captain, Assistant Professor of Aerospace Studies.*

Air Force Reserve Officers Training Corps (Air Force ROTC)

Air Force ROTC provides selected students the opportunity to develop those attributes essential to their progressive advancement to positions of high responsibility as commissioned officers in the U.S. Air Force. This includes understanding Air Force history, doctrine, and operating principles, demonstrating ability to apply modern principles of management and human relations in the Air Force environment, and mastery of leadership theory and techniques.

Four-Year Program

The four-year program is open to beginning freshmen. It consists of an initial two-year General Military Course (GMC), described below, followed by a two-year Professional Officer Course (POC), described under "Two-Year Program." All Air Force ROTC students must enroll each quarter in the Leadership Laboratory as published in the UCLA Schedule of Classes.

Scholarship Program

Scholarships are available to qualified cadets in both the four-year and two-year programs. Scholarships cover full tuition, laboratory expenses, incidental fees, allowances for books, and a stipend of $100.00 per month.

Freshman Year

1A-1B-1C. U.S. Military Forces in the Contemporary World. (¼ course each)

Prerequisite: 1A is prerequisite to 1B and 1B is prerequisite to 1C. This sequence of courses examines the role of the Air Force in the contemporary world by studying the total force structure, strategic offensive and defensive forces, general purpose forces, and aerospace support forces.

Lt. Col Haggler

Sophomore Year

20A-20B-20C. The Developmental Growth of Air Power. (¼ course each)

Lecture-seminar, one hour. Prerequisite: courses 1A, 1B, 1C. These courses examine the development of air power over the past sixty years. They trace the development of various concepts of employment of air power and focus upon factors which have prompted research and technological change. Key events and elements in the history of air power are stressed, especially where these provide significant examples of the impact of air power on strategic thought.

Capt. Pace

Two-Year Program

The two-year Air Force ROTC program is offered to accommodate those students who have attained at least junior standing and have two years remaining in the University, either as an undergraduate or graduate student. A prerequisite for students entering this program is successful completion of a six-week field training course on an Air Force base during the summer preceding their enrollment in the program.

Students interested in this program must make application to the Professor of Aerospace Studies during the fall quarter preceding the six-week summer field training course. Students attending the six-week summer field training are provided meals, quarters, travel expenses, and are paid approximately $465.00. Students enrolled in the POC receive $100.00 per month retainer fee for 20 consecutive months.

Data concerning physical and age qualifications for flying and navigator training and for nonflying applicants is the same as for four-year program.

Four-Week Field Training Course

Students who complete GMC, and wish to enter POC, attend a four-week field training course the summer following GMC completion. At field training, students are provided meals, quarters, clothing, travel expenses, and are paid about $335.00 to cover incidental expenses. Subjects covered at field training include junior officer training, aircraft and aircrew orientation, career orientation, survival training, base functions, Air Force environment, and physical training.

Field Training Course Staff

130A-130B-130C. Concepts of Air Force Management and Leadership. (¾ course each)

Lecture-seminar, three hours. Prerequisite: 130A is prerequisite to 130B and 130B is prerequisite to 130C. This is a three part course. An analysis of the principles and functions of management, leadership and organizational behavior with special reference to the Air Force as a model. The course includes problem solving, information systems and models, quantitative methods and computer systems. Group discussions, case studies, films and role-playing will be used as teaching devices. Communicative skills will be strengthened through preparation of written reports and oral presentations.

Capt. Sample

140A. Military Judicial System. (¾ course)

Seminar, three hours. Prerequisite: course 130C. An introduction to the foundation of the military profession, and the Military Judicial System. Oral and written student reports will be expected.

Capt. Hoagland

140B. The Military in American Society. (¾ course)

Seminar, three hours. Prerequisite: course 140A. Examines forces and issues in the social context that affect the functioning of the U.S. military. Influence of social norms, societal pressures and cultural factors on the functioning of the military profession in the United States is analyzed. Communication techniques are strengthened and communicative abilities are oriented to Air Force requirements through preparation of papers, classroom presentations and discussion.

Capt. Hoagland

140C. American Defense Policy. (¾ course)

Seminar, three hours. Prerequisite: course 140B. Examines U.S. security policy with respect to factors that influence its formulation, the bureaucracy that formulates and implements it, and the forms it has taken and may take in the future. Communication techniques are strengthened, and communication abilities are oriented to Air Force requirements through preparation of papers and classroom presentation and discussion.

Capt. Hoagland

■ AFRICAN AREA STUDIES (INTERDEPARTMENTAL)

Special Program in African Studies

For details of the program in African Studies taken in conjunction with a bachelor's degree, see Interdisciplinary Majors in Area Studies.

Master of Arts in African Area Studies

The Master of Arts in African Studies is administered by an Interdepartmental Committee. Members of this Committee are: Michael F. Lofchie (Political Science), Chairman; Jacques Maquet (Anthropology); D. S. Hobbs (Political Science); Wendell Jones (Education); Boniface I. Obichere (History); John F. Povey (English); Antony Orme (Geography); and W. E. Welmers (Linguistics); Christopher Ehret (History); Richard Sklar (Political Science).

The program for the Master of Arts in African Area Studies is designed to provide interdisciplinary training in the African area. It thus provides the student an opportunity to concentrate his work on the African area through a variety of disciplinary perspectives. The M.A. program also furnishes an approach to doctoral work related to Africa. Students gain exposure to several disciplines before deciding on the one most closely suited to their interests and capabilities. The degree is intended to (a) allow entering graduate students interested in Africa to gain an in-depth knowledge of this world area and (b) give an African area dimension to the studies of students within specific academic disciplines. The Center gives new emphasis to the arts and humanities in relation to Africa, and it is now possible to concentrate on these subjects within the framework of the Master of Arts in African Studies. For example, such subjects as African Literature in French or English, Ethnomusicology and traditional African Art may be combined with background studies in one or more social sciences to produce an intellectual synthesis.

A doctor's degree in African Area Studies is not offered. Students interested in pursuing doctoral programs with an emphasis on Africa should write directly to the department in which they are interested.

Admission to the M.A. Program

In addition to meeting the requirements of the Graduate Division, the student must have adequate preparation in undergraduate fields related to the program. Required preparation for the Master's degree in African Area Studies is a degree of Bachelor of Arts in the social sciences or arts and humanities. The program requires between one and two years to complete, depending upon the student's preparation and the courses selected.

Requirements for the Master's Degree

General Requirements: See the Graduate Division.

The student must demonstrate linguistic capacity in a language other than English in one of the following ways. (a) Pass the Educational Testing Service language examination in a European language with a score of 500 or higher. (b) Take three quarter-length courses (12 units) in an African language. These courses will not count toward the nine courses required for the degree. (c) Pass a departmental examination in a language not offered through the Educational Testing Service. (d) Prove that the student is a native speaker of an African or European language. (e) Prove the student majored in a foreign language or that he completed five courses in a foreign language with a B average as an undergraduate, and (f) Prove that the student has a Foreign Service Institute rating of 3 or better in an African or European language.

Students whose first language is other than English may petition the Graduate Adviser for a waiver of the language requirement.

Course of Study. A minimum of nine courses dealing with Africa in at least three disciplines. Of these, five or more must be at the graduate level (200 series). A student in the Master's Program must offer a major and a minor field. Major field concentration is defined as a minimum of four courses, of which two must be at the graduate level; minor field concentration is defined as a minimum of two courses, at least one of which must be at the graduate level. A student may, with the consent of the graduate adviser, offer methodology courses or contrastive courses for purposes of completing his major or minor fields of concentration. The student will be held responsible for both the major and minor fields in his final examination sequence for the M.A. degree. As a third discipline, a student will be expected to take African Languages 190 (Survey of African Languages) or a survey course on Africa in a field outside his major and minor areas of concentration.

Qualifying Examination: Students must pass a written comprehensive qualifying examination in the major and minor disciplines. This examination must be prepared and graded by a committee consisting of at least three faculty members at least two of whom are in the student's major department. It is the student's responsibility to make arrangements for this examination with faculty members in the appropriate department. Students should have these arrangements completed by the middle of their second quarter in residence. Any student who fails the written examination will be allowed to retake it only with the written consent of the graduate adviser and major field examiners.

Oral examination: The normal presumption is that an oral examination will be held. This oral examination may be waived if, in the view of the qualifying examination committee, it would be unnecessary.

The following courses pertaining to Africa are offered by the departments listed. With the approval of the Committee, other related courses may be included in a student's program.

Anthropology 107A-107B. Peoples of Africa.
141. Social and Psychological Aspects of Myth and Ritual.
143. The Individual in Culture.
148. Personality and Social Systems.
152. Traditional Political Systems.
208. African Cultures.
258. Selected Topics in African Cultures.
261. Selected Topics in Ethnology.
269. Selected Topics in Economic Anthropology.
M285A-285B. Seminar in European Archaeology.

Art 118C. The Arts of Sub-Saharan Africa.
119A. Advanced Studies in African Art: The Western Sudan.
119B. Advanced Studies in African Art: The Guinea Coast.
119C. Advanced Studies in African Art: The Congo.
220. The Arts of Africa, Oceania and Pre-Columbian America.

Economics 110. Economic Problems of Underdeveloped Countries.
111. Theories of Economic Growth and Development.
112. Policies for Economic Development.
211. Economic Growth: Measurement and Theory.
212. Economic Development of Underdeveloped Areas: Theory and Policy.
596. Individual Study (Africa).

Education 204A. Schooling in Comparative Perspective.
204B. Introduction to Comparative Education.
253A. Current Problems in Comparative Education.
253B. Seminar: African Education.

English 114. World Literatures in English.
250K. Constrasting Analysis of English and Other Languages (Seminar).
271. Studies in African Literature in English.
370K. The Teaching of English as a Second Language.

French 221A. Introduction to the Study of French African Literatures.
221B. French-African Literature of Madagascar and Bantu Africa.
221C. French-African Literature of Berber-Sudanese and Arabo-Islamic Africa.
257A-257B. Studies in the French-African Literature.

Geography 188. Northern Africa.
189. Middle and Southern Africa.
288. Seminars in Regional Geography: Northern Africa.

History 125A-125B-125C. History of Africa.
126A-126B. History of West Africa.
127A-127B. History of East and Central Africa.
128A-128B. History of Southern Africa.
129. History of Northeast Africa.
133A-133B. History of North Africa from The Moslem Conquest.
135A. Introduction to Islamic Culture.
158A-158B. The British Empire Since 1783.
199. Special Studies in History (Africa).
230N. Advanced Historiography (Africa).
240N. Topics in History (Africa).
264A-264B. Seminar in British Empire History.
265A-265B. Seminar in African History.
267A-267B. Seminar in Near Eastern History.
596. Directed Studies.

Linguistics 220A. Linguistic Areas (Africa).
African Languages 101A-101B-101C. Elementary Swahili.
102A-102B-102C. Intermediate Swahili.
103A-103B-103C. Advanced Swahili.
104A-104B-104C. Elementary Luganda.
107A-107B-107C. Elementary Zulu.
108A-108B-108C. Intermediate Zulu.
109A-109B-109C. Elementary Xhosa.
110A-110B-110C. Intermediate Xhosa.
111A-111B-111C. Elementary Yoruba.
112A-112B-112C. Intermediate Yoruba.
113A-113B-113C. Elementary Igbo.
114A-114B-114C. Intermediate Igbo.
115A-115B-115C. Elementary Twi.
121A-121B-121C. Elementary Fula.
131A-131B-131C. Elementary Bambara.
132A-132B-132C. Intermediate Bambara.
141A-141B-141C. Elementary Hausa.
142A-142B-142C. Intermediate Hausa.
143A-143B-143C. Advanced Hausa.
150A-150B. African Literature in English Translation.
190. Survey of African Languages.
192. Comparative Studies in African Languages.
199. Special Studies in African Languages.
201A-201B. Comparative Niger-Congo.
202A-202B-202C. Comparative Bantu.
270. Seminar in African Literature.
596. Directed Studies.

Music 140A-140B-140C. Musical Cultures of the World.
143A-143B. Music of Africa.
190A-190B. Proseminar in Ethnomusicology.
255. Seminar in Musical Instruments of the Non-Western World.
280. Seminar in Ethnomusicology.

Near Eastern Languages

Arabic 102A-102B-102C. Intermediate Arabic.
103A-103B-103C. Advanced Arabic.
111A-111B-111C. Spoken Egyptian Arabic.
130A-130B-130C. Classical Arabic Texts.
140A-140B-140C. Modern Arabic Texts.
150A-150B. Survey of Arabic Literature in English.
199. Special Studies in Arabic.
Berber Languages 101A-101B-101C. Elementary Berber.
102A-102B-102C. Advanced Berber.
120A-120B-120C. Introduction to Berber Literature.
199. Special Studies in Berber Languages.
Semitics 101A-101B-101C. Elementary Amharic (Modern Ethiopic).
102A-102B-102C. Advanced Amharic (Modern Ethiopic).
201A-201B-201C. Old Ethiopic.
202A-202B-202C. Reading in Old Ethiopic Literature.
209A-209B-209C. Comparative Study of the Ethiopian Languages.
280A-280B-280C. Seminar in Comparative Semitics.
290A-290B-290C. Comparative Morphology of the Semitic Languages.

Political Science 115. Theories of Political Change.
130. New States in World Politics.

165. Government and Politics in North Africa.
166A-166B-166C. Government and Politics in Sub-Saharan Africa.
167. Ideology and Development in World Politics.
250E. African Studies.
250K. North African Studies.
271. Seminar in Political Change.
596. Directed Individual Study or Research (Africa).

Sociology 130. Social Processes in Africa.
132. Population and Society in the Middle East.
140. Political Sociology.
235. Social Structure and Social Movements.
255A-255B. Systematic Sociological Theory.
258. Sociology of Religion.
272. Topics in Political Sociology.
596. Directed Individual Study and Research in Sociology (Africa).

■ ANATOMY

(Department Office, 73-235 Health Sciences Center)

*W. Ross Adey, M.D., *Professor of Anatomy and Physiology.*
*Nathaniel A. Buchwald, Ph.D., *Professor of Anatomy in Residence.*
*Carmine D. Clemente, Ph.D., *Professor of Anatomy.*
Edwin L. Cooper, Ph.D., *Professor of Anatomy.*
*Earl Eldred, M.D., *Professor of Anatomy.*
*John D. French, M.D., *Professor of Anatomy and Clinical Professor of Surgery.*
*Roger A. Gorski, Ph.D., *Professor of Anatomy.*
*James N. Hayward, M.D., *Professor of Neurology and Anatomy.*
*Lawrence Kruger, Ph.D., *Professor of Anatomy.*
*David S. Maxwell, Ph.D., *Professor of Anatomy and Psychiatry (Vice Chairman, Gross Anatomical Teaching Resources).*
*Daniel C. Pease, Ph.D., *Professor of Anatomy (Chairman of the Department).*
*Charles H. Sawyer, Ph.D., *Professor of Anatomy.*
*Arnold B. Scheibel, M.D., *Professor of Anatomy and Psychiatry.*
*John D. Schlag, M.D., *Professor of Anatomy.*
*José P. Segundo, M.D., *Professor of Anatomy.*
G. Douglas Silva, F.D.S., M.R.C.S., *Professor of Dentistry and Medicine.*
Reidar F. Sognnaes, Ph.D., D.M.D., *Professor of Oral Biology and Anatomy.*
*M. B. Sterman, Ph.D., *Professor of Anatomy and Physiological Psychology in Residence.*
Bernard Towers, M.B., Ch.B., (Liv.), M.R.C.S., L.R.C.P., *Professor of Pediatrics and Anatomy.*
Richard W. Young, Ph.D., *Professor of Anatomy.*
*Mary A. B. Brazier, Ph.D., *Emeritus Professor of Anatomy and Physiology in Residence.*
*H. W. Magoun, Ph.D., *Emeritus Professor of Anatomy.*
Richard E. Ottoman, M.D., *Emeritus Professor of Radiology and Anatomy.*
George W. Bernard, D.D.S., Ph.D., *Associate Professor of Dentistry (Oral Biology) and Anatomy.*
P. Dean Bok, Ph.D., *Associate Professor of Anatomy.*
John H. Campbell, Ph.D., *Associate Professor of Anatomy in Residence.*
Anatol Costin, M.D., Ph.D., *Associate Professor of Anatomy in Residence.*
*Emilio E. Decima, M.D., *Associate Professor of Anatomy.*
Jean S. de Vellis, Ph.D., *Associate Professor of Anatomy.*
*Rafael Elul, M.D., *Associate Professor of Anatomy.*
Louis J. Goldberg, D.D.S., Ph.D., *Associate Professor of Dentistry (Oral Biology) and Anatomy.*
Richard N. Lolley, Ph.D., *Associate Professor of Anatomy in Residence.*
William K. Stell, M.D., Ph.D., *Associate Professor of Ophthalmology and Anatomy.*
*Anna N. Taylor, Ph.D., *Associate Professor of Anatomy in Residence.*
*Charles D. Woody, M.D., *Associate Professor of Psychiatry, Physiology and Anatomy in Residence.*
*Emery G. Zimmermann, M.D., Ph.D., *Associate Professor of Anatomy (Vice Chairman for Graduate Affairs).*
Anthony M. Adinolfi, Ph.D., *Assistant Professor of Anatomy and Psychiatry in Residence.*
*Ronald M. Harper, Ph.D., *Assistant Professor of Anatomy in Residence.*

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David S. Barkley, Ph.D., *Assistant Research Anatomist and Assistant Professor of Pathology in Residence.*
Suzanne M. Bawin, Ph.D., *Assistant Research Anatomist.*
Hugh L. Bryant, Ph.D., *Assistant Research Anatomist.*
*Michael Chase, Ph.D., *Associate Research Anatomist and Adjunct Associate Professor of Physiology.*
Earle E. Crandall, M.D., Ph.D., F.A.C.S., *Assistant Clinical Professor of Anatomy.*
Thomas L. Davies, Ph.D., *Assistant Research Anatomist.*
Ellen R. Dirksen, Ph.D., *Acting Associate Professor of Anatomy.*
*Thelma Estrin, Ph.D., E.E., *Research Engineer in Anatomy and Senior Lecturer.*
Debora G. Farber, Ph.D., *Assistant Research Anatomist.*
Jack Fromkin, Ph.D., *Associate Research Anatomist.*
William S. Glassman, M.D., *Assistant Clinical Professor of Anatomy.*
Stanley J. Gross, M.D., *Adjunct Professor of Anatomy.*
Frances S. Grover, Ph.D., *Lecturer in Anatomy.*
Fred Herzberg, D.D.S., *Research Anatomist and Professor of Oral Biology.*
Raymond J. Last, F.R.C.S., *Visiting Professor of Anatomy.*
*Robert D. Lindsay, Ph.D., *Assistant Research Anatomist.*
*Rafael Lorente de Nó, M.D., *Visiting Professor of Anatomy and Surgery.*
Omar S. Macadar, M.D., *Assistant Research Anatomist.*
Dennis J. McGinty, Ph.D., *Assistant Research Anatomist.*
Rochelle J. Gavalas Medici, Ph.D., *Associate Research Anatomist.*
Samuel L. Moise, Ph.D., *Assistant Research Anatomist.*
Dwight M. Nance, Ph.D., *Assistant Research Anatomist.*
*Hiroharu Noda, M.D., Ph.D., *Associate Research Anatomist.*
Anselmo R. Pineda, M.D., *Associate Clinical Professor of Anatomy.*
Madeleine L. H. Schlag-Rey, Ph.D., *Assistant Research Anatomist.*
Sant S. Sekhon, Ph.D., *Associate Research Anatomist.*
Norman S. Shafer, M.D., *Assistant Clinical Professor of Anatomy.*
James R. Soares, Ph.D., *Assistant Research Anatomist.*
Michael Stevenson, Ph.D., *Assistant Research Anatomist.*
*Donald O. Walter, Ph.D., *Adjunct Associate Professor of Physiology and Associate Research Anatomist.*
Alfred Weinstock, D.D.S., Ph.D., *Associate Clinical Professor of Dentistry and Anatomy.*
Richard K. Wright, Ph.D., *Assistant Research Anatomist.*
*Wanda Wyrwicka, Ph.D., *Research Anatomist.*

Admission to Graduate Status

Students intending to take advanced degrees in the Department of Anatomy must have a bachelor's degree in physical or biological science, or in the premedical curriculum. Introductory courses in zoology and vertebrate embryology are required, as well as one year of general and organic chemistry and one year of college physics. Deficiencies in these courses must be made up before the student is admitted. Strongly recommended are courses in comparative anatomy, microscopic technique, elementary statistics, philosophy of science, and scientific German and French.

*Member of the Brain Research Institute.

Requirements for the Master of Science Degree

The student seeking to enter the profession of anatomy must apply himself directly to attaining the Ph.D. degree. The Department offers the Master of Science degree only for the restricted purposes of individuals whose major interest lies in allied fields (paramedical subjects, postgraduate medicine or dentistry).

Candidates may elect either the thesis or examination plan. If the latter, the candidate must demonstrate a knowledge of general principles of anatomy, as well as competence in a restricted area of the science. The following courses are required of all master's candidates: two of the major anatomy courses chosen from Anatomy 101, 206A-206B and 207A-207B; one departmental seminar; other courses as necessary to the candidate's particular program. No foreign language is required.

Requirements for the Doctor of Philosophy Degree

The following courses are required: Anatomy 101, 206A-206B, 207A-207B; Biochemistry; Mammalian Physiology; at least two different departmental seminars; additional courses selected by the student and his adviser as necessary to his program.

The student must demonstrate the ability to read two foreign languages. The first should be selected from a choice of German or French, but Russian and Spanish may be accepted upon departmental approval. The second language may be any modern language, provided the student can demonstrate its particular value to his area of study. An individual course of study may be substituted for the second language upon departmental approval. The student must complete successfully both written and oral qualifying examinations; gain teaching experience in three of the major anatomy courses; present and defend his dissertation on his research. His total program should not require more than four years to complete.

Upper Division Courses

101. Microscopic Anatomy. (2 courses)
Four three-hour sessions per week in the fall quarter. Prerequisite: enrollment in School of Medicine or consent of the instructor. Microscopic study of the tissues and organs of the human body.
Mr. Young and the Staff

102A-102B. Gross Anatomy of the Human Body. (½ course, 2 courses)
(Formerly numbered 100 and 102.) One hour of lecture and four of lab per week in the winter quarter; four hours of lecture and twelve of lab per week in the spring. Prerequisite: enrollment in School of Dentistry or consent of the instructor. Course 102A is prerequisite to 102B. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Systemic and topographical human anatomy with dissection of the human cadaver. Emphasis on head and neck.
Mr. Adinolfi and the Staff

103. Basic Neurology.
Two four-hour sessions and one three-hour session per week in the spring quarter. Prerequisite: enrollment in School of Medicine. Must be taken concurrently with Physiology 103. Lectures, conferences, demonstrations and laboratory procedures necessary to an understanding of the function of the human nervous system.
Mr. Schlag and the Staff

104. Mammalian Histology. (1½ courses)
Three three-hour sessions per week in the fall quarter. Prerequisite: enrollment in School of Dentistry or consent of the instructor. Lectures, demonstrations and laboratories dealing with the structural organization of tissues and organs at the microscopic level.
Mr. Campbell and the Staff

105A-105B. Gross Anatomy.
See 207A-207B. Gross Anatomy.

106. Mammalian Neurology.
One one-hour session and one four-hour session per week in the winter quarter. Prerequisite: enrollment in School of Dentistry or consent of the instructor. Lectures, demonstrations and laboratories dealing with the fundamental structure and functional organization of the nervous system.
Mr. Kruger, Mrs. Taylor and the Staff

Graduate Courses

M206A-206B. Neurosciences: The Introductory Course for Graduate Students. (1¼, courses, 1¾ courses)
(Same as Neurosciences M206A-206B.)Two hours of lecture and two of lab per week in the winter quarter; five hours of lecture and two of lab per week in the spring quarter. Prerequisite: a course (or equivalent) in basic and/or general physiology such as Biology 171 or Physiology 101 or consent of instructor. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Introductory course in the basic principles of the nervous system for graduate students as a prerequisite to more advanced courses. Fundamental approaches to neuroanatomy (Winter Quarter), neurophysiology and the brain mechanisms for behavior (Spring Quarter) will be stressed.
Mr. Decima, Mr. Scheibel and the Staff

207A-207B. Gross Anatomy. (2 courses, 1 course)
Four four-hour sessions per week in the fall quarter; two four-hour and one 1-hour session per week in the winter quarter. Prerequisite: consent of the instructor. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Lectures and dissection of the human body. Medical students must enroll for Anatomy 105A-105B.
Mr. Sawyer and the Staff

208A-208B. Electronics for Neuroscientists.
Two hours of lecture and four of lab per week in the fall and winter quarters. Prerequisite: consent of instructor. To develop an understanding of electronic methods used in neuroscience. Basic principles of passive networks, operational amplifiers, semiconductor theory, digital logic, waveform generation, signal conditioning, data acquisition methods and neurophysiological instrumentation systems will be treated. S/U grading only.
Mrs. Estrin and the Staff

209. Fine Structure and Function in the Central Nervous System. (½ course)
Two one-hour sessions per week in the fall quarter of even-numbered calendar years. Prerequisite: Basic Neurology. Lectures and discussion of the fine structure of selected areas of central nervous system, together with related electrical and biochemical patterns of activity.
Mr. Scheibel

211. Anatomical and Physiological Substrates of Behavior.
One two-hour lecture and demonstration per week in the fall quarter with labs scheduled by instructor when desirable. Prerequisite: Microscopic Anatomy, Mammalian Physiology. Anatomy and physiology of cerebral processes in alerting, learning and memory.
Mr. Adey

212. Neural Mechanisms of Inhibition. (½ course)
Two hours per week in the fall quarter of even-numbered calendar years. Prerequisite: Basic Neurology. A systematic consideration of inhibitory processes in the nervous system from the synapse to integrated behavior. Special attention is given to the recent concepts of inhibition at the behavioral level and their implications for learning, emotion and mental health.
Mr. Sterman

213. Evolution and the Structure of Biomolecules. (½ course)
One two-hour session per week in the spring quarter. Prerequisite: consent of instructor and upper level courses in two of the following subjects: genetics, evolution, biochemistry. Interpretation of pattern in molecular organization of living organisms in terms of evolution, and considerations of the impact of such pattern on evolutionary theory.
Mr. Campbell

214. Data Acquisition in Behavioral Neurophysiology.
Two hours per week in the winter quarter of odd-numbered calendar years. Prerequisite: course 211. Neurophysiological techniques in behavioral studies; data acquisition systems and computer analysis of neurophysiological data.
Mr. Adey

215. Biopotentials in Volume Conductor. (½ course)
Two hours of lecture per week in the winter quarter of even-numbered calendar years. This course will provide medical and graduate students with the theoretical background for interpretation of biopotentials recorded through volume conductor, such as EEG, ERG, EMG, and ECG.
Mr. Elul

216. Microphysiology of EEG and Evoked Potentials. (½ course)
Two hours of lecture per week in the winter quarter of odd-numbered calendar years. Prerequisite: course 215 or consent of the instructor. The cellular processes underlying generation of spontaneous brain activity (EEG) and evoked potentials will be studied, as well as the statistical laws controlling summation of individual cellular activities which form the potentials recorded by gross electrodes.
Mr. Elul

217. Cell Motility. (½ course)
Lecture, two hours. Prerequisite: consent of instructor. An analysis, at the cellular and molecular level, of microtubule and microfilament involvement in cell motility; ciliary movement, chromosome movement, cytokinesis, amoeboid movement and protoplasmic streaming.
Ms. Dirksen

M219. Human Embryology and Fetal Physiology. (½ course)
(Same as Pediatrics M219.) Two hours of lecture per week in the fall quarter. Prerequisite: courses 101 and 207 (or equivalent) and consent of instructor. The development of major organ-systems is discussed, in terms of both structure and function, as a basis for understanding congenital abnormalities and some of the problems associated with premature birth.
Mr. Towers

211. Gross Anatomy of the Head and Neck.
Prerequisite: courses 102A-102B or 105A-105B or 207A-207B. Two hours of lecture, one of discussion and six of lab per week. Intensive and advanced study of the head and neck with relevant study of the thorax and axilla. Special emphasis is placed on applied anatomy and on understanding basic organizational concepts.

This course is intended for those who anticipate research or professional school teaching. Enrollment limited to 12. Offered in the spring quarter only of even-numbered years.

Mr. Maxwell

M232. Vertebrate Visual System, I: The Retina.

(Same as Physiology M232 and Ophthalmology M232.) Two hours of lecture and two of discussion per week. Prerequisite: microscopic anatomy and neurophysiology and consent of instructor. The functional organization of the retina is considered, with emphasis on cellular structure and electrophysiology. Topics will be selected from: light absorption and generation of photoreceptor response; synaptic mechanisms and pathways for analysis of form, color, etc.; coding in optic nerve fibers. May be repeated for credit with departmental approval.

Mr. Stell and the Staff

251. Problems in Developmental and Comparative Immunology. (½ course)

One two-hour session per week in the winter quarter. Prerequisite: consent of the instructor. Review of current literature emphasizing early development and evolution of immune competence.

Mr. Cooper

252. Seminar on Basic and Quantitated Neurophysiology. (½ course)

Prerequisite: consent of the instructor. One 90-minute session of lecture and one of discussion per week. Lecture series on basic neurophysiology. Early lectures by invited specialists on their specific fields. Later lectures one per student and on a topic chosen and prepared in collaboration with the instructor. Offered in the spring quarter only of even-numbered years.

Mr. Segundo

253. Communication and Coding in Nervous Systems.

Two 90-minute and one two-hour sessions per week. Prerequisite: consent of the instructor. Presentation, discussion and critique of efforts to quantify neuronal function, where the essence of the mathematics is expressed in qualitative and physiologically meaningful terms. For example, stability, neurons as analyzers of spike trains, identification of synaptic operators. Offered in the spring quarter only of odd-numbered years.

Mr. Segundo

255A-255D. Seminar in Endocrinology. (½ course each)

One two-hour lecture per week in the winter and spring quarters. Prerequisite: consent of the instructor.

Mr. Sawyer and the Staff

257. Journal Reviews in Experimental Anatomy. (½ course)

One two-hour session per week. Research frontiers in various fields of experimental anatomy are reviewed and mutually discussed by graduate students and professors.

The Staff

258. Seminars in Neuroscience. (½ course)

Two hours per week in the fall quarter of odd-numbered, and winter quarter of even-numbered calendar years. Prerequisite: a course in basic neurology and course 209. Topics of current interest or ongoing research projects are presented, and both content and method of presentation are examined. May be repeated for credit.

Mr. Scheibel

259. Environmental Neurobiology. (½ course)

Two hours of lecture per week in the winter quarter. Prerequisite: consent of the instructor. Physiological and biochemical mechanisms underlying the effects of different environments on brain morphology and physiology will be studied. Physical stress, emotional stress, light, acoustic stimulation, gravity (results of space flights), electrical and magnetic fields, industrial and agricultural pollutants will be discussed.

Mr. Costin

265. Evolution of Cancer. (½ course)

Two hours of lecture or discussion per week during the winter quarter. Prerequisite: consent of the instructor. Review of current literature emphasizing the appearance of tumors and neoplasms in representative invertebrates, fishes, amphibians and reptiles. Theories of cancer development will be treated from the evolutionary viewpoint.

Mr. Cooper

495. Communicating Scientific Information. (½ course)

Two hours of lecture per week in the winter quarter. Prerequisite: enrollment as a candidate for advanced degree in Anatomy. Student papers and lectures serve as the basis for group discussions of the art and science of effective written and oral communication of scientific information. May be repeated for credit.

The Staff

501. Cooperative Program. (½ to 2 courses)

Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

Individual Study and Research

596. Directed Individual Study or Research. (½ course to 3 courses)

The Staff

597. Preparation for the Master's Comprehensive Examination or the Doctoral Qualifying Examination. (½ course to 3 courses)

The Staff

598. Thesis Research for Master's Candidates. (½ course to 3 courses)

The Staff

599. Dissertation Research for Ph.D. Candidates. (½ course to 3 courses)

The Staff

MEDICAL HISTORY DIVISION

(Office, 73-244 Center for the Health Sciences)

Franklin D. Murphy, M.D., Sc.D., *Professor of Medical History.*

John Field, II, Ph.D., *Emeritus Professor of Medical History and Physiology.*

L. R. C. Agnew, M.D., *Associate Professor of Medical History.*

Robert G. Frank, Jr., Ph.D., *Assistant Professor of Medical History and History.*

Ynez V. O'Neill, Ph.D., *Assistant Professor of Medical History in Residence.*

Louise M. Darling, M.A., *Lecturer in Medical History and Library and Information Science and Associate University Librarian.*

Elizabeth R. Lomax, M.D., Ph.D., *Assistant Research Medical Historian.*

Upper Division Courses

107B. Historical Development of Medical Sciences.

Three hours per week in the spring quarter. The major contributions of medicine and medical personalities from the 5th century B.C. to the 19th century A.D. Illustrated lectures and required readings from selected texts.

Mr. Agnew, Mrs. O'Neill

M108A-108B. History of Biological Sciences.

(Same as History M106E-106F.) Three hours per week in the fall and winter quarters. Prerequisite: upper division standing. M108A: Biological sciences from ancient times to the early nineteenth century. M108B: Biological sciences from the early nineteenth century to the mid-twentieth century.

Mr. Frank

110. Medicine and Society in 20th Century America.

Three hours per week in the spring quarter. Prerequisite: consent of instructor. Preference given to Health Sciences students. Reading and conference course on social aspects of the growth of medical care, education, and research in the United States since the late nineteenth century.

Mr. Frank

M197. The Biomedical Sciences in the 19th Century.

(Same as History M106G.) Three hours per week in the spring quarter. Readings and discussions. Prerequisite: consent of instructor. Topics in the growth of the biomedical sciences and their institutions in Europe and America, from the French Revolution to approximately 1900.

Mr. Frank

Graduate Courses

240A-240B. History of Medical Sciences. (½ course each)

One hour per week in the fall and winter quarters. Survey of the development of scientific and medical thought from ancient times to the present.

The Staff

241A-241B. History of Clinical Sciences. (½ course each)

One hour per week in the fall and winter quarters. Survey of the development of the clinical specialties and comparison of medical practice in western civilization with that developed in other parts of the world.

Mr. Agnew

242. History of Pathology. (¼ course)

One hour per week in the fall quarter. Survey of the history of pathology and related sciences from antiquity to the 20th century, tracing the development of pathological theory, practice, organization and education and comparing them to current practice.

Mr. Agnew

243. History of Surgery. (¼ course)

One hour per week in the winter quarter. Survey of the history of surgery and related sciences from antiquity to the 20th century, tracing the development of surgical theory, practice, organization and education and comparing them to current practice.

Mr. Agnew

244. History of American Medicine. (¼ course)

One hour per week in the spring quarter. Survey of the history of medicine in the United States from the colonial period to the present.

Mr. Agnew

246. History of Neurophysiology. (½ course)

Eight one hour lectures in the winter quarter, covering the development of experimental neurophysiology from its scientific roots in the 17th century, through the recognition in the 18th century of the excitability of the nervous system, to the use of this characteristic for revealing the functions of spinal cord and brain.

Mrs. Brazier

250. History of Neurology and Medical Psychology. (½ course)

One hour per week in the spring quarter. An examination of the themes underlying modern mental health theories. Beginning with a review of contemporary thinking, the lectures focus upon the various factors shaping present concepts of mental disorders, and provide a framework for the understanding of current issues.

Mrs. O'Neill, Mrs. Lomax

Individual Study and Research

596. Directed Individual Studies in Medical History.

Investigation of subjects in medical history selected by students with the advice and direction of the instructor in the fall, winter and spring quarters. Individual reports and conferences.

The Staff

599. Research for and Preparation of the Doctoral Dissertation. (1 to 2 courses)

Investigation of materials relative to the doctoral dissertation, their evaluation and written presentation.

The Staff

■ ANTHROPOLOGY

(Department Office, 341 Haines Hall)

Walter R. Goldschmidt, Ph.D., *Professor of Anthropology.*
Hilda Kuper, Ph.D., *Professor of Anthropology.*
Jacques Maquet, Ph.D. *Professor of Anthropology.*
Clement W. Meighan, Ph.D. *Professor of Anthropology.*
Michael Moerman, Ph.D., *Professor of Anthropology.*
Henry B. Nicholson, Ph.D., *Professor of Anthropology.*
Wendell H. Oswalt, Ph.D., *Professor of Anthropology.*
Hiroshi Wagatsuma, Ph.D., *Professor of Anthropology.*
Johannes Wilbert, Ph.D., *Professor of Anthropology.*
Ralph L. Beals, Ph.D., *Emeritus Professor of Anthropology.*
Joseph B. Birdsell, Ph.D., *Emeritus Professor of Anthropology.*
William A. Lessa, Ph.D., *Emeritus Professor of Anthropology.*
Christopher Donnan, Ph.D., *Associate Professor of Anthropology.*
James N. Hill, Ph.D., *Associate Professor of Anthropology.*
Allen W. Johnson, Ph.D., *Associate Professor of Anthropology.*
Donald G. Lindburg, Ph.D. *Associate Professor of Anthropology.*
Philip L. Newman, Ph.D., *Associate Professor of Anthropology.*
James R. Sackett, Ph.D., *Associate Professor of Anthropology (Chairman of the Department).*
Bobby J. Williams, Ph.D., *Associate Professor of Anthropology.*
Robert Byles, Ph.D., *Assistant Professor of Anthropology.*
Timothy Earle, Ph.D., *Assistant Professor of Anthropology.*
Fadwa El Guindi, Ph.D., *Assistant Professor of Anthropology.*
David G. Epstein, Ph.D., *Assistant Professor of Anthropology.*
Marlys McClaran, Ph.D., *Assistant Professor of Anthropology.*
Claudia Mitchell-Kernan, Ph.D., *Assistant Professor of Anthropology.*
Dwight Read, Ph.D., *Assistant Professor of Anthropology.*
Lowell Sever, Ph.D., *Assistant Professor of Anthropology.*
Peter Z. Snyder, Ph.D., *Assistant Professor of Anthropology.*
Clyde Woods, Ph.D., *Assistant Professor of Anthropology.*

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C. Rainer Berger, Ph.D., *Professor of Anthropology, Geography and Geophysics.*
William O. Bright, Ph.D., *Professor of Linguistics and Anthropology.*
Pamela J. Brink, Ph.D., *Associate Professor, School of Nursing.*
Bernard G. Campbell, Ph.D., *Adjunct Professor of Anthropology.*
Carl William Clewlow, Jr. Ph.D., *Lecturer in Anthropology.*
Robert B. Edgerton, Ph.D., *Professor of Anthropology and Psychiatry.*
Marija Gimbutas, Ph.D., *Professor of European Archaeology.*
John G. Kennedy, Ph.D., *Associate Professor of Psychiatry and Anthropology in Residence.*
Lewis Langness, Ph.D., *Associate Professor of Anthropology and Psychiatry in Residence.*
Douglas Price-Williams, Ph.D., *Professor of Anthropology and Psychiatry in Residence.*
Ralph H. Turner, Ph.D., *Professor of Sociology and Anthropology.*
Thomas S. Weisner, Ph.D., *Assistant Professor of Anthropology and Psychiatry.*

Undergraduate Program

The undergraduate program in anthropology is intended to convey an informed appreciation of the varieties of human culture, development and experience.

The faculty represents interests in archaeology, physical anthropology and sociocultural anthropology, and these traditional divisions are crosscut by interests in ecology and social adaptation, individual behavior, and social organization in relation to cognition and communication.

In order to take full advantage of the departmental program, the student is urged to plan his program around his own interests with the help of a counselor, to include not only required courses, but also independent studies and challenging and useful courses in related fields.

The department has a regular staff counselor to aid students in dealing with routine requirements. In addition, undergraduates are encouraged to make the personal acquaintance of any faculty members whose work is of interest to them for specialized guidance. Undergraduate students may also consult representatives of the Anthropology Undergraduate Student Association for additional guidance.

The undergraduate and graduate student associations are integral to the departmental program and organization. Through them students have the opportunity to take a direct part in departmental administration, select speakers and programs, and produce publications including student evaluations of all courses taught in the department. Undergraduate and graduate students are encouraged to acquaint themselves with their respective organizations and with the departmental library, museum, reading and typing rooms, and the Archaeological Survey program.

Preparation for the Major

Required: Anthropology 1A-1B, 5A, 5C. Anthropology 5B has been removed from the courses required in preparation for the major, effective Fall Quarter 1973.

Foreign Language

The department requires a demonstration of proficiency in one foreign language to insure that its graduates have the communication skills and cultural insights offered by such proficiency. Any spoken language is acceptable as is any extinct language with a substantial body of literature. Proficiency is defined as the ability to speak or read concerning everyday topics and is equated with the skill level to be attained through course five in a language. In addition to fluency in a language or completion of course level 5 in a language, the department offers a variety of means for fulfillment of the language requirement. The departmental counselor should be consulted regarding these options.

The Major

Required: (1) ten quarter courses or their equivalent including at least one course from 6 of the 8 groups listed in the catalog under Anthropology; and (2) four upper division courses from economics, geography, history, political science, psychology, linguistics, sociology or other disciplines related to the student's specialization, chosen in consultation with a departmental faculty adviser. Two of these 4 courses required outside of the department may be upper division CED courses.

Students intending to continue for a graduate degree are advised to take Anthropology 182A-182B, at least one course in field training

(Group VII) and Anthropology 173A-173B or its equivalent.

Students must also meet the requirements of the University and the College of Letters and Science for graduation.

Graduate Requirements

All students should obtain a detailed statement of the graduate program from the graduate secretary, Department of Anthropology, 341 Haines Hall.

The department offers the M.A. and Ph.D. degrees. For the Ph.D. degree, all students are required to obtain research experience and a thorough background in both substantive and methodological areas. The department offers specialized training in archeology, ethnology, linguistics and physical anthropology, and encourages the definition of interests which combine various aspects of these subfields with each other or with areas outside anthropology.

Admission

In addition to meeting the general graduate requirements listed elsewhere in this catalog, students are admitted to the department by an Admissions Committee. Graduate enrollment is limited and candidates will be chosen on the following bases: (1) prior scholastic performance; (2) ratings and recommendations by professors and other individuals; (3) a term paper or other research paper; and (4) scores on the Graduate Record Examination. Students may enter the program only in the Fall Quarter. Candidates are normally admitted for the Ph.D. only.

Graduate Program and Advising

On entering the graduate program, each student will be assigned an adviser. His function will be to acquaint the student with the department and to assist him in devising an initial plan of study. By the beginning of the second quarter, the student will have formed a two-man advisory committee. This committee will assist the student in formulating a long-term plan of study developed around the student's interests which provides for those courses, seminars and research experiences that will best prepare him to implement and develop his interests. When it has been determined that the student is prepared for the Ph.D. qualifying examinations, his advisory committee will be extended to a five-man Ph.D. committee including two members from outside the department. This committee will administer the Ph.D. qualifying examinations, supervise the student's doctoral research, and administer the final oral examination after completion of the thesis.

Requirements for the M.A. and Ph.D. degrees

General. A dossier developed for each student will contain materials relevant to deciding whether a student is prepared to take his qualifying examination. This material will consist of a study plan and stated objectives, all term papers, written evaluations of course and seminar work by the student's instructors, annual written evaluations by the advisory committee of progress toward stated objectives, and a research paper on a topic developed by the student in consultation with his committee. The research paper, and all other materials, will be reviewed by a third member appointed to the advisory committee in the quarter when the research paper is completed. The student's file will then be presented for full faculty review, such review normally taking place not later than the sixth quarter of residence. Students admitted to the department with an advanced degree from another department may prepare for the qualifying examinations, but may not take them until three quarters of residence have been completed.

Language Requirement. The student must pass the Graduate Language Examination (ETS) in one foreign language before the oral qualifying examination. Also, before taking the qualifying examination, he must pass an examination administered by his Ph.D. committee testing his knowledge of a corpus of substantive or theoretical literature relevant to his area of specialization in the same language.

M.A. Degree. The Department does not admit candidates for the M.A. only; the M.A. degree is not required of candidates for the Ph.D. degree. However, graduate students preparing for the Ph.D. normally qualify and apply for the M.A. after satisfactory completion of a research paper and after faculty review. The research paper and the oral examination constitute a comprehensive examination.

Ph.D. Degree. Advancement to candidacy for the Ph.D. is dependent on passing qualifying examinations. In accordance with university regulations, the Ph.D. committee conducts both a written and an oral examination. The written examination, conducted by the departmental representatives on the committee, will be considered to be in the nature of a preparation for the oral examination. The character of the written examination will be determined by the committee, in consultation with the student, and need not consist of a closed book examination. The content of the oral examination, conducted by both departmental and non-departmental representatives on the committee, will also be determined by the committee. Upon successful completion of the Qualifying Examinations and Advancement to Candidacy, the student will proceed with dissertation research. The dissertation will be an original contribution to anthropology literature, normally, but not necessarily, based upon field work. Award of the Ph.D. degree is based on the dissertation and a final oral examination.

Lower Division Courses

1A-1B. The Principles of Human Evolution.

Lecture, three hours; discussion, one hour. Course 1A is prerequisite to course 1B. Human population biology in the conceptual framework of evolutionary processes. Vertebrate and primate evolution and interpretation of the fossil human record. Concepts of race formation and classification in terms of human population genetics. These courses are required as preparation for the major.

The Staff

5A-5C. Introduction to Cultural Anthropology.

5A. Principles of Cultural Anthropology.

Lecture, three hours; discussion section, one hour. Course 5A is prerequisite to course 5C. The character of culture and nature of social behavior as developed through anthropological study of contemporary peoples.

The Staff

5C. Culture History.

Lecture, three hours; discussion section, one hour. The development of culture from its first beginnings to the advent of writing as developed through archeological investigation. Courses 5A; 5C are required as preparation for the major.

The Staff

11. The Evolution of Man.

Students cannot receive credit for 11 and 1A-1B. This course does not satisfy major requirements. An intensive course in the biology of man, with emphasis on his evolutionary development and his place in nature (with particular attention to non-human primates and fossil man; genetic and racial diversity; and theories and problems of race.

The Staff

12. Human Genetics and Reproduction.

A survey for the general student considering normal and abnormal development as well as basic principles. Topics will include human genetics, human reproduction, problems of pregnancy and its outcome, birth defects, prenatal diagnosis, and genetic counseling. Emphasis is on introducing the student to facts which the informed public needs for current discussions of the "New Genetics" and scientific and ethical questions regarding reproduction and development.

Mr. Sever

22. General Cultural Anthropology.

Lecture, three hours; discussion section, one hour. This course does not satisfy major requirements. Students cannot receive credit both for Anthropology 22 and 5A, 5C, or 100. An introduction to the cultural understanding of human behavior designed for students who do not plan further work in anthropology. Stress is placed on those concepts and theories that are applicable to the everyday life and professional activities in the modern world. Examples of institutions and individual behavior of modern America are counterpointed against studies of primitive life.

The Staff

Upper Division Courses

Courses 1A-1B, 5A, 5C or upper division standing are prerequisite to all upper division courses, except as otherwise stated. All upper division courses with letter designations (A, B, etc.) may be taken independently except as otherwise stated.

100. Anthropology and the Modern World.

(Formerly numbered 12.) May not be taken for credit by students who have taken Anthropology 22. Not applicable toward group requirements for the B.A. degree in anthropology but may be applied toward the ten required anthropology courses for the major. The impact of cultural and social anthropology upon modern consciousness and contemporary affairs. Effects of anthropology upon selected areas such as psychology, art, music, literature. Role of anthropology in various professions, in policy making and in directed culture change.

Mr. Oswalt

M101. The Social Sciences in Psychiatry.

(Same as Psychiatry M105.) Prerequisite: consent of the instructor. An introduction to the fields of social psychology, sociology, cultural anthropology and ethnology.

Mr. Kennedy

GROUP I. ETHNOGRAPHY

This group contains courses of a descriptive nature where the intent is to survey the cultural patterns of an ethnic group either diachronically or synchronically.

102. World Ethnography.

Diversity of cultural types and commonalities of cultural systems documented through print and film. The

course will also be concerned with criteria of ethnographic adequacy in each medium.

Mr. Moerman

Area Courses. (Anthropology 103A-Anthropology 110.) Prerequisite: courses 5A, 5C, 22 or 102. Each course is a survey of native peoples and cultures in designated areas of the world. The survey will include discussions of technological, social and ideational patterns among the ethnic groups of the area. Special ethnological and theoretical problems will be covered as appropriate. Outside reading and papers may be required.

103A-103C. Peoples of Asia.

103A. South Asia.

The Staff

103B. Southeast Asia.

Mr. Moerman

103C. Japan.

Prerequisite: course 5A-5C or consent of instructor. An introduction into contemporary Japanese culture: its brief history, language, social organizations, values, various aspects of social changes and some psychological characteristics of the people.

Mr. Wagatsuma

105A-105C. Peoples of Latin America.

105A. Peoples of South America.
(Formerly numbered 107.)

Mr. Wilbert

105B. Peoples of Middle America.
(Formerly numbered 109.)

Mr. Woods

105C. Latin American Societies.
(Formerly numbered 121.)

Mr. Woods

106A-106F. Peoples of North America.

106A. Peoples of California: Ethnography.

Mr. Meighan

106B. Peoples of California: Prehistory.

Mr. Meighan

106C. Peoples of North America.
(Formerly numbered 105.)

Mr. Oswalt

106D-106E. Archaeology of North America.
(Formerly numbered 135A-135B.) Prerequisite: courses 5A-5C or course 22 or consent of the instructor. Course 106D is prerequisite to 106E. Prehistory of the North American Indians; the evolution of Indian societies from earliest times to (and including) contemporary Indians; approaches and methods of American Archaeology.

Mr. Hill

106F. Eskimos. Prerequisites: upper division standing. This is a survey on historical, ethnographic, and contemporary Eskimo life stressing their importance in anthopological theory and practice. Particular emphasis is placed in Eskimo origins, technology, and modern administration.

Mr. Oswalt

107A-107B. Peoples of Africa

107A. East and South Africa
(Formerly numbered 108A.)

Ms. Kuper

107B. West and Central Africa.
(Formerly numbered 108B.)

Mr. Maquet

108. Peoples of the Pacific.
(Formerly numbered 110.)

Mr. Newman

109. Old Stone Age Archaeology.
(Formerly numbered 109A-109B.) Prerequisite: course 5C or consent of the instructor. The development of Palcolithic and Mesolithic cultures of Europe, Africa, and Asia, emphasizing the ordering and interpretation of archeological data. Pleistocene geology and chronology, the relationship between human, cultural and biological evolution.

Mr. Sackett

110. Peoples of the Middle East: Arab Culture.
(Formerly numbered 198A.) Prerequisite: course 5A, consent of instructor. This course will delineate the area of "Arab Peoples" through an examination of their historical background, their language, and their belief system. It will attempt to uncover the structural principles shared by the Arab people of North Africa and Southwest Asia which underlie Arab culture.

Ms. El Guindi

GROUP II. DEVELOPMENT OF MAN AND CULTURE

This group contains two kinds of courses in terms of method: Those courses primarily historical in orientation where the concern is to present sequences of change in the development of man and culture, and those courses concerned with general theories of change.

111A-111B. Fossil Man and His Culture.
(Formerly numbered 118A-118B.) Course 111A is prerequisite to 111B. No credit will be allowed for courses 111A without course 111B. An introduction to paleoanthropology; the morphology, ecology and culture of fossil man in the light of the synthetic theory of evolution.

Mr. Sackett

112. Hunting and Gathering Societies.
Lecture, three hours. Prerequisite: course 5A. A survey will be made of hunting and gathering societies. Their distinctive features will be examined from both an ecological and cultural viewpoint. The possibility of developing a general framework for synthesizing these two viewpoints will be discussed. This synthesis will be used as a basis for illustrating the relevance of hunting and gathering societies to an understanding of complex societies.

Mr. Read

119. Culture Stability and Culture Change.
(Formerly numbered 165.) Problems of cultural and social change, including the impact of western civilization on native societies.

Mr. Snyder

122A. Comparative Society.
(Formerly numbered 125.) Prerequisite: courses 5A-5C, or Sociology 1 or consent of the instructor. The general principles of the organization of society; the relation of these to the technological complexity and ecological conditions of the culture; the principles of evolutionary development of social systems.

The Staff

122C. Technology and Environment.
(Formerly numbered 126.) Significance of material culture in archeology and ethnology; problems of invention and the acceptance of innovations; the ecological and sociological concomitants of technological systems; selected problems in material culture.

Mr. Donnan

123. Origins of Old World Civilization.
(Formerly numbered 123A-123B.) Prerequisite: course 5C or course 22. A survey of the prehistoric foundations and cultural development of primary civilizations in the Near East, Europe and Asia as revealed by archeology; theories of cultural evolution and diffusion based upon archeological discovery.

Mr. Sackett

123C. Ancient Civilizations of Western Middle America (Nahuatl Sphere).
(Formerly numbered 133A.) Prerequisite: course 5A-5C or course 22. Pre-Hispanic and Conquest period native cultures of Western Middle America as revealed by archeology and early colonial writings in Spanish and Indian languages. Toltec-Aztec and Mixteca civilizations and their predecessors, with emphasis on sociopolitical systems, economic patterns, religion, and esthetic and intellectual achievements.

Mr. Nicholson

123D. Ancient Civilizations of Eastern Middle America (Maya Sphere).
(Formerly numbered 133B.) Prerequisite: courses 5A-5C or course 22, Pre-Hispanic and Conquest period native cultures of eastern Middle America as revealed by archeology and early colonial writings in Spanish and Indian languages. Lowland and Highland Maya civilizations and their predecessors with emphasis on sociopolitical systems, economic patterns, religion, and esthetic and intellectual achievements.

Mr. Nicholson

123E. Ancient Civilizations of Andean South America.
(Formerly numbered 134.) Prerequisite: courses 5A-5C or course 22. Pre-Hispanic and Conquest period native cultures of Andean South America as revealed by archeology and early Spanish writings. The Inca and their predecessors in Peru, with emphasis on sociopolitical systems, economic patterns, religion, and esthetic and intellectual achievements.

Mr. Donnan

GROUP III. BIOLOGY AND CULTURE

An examination of the biological factors in human variability, both behavioral and physical, and the operation of biological factors within a cultural setting.

130A-130B. The Genetics of Human Diversity.
(Formerly numbered 151A-151B.) Course 130A is prerequisite to 130B. No credit will be allowed for course 130A without course 130B. A general survey of the techniques and problems of racial classification. Emphasis is on the genetic approach. The methods of modern classical genetics and population genetics are applied to human evolution.

The Staff

131. Evolution and Biology of Human Behavior.
(Formerly numbered 152.) A comparative survey of the behavior patterns of preliterate and Paleolithic peoples and those of non-human primates. The biological variables fundamental to human and prehuman behavior will be assessed with regard to theories on the evolution of human culture.

The Staff

132. Comparative Morpho-Physiology of the Higher Primates.
(Formerly numbered 153.) Lecture, two hours; laboratory, three hours. The comparative anatomy of monkeys, apes and man will be surveyed. The methods and data prerequisite to the interpretation of the primate fossil records will be discussed.

The Staff

133A-133B. Primate Behavior Non-Human to Human. (2 courses)
Prerequisites: upper division standing. Course 133A is prerequisite to 133B. Review of primate behavior as known from laboratory and field studies. Stresses theoretical issues and the evolution of casual processes, structure, and function of animal behavior with special reference to nonhuman primates. Human behavior will be discussed as the product of such evolutionary processes. This course is offered on an In Progress basis. Credit is given only after completion of the full 2-quarter sequence.

The Staff

134. Biology, Society and Culture.

Prerequisite: course 1B. An investigation of the interaction between human biology and human behavior. Particularly emphasized are the influences of human biological evolution on human cultural evolution and human cultural evolution on human biological evolution.

Mr. Byles

GROUP IV. SOCIAL SYSTEMATICS

Courses which focus on the interpretation or explanation of some type of code, symbol system, or behavior pattern and where the central analytic constructs are symbols, personality processes or interactional dynamics, and where theory is concerned with the relationship between the individual and his interactional setting. Anthropology students may also fulfill Group IV requirements by taking Linguistics 100.

139. Comparative Minority Relations.

Prerequisites: courses 5A-5C. Comparative study of minority relations, social discrimination and prejudice. The emphasis will be both on cross-cultural perspectives and on psycho-cultural analysis. The cases will be taken from the U.S., Japan, India, and other areas. The factors responsible for discrimination and the cultural-psychological consequences of class, caste or minority status of the individuals will be discussed.

Mr. Wagatsuma

140. Comparative Religion.

A survey of various methodologies in the comparative study of religious ideologies and action systems. These include the understanding of particular religions through descriptive and structural approaches, and the identification of social and psychological factors which may account for variation in religious systems cross-culturally.

Mr. Newman

141. Social and Psychological Aspects of Myth and Ritual.

This course is aimed at understanding the social and psychological significance of myth, ritual and symbolism, with particular attention given to rituals concerned with folk psychotherapies, possession and trace phenomena.

Mr. Price-Williams

142. Comparative Study of Socialization.

Introduction to ethnographic data on socialization and child training. Theories explaining cross-cultural variability in socialization practices. Current methods and research topics in the field.

Mr. Weisner

143. The Individual in Culture.

Prerequisite: upper division anthropology, sociology, or psychology students. The course considers the balance for freedom and determinism for individuals and societies in the interrelation of personality, social structure and culture. It surveys the nature and limits of human plasticity; the variability and uniformity of personality within and between cultures; the relation of normal and abnormal, conformity and deviance.

Mr. Edgerton

144. Aesthetic Anthropology.

Lecture, three hours. Prerequisite: upper division standing. Elaboration of a crosscultural notion of visual aesthetic phenomena that meets the requirements of anthropological research. Aesthetic phenomena as cultural: their integration in a cultural system; their relationships with other elements in the interplay of social forces.

Mr. Maquet

145A. Introduction to Psychological Anthropology

Prerequisites: upper division standing or consent of instructor. 145A is prerequisite to 145B. An historical approach to culture-and-personality studies and psychological anthropology. These sub-disciplines will be described and analyzed as they relate to the broader history of anthropology and to developments in other fields, especially sociology, psychology, and psychoanalysis. The work of Durkheim, Benedict, Mead, Sapir, Malinowski, Roheim, Freud, Kardiner, Whiting, and Bateson will be discussed.

Mr. Langness

145B. Introduction to Psychological Anthropology.

(Formerly numbered 145.) Prerequisites: course 145A. A survey and critical analysis of the theories of methods in use in contemporary psychological anthropology. These methods and theories are examined as they are employed in the crosscultural study of the following topics: socialization and development, pathology and deviance, fantasy, religion and altered states of consciousness, cognition, perception and motivation, communication and language, psychobiology and evolution. Finally, theories and methods in psychological anthropology are compared with developments in sociocultural anthropology as a whole.

Mr. Edgerton

*M146. Language in Culture.

(Same as Linguistics M146.) Prerequisites: Linguistics 1 or Anthropology 177A-177B. The study of language as an aspect of culture; the relation of habitual thought and behavior to language; the problem of meaning.

Ms. McClaran

148. Personality and Social Systems.

Prerequisite: upper division standing or consent of instructor. The course explores the relationships between individual and social-cultural systems. Major topics: (the study of personality in culture); cultural influences on motor behavior and psychological reaction patterns; cultural influences on cognition, perception, and thought process; socialization in Culture I (child rearing); socialization in Culture II (moral development and values); expressive symbolic behavior (ritual, myth, art, folklore, dreams, projective tests); social deviance (anti-social behavior, mental illness, suicide).

Mr. Wagatsuma

149A-149B. Human Social Ethology.

Prerequisite: Permission (consent of instructor). Two quarter course. Grade of IP for first quarter. Each student will videotape a scene of naturally occurring human interaction to be analyzed (in lab. sessions) by the class and instructor for the interactive tasks, resources, and accomplishments displayed. Students will be able to set individual hours of laboratory participation within the time-block set for the class.

Mr. Moerman

GROUP V. SOCIAL SYSTEMATICS II

Courses which focus on the explanation of some type of institution or social system, where the central analytic constructs are groups, roles, norms, and societies, and where theory is concerned with the development and maintenance of human groups or networks.

150. Social Anthropology.

(Formerly numbered 161.) Prerequisite: courses 5A-5C or course 22 or Sociology 1 or 101 and upper division standing in anthropology or sociology. Formal presentation of the methods, aims and development of social anthropology. Analysis of culture within systems of social relationships. Emphasis on structural-functional approach and the process of social change.

Ms. Kuper

151. Kinship and Social Organization.

Prerequisite: Anthropology major, upper division. Kinship is surveyed as a systematic study in anthropology with a focus on the basic theoretical issues. Kinship analysis is presented as a tool in research.

Ms. El Guindi

152. Traditional Political Systems.

(Formerly numbered 122.) Prerequisite: course 122A or Sociology 101 or consent of the instructor. Political organization in pre-industrial societies of varying degrees of complexity. Law and the maintenance of order; corporate groups; ideology. The relations of political to other institutions of society.

Ms. Kuper

153. Economic Anthropology.

(Formerly numbered 129.) A survey of the ethnology and ethnography of economic life, principally in non-Western societies, with an emphasis on the operation of systems of production and distribution within diverse cultural contexts.

Mr. Woods

154. Four Trends in Contemporary Cultural Anthropology.

Prerequisites: course 5A or Sociology 17, or consent of instructor. A critical review of the origins, assumptions, research achievements, difficulties and ideological implications of "behavioral anthropology," ethnosemantics, structuralism and "cultural materialism." A weekly lecture plus a small group seminar.

Mr. Epstein

156. Cultural Ecology.

Prerequisites: Biology 119 or Biology 122 or consent of instructor. Survey of ecological theory and methodology in Cultural Anthropology. Articulation between cultural, biological, and environmental components in a systemic approach towards understanding the dynamic processes of culture maintenance and change.

Mr. Earle

157. Intentional Communities.

Prerequisite: upper division standing or consent of the instructor. Communes and monasteries, ashram and kibbutz are voluntarily joined societal units, offering complete life-styles perceived as alternatives to the mainstream cultures, and stressing the affective involvement of the members. Questions such as the following will be discussed in a comparative perspective: institutional goals stated in the community's "charter"; system of acquisition or production; internal organization; ideational configurations; individual experience; sociological and psychological functions; criteria of success and failure; subculture and counterculture.

Mr. Maquet

GROUP VI. CONTEMPORARY PROBLEMS

This group includes those courses (taught from any point of view and with any subject matter) which are concerned with application of anthropological techniques and methods to problems of contemporary interest in our own society or which arise as a product of the contact between our society and others.

160. Urban Anthropology.

Prerequisites: Open to upper-division majors in social sciences, and others by consent of the instructor. A survey of ubanization throughout the world, with emphasis on urban adaptation of rural migrants. Special focus on the problems of rural-urban migration of ethnic minority groups and subsequent adaptation of them within the United States explored in terms of the methods and perspectives of anthropology.

Mr. Epstein, Mr. Snyder

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*Graduate students in anthropology who propose to specialize in linguistics must take Linguistics 100 plus graduate courses in linguistics chosen from Linguistics 200A-205B and 210A-210B in consultation with an adviser; or they may take the M.A. in linguistics together with the Ph.D. in anthropology.

161. Development Anthropology.

Prerequisites: courses 5A-5C and upper division standing or consent of the instructor. Comparative study of the peasantization of tribal peoples, the proletarization of peasants, and the urbanization of ruralities. Particular emphasis on the relation between national and international, and localized sociocultural systems; the theory of social movements. Alternative theoretical constructs will be critically discussed.

Mr. Epstein

162. Contemporary American Indian Problems.

Contemporary problems of the American Indian both on and off the reservation. Topics will include self-determination, land claims, activism, urban Indians, and role of the Bureau of Indian Affairs.

Mr. Snyder

163. Women in Culture and Society.

Prerequisite: course 5A or 22. A systematic approach to the study of sex roles from an anthropological perspective. A critical review of relevant theoretical issues supported by ethnographic material from traditional cultures and contemporary American culture.

Ms. El Guindi

164. The Afro-American Experience in the United States.

Prerequisite: consent of instructor. This course aims to promote understanding of contemporary sociocultural forms among Afro-Americans in the United States by presenting a comparative and diachronic perspective on the Afro-American experience in the new world. We will be concerned with the utilization of Anthropological concepts and methods in understanding the origins and maintenance of particular patterns of adaptation among Black Americans.

Ms. Mitchell-Kernan

GROUP VII. TECHNIQUES AND METHODS

Techniques are thought of as procedures in gathering or manipulating data; methods are thought of as concerned with problems of inference and validation. The following courses deal with one or both concerns. They are intended for majors and graduate students in anthropology. Anthropology students may also fulfill Group VII requirements by taking Linguistics 110 and Indo-European Studies 149.

170A-70B-170C. Field Training.

Prerequisite: consent of instructor.

170A. Archaeology. Introduction to archaeological problems, theories, methods, and data analysis.

170B. Ethnology. Training in ethnographic field methods. Execution of individual and group ethnographic field research projects.

170C. Physical Anthropology. Training in basic field methods; anthropometry, taxonomy, laboratory methods, and bio-statistics.

Mr. Epstein

171A-171B-171C. Laboratory Methods in Physical Anthropology.

Prerequisite: courses 1A-1B, restriction to majors only and graduate students; consent of instructor. Laboratory methodology and analysis of human variation on skeletal material (171A) and on living populations (171B) and bio-chemical methods (171C).

Mr. Williams

172. Methods and Techniques of Ethnohistory.

Introduction to the problems and procedures of extracting cultural data from documentary sources and their interpretation and analysis. The relevant documentary sources of various New World regions will be selected as case histories to illustrate more concretely the problems and challenges in this major area of anthropological concern.

Mr. H. Nicholson

173A-173B. Research Design and Quantitative Procedures.

Prerequisites: upper division standing. Course 173A is prerequisite to 173B. Course 173A may be taken without 173B. A two quarter course on research design and quantitative data analysis in anthropology. The first quarter focuses on the application of the scientific method to anthropology, on the techniques of quantitative field research, and on the conceptual framework underlying statistical analysis of quantified data. The second quarter emphasizes research design and statistical hypothesis testing and will include student data collection and processing.

Mr. Johnson, Mr. Read

174. Laboratory Methods in Technology and Invention.

(Formerly numbered 187.) Prerequisite: course 122C and consent of the instructor. Intensive experimentation in the technology of nonliterate people.

Mr. Donnan

175A. Strategy of Archaeology.

Prerequisite: course 5C or consent of instructor. An introduction to problem formulation, theory and method in archaeology, with an emphasis on the development of research designs. The focus is on how archaeological research is conceived and planned, with consideration of differing viewpoints and their usefulness. A scientific approach is taken and consideration is given to the relevance of archaeology to explaining variability and change in the adaptations of human populations.

Mr. Hill

175B. Archaeological Research Techniques.

Prerequisite: course 5C or consent of instructor. An introduction to the techniques of discovery and analysis that archaeologists have found useful in research. Special attention is given to sampling techniques in survey and excavation, the techniques of survey and excavation, classification and typology, problems in dating, locational analysis, the description of settlement systems, and the techniques for measuring parameters of prehistoric demography, diet, specialization, exchange and warfare. Attention is also given to techniques for describing and explaining change.

Mr. Hill

M175C. Dating Techniques in Environmental Sciences and Archaeology.

(Same as Geography M178.) Prerequisite: consent of the instructor. Introduction to scientific dating methods such as radiocarbon dating, radiation damage methods, biological dating techniques and magnetic dating, and applications in environmental sciences, archaeology, and physical anthropology.

Mr. Berger

175E. Laboratory Analysis in Archaeology.

(Formerly numbered 182.) Lecture, two hours; laboratory, four hours. Prerequisite: consent of the instructor. Description and classification of archaeological collections cataloging, typology, documentation. Preparation of archaeological reports for publication.

Mr. Meighan

M176. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.

(Same as Psychiatry M112 and Psychology M155.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings will be taught, emphasizing field training and practice in observing behavior. Group and individual projects will be included. Some of the uses of observations and their implications for research in the social sciences will also be discussed.

Mr. Gallimore, Mr. Weisner

177A. Field Methods in Linguistic Anthropology: Practical Phonetics.

Practice in elicitation from informants for the purposes of analysis of phonological systems and development of practical transcription, as a preliminary to learning to speak the native language and to the recording of ethnographic materials in native language. No previous experience in linguistics is assumed.

Ms. McClaran

177B. Field Methods in Linguistics Anthropology: Descriptive Semantics.

Prerequisite: course 177A, or equivalent experience. The acquisition of techniques for conducting queries in the target language. The query techniques are intended to facilitate insight into semantic structure through examination of lexical and morphological classes. Morphological, syntactic, and lexical phenomena that occur in languages in relation to meaning. Use of eliciting procedures as supplemental to other investigative techniques. Practice with informants.

Ms. McClaran

178A. Museum Studies.

Prerequisite: consent of instructor. Method and theory of museum operation. Acquisition, accession, storage, photography, conservation and exhibition are discussed and demonstrated. Museum research, publication, and teaching as well as museum administration and funding are analyzed. Lectures and demonstrations are structured to illustrate how the various aspects of museum operation are interrelated.

Mr. Donnan and the Museum Staff

178B. Museum Studies

Prerequisites: course 178A and consent of instructor. Two areas of museum operation are selected by the students from those discussed and demonstrated in Anthropology 178A. The student is then required to develop expertise in these areas through a combination of library research and a series of assignments carried out in the museum.

Mr. Donnan and the Museum Staff

178C. Museum Studies.

Prerequisites: course 178A-178B and consent of instructor. One area of museum operation is selected by the student from those demonstrated in Anthropology 178A. The student is then required to develop expertise in this area through a combination of library research and a series of assignments carried out in the museum.

Mr. Donnan and the Museum Staff

GROUP VIII. ANTHROPOLOGY AS A PROFESSION

This group contains historical surveys of anthropology or its subfields and courses concerned with professional preparation.

182A-182B. History of Anthropology.

Prerequisite: upper division or Graduate Status. Permission of the instructor is required to take 182B without 182A. A systematic survey of the development of anthropology within the western academic tradition. Reviews major early concepts relevant to current anthropological issues and reviews institutional growth and development of the field.

Mr. Langness

183. History of Archaeology.

(Formerly numbered 163.) The intellectual history of archaeology from the ancient world to the present. Although each of its major traditions is reviewed, particular emphasis is given to those branches of archaeology that have evolved during the last century within the discipline of anthropology.

Mr. Sackett

184. History of Human Evolutionary Theory.

(Formerly numbered 122B.) The men, the events, and the spirit of the time which mark man's attempts to understand his origins and diversity.

Mr. Williams

SPECIAL COURSES

199. Special Studies in Anthropology. (¼ to 2 courses)

Prerequisite: consent of the instructor. Two courses of 199 may be applied to the ten courses required for the major.

The Staff

Graduate Courses*

200A-200B-200C. Departmental Faculty Seminar.

Prerequisite: graduate status, or permission of instructor. Each weekly three hour meeting will be devoted to the current research of a different faculty member.

The Staff

M201. Transcultural Psychiatry.

(Same as Psychiatry M222.) Prerequisites: Anthropology M101 or Psychiatry M105, or consent of instructor. Consideration of all aspects of psychiatry which have been or can be investigated in cross-cultural perspective. This includes epidemiological studies of drug use, deviance, suicide, homicide and behavioral disorders of all kinds, reviews of the evidence regarding "culture specific" syndromes, and investigation of non-Western psychiatries. Problems of classification and methodology will be discussed.

Mr. Kennedy

202. Ethnology. (1½ courses)

Intensive examination of current theoretical views; research methods; modern form of analysis.

Mr. Edgerton

203. Cultures of Asia.

Survey of literature and problems of selected areas of Asia.

Mr. Moerman

204. Pacific Island Cultures.

Survey of literature and problems of the Pacific Islands.

Mr. Newman

205. North American Indians.

Survey of the literature and problems of the American Indians north of Mexico.

Mr. Oswalt

206. Culture and Personality of Japan: Selected Topics.

Prerequisite: course 103C or consent of instructor. Specific topics pertaining to the study of socialization patterns, role behavior, psychological characteristics, social deviance or psychopathology of the Japanese will be selected and discussed. Each student will be required to select a topic and carry out the library research, while consulting with the instructor and participating in the group discussion.

Mr. Wagatsuma

207. Indians of South America.

Survey of the literature and problems of the Indians of South America.

Mr. Wilbert

208. African Cultures.

Survey of literature and problems of African culture.

Ms. Kuper

209. Asian-Americans: Personality and Identity.

Prerequisite: graduate standing. This seminar will examine the effects of class, caste and race on the Asian American personality within the framework of anthropological theories.

Mr. Wagatsuma

210. Structural Anthropology

Prerequisite: consent of instructor. Background in theoretical linguistics. Critical examination of structuralism, its relationahip to earlier anthropological approaches, its affinity with theoretical linguistics, its contribution to current anthropological theory, and its utility as a powerful analytic framework in the field situation.

Ms. El Guindi

211. Selected Topics in Comparative Minority Relations.

Prerequisite: consent of instructor. Comparative study of minority relations, social discrimination and prejudice. The emphasis will be on the psychological consequences of class, caste or minority status on the family patterns, individual personality and identity. The cases will be taken from U.S., Japan, India and other areas. Each student will be required to do his/her own library research on the selected subject, while consulting with the instructor and participating in group discussion.

Mr. Wagatsuma

212. Anthropological Linguistics.

Prerequisites: Linguistics 100 or its equivalent. The development of anthropological linguistics, modern linguistic theory and its application to the study of non-linguistic aspects of culture, including relationship of language to world view; comparative historical linguistics to prehistory, lexico-statistics, semantic analysis, linguistic acculturatio, and socio- and enthnolinguistics.

Ms. McClaran

M213. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.

(Same as Psychiatry M235.) Prerequisites: consent of instructor. The skill of observing and recording behavior in natural settings will be taught, emphasizing field training and practice in observing behavior. Some of the uses of observations and their implications for research in the social sciences will also be discussed. Students will be expected to integrate observational work into their current research interests.

Mr. Gallimore, Mr. Weisner

214. Cultures of the Middle East.

Prerequisite: course 110 or consent of instructor. Survey of literature and problems of the various cultures of the Middle East.

Ms. El Guindi

215. Explanation of Societal Change.

Prerequisite: consent of instructor. Examination of the processes of societal evolution, emphasizing the usefulness of a variety of explanatory models drawn from General Systems Theory, Ecology, Anthropology, and other sources. The development and testing of appropriate evolutionary theory, including the use of simulation techniques.

Mr. Hill

219A-219B. Anthropological Theory.

Prerequisites: Anthropology graduate students or consent of instructor. This course examines the range of theories that anthropologists have employed in describing and explaining variability in sociocultural phenomena. The organization of particular theories, as well as issues that separate that separate divergent theories, will be explored. Emphasis will be placed on up-to-date examples of different theoretical perspectives. Major perspectives to be considered include the following: Evolutionism, Cultural Ecology, British Functionalism, French Functionalism, Structuralism, Culture and Personality, Psychological Anthropology (Freudian, Neo-Freudian, Non-Freudian), Behavioral Anthropology, Cognitive Anthropology, and Ethnosemantics.

Mr. Epstein

220. Social Anthrpology.

Intensive examination of current theoretical views and literature.

Ms. Kuper

221. Social Movements and Social Crisis.

Prerequisite: consent of the instructor. The emergence of social movements of difference types, whether millennial, nationalist, reformist, political, etc., particularly as in situations of social conflict and crisis. Movements of rebellion and revolution examined in the light of anthropological and sociological theory focusing on a broad range of problems.

Mr. Epstein

222A-222B-Research Methods and Procedures.

Lecture, three hours. An integrated review of the research methods in anthropological inquiry focusing on problem formulation, methods of setting up testable hypotheses, the kinds of data available for anthropological explanation, statistical and nonstatistical means of "explanation" in anthropology. Each part may be taken independently.

The Staff

223. Ideology and Utopia in Anthropology.

Selected trends in anthropology in relation to their social and historical location; effects of sociopolitical conflict on anthropology and vice versa.

Mr. Epstein

230. Analytical Methods in Archaeological Studies. (2 courses)

Mr. Hill

231. Technology Laboratory.

Prerequisite: course 126 or consent of the instructor. The intensive study of elementary technological principles through experimentation.

Mr. Hill

232. Archaeology.

Lecture, three hours. A review of the history of archaeology and the basic techniques of archaeological investigation and analysis as these have established the present state of knowledge of major prehistoric periods in diverse parts of the world.

Mr. Sackett

240. Current Problems in Physical Anthropology.

A detailed examination of present, on-going research by physical anthropologists in order to determine the direction and place of physical anthropology in the general discipline of anthropology.

Mr. Williams

242. Man, Culture, and Disease.

Prerequisite: permission to enroll. This seminar will consider, from evolutionary and ecological perspectives, the interactions between man as a biological organism, and as the possessor of culture, and the occurrence of selected diseases in human populations. Attention will be paid particularly to 1) theories of the evolution of human disease; and 2) the interactions between human biology, cultural patterns, and selected diseases, both infectious and non-infectious, in contemporary non-Western populations.

Mr. Sever

244. Evolutionary Approaches in Anthropology.

Prerequisite: graduate standing. Evolutionary approaches to explanation in biological anthropology and cultural anthropology. Relations between materialist perspectives and evolutionary theory. The influence of evolutionary biology on anthropology. The status of evolutionary studies in cultural anthropology.

Mr. Williams

246A. Population Genetics of Man.

Prerequisite: An introductory course in statistics. The study of population concepts, probability, the conditions

*Graduate students may take Linguistics 220F and 220G and receive credit towards the 36 units required for the M.A. degree.

of gene frequency equilibria and factors causing gene frequency change.

Mr. Williams

M246B. Probability Models and Statistical Methods in Genetics.

(Same as Biomathematics M246.) Prerequisites: Two quarters of statistics, Mathematics 3A, Anthropology 246A. An introduction to probability models and statistical methods in genetics. Maximum likelihood methods for estimating genetic parameters will be introduced and discussed in detail. This course is a prerequisite for 246C.

Mr. Read

M246C. Modeling in Genetic Analysis.

(Same as Biomathematics M207.) Prerequisites: Graduate standing, course 246B, or consent of instructor. Basic concepts of human genetics with emphasis on methods of computer-oriented genetic analysis. Topics include segregation analysis, genetic linkage, polygenic (quantitative) models, and population structure.

Ms. Campbell

248. Cultural Modes of Thought.

Prerequisite: consent of instructor. An examination of the influences of culture on learning, perception, thinking and intelligence. The course to cover the fields of cross-cultural psychology in addition to cognitive anthropology. The focus is on learning and thinking in non-Western cultures but would include problems of education in ethnic areas within the U.S.

Mr. Price-Williams

249. Language Socialization.

Prerequisite: consent of instructor. This seminar will examine language socialization, specifically the child's growing ability to produce situationally appropriate speech. The development of sociolinguistic selection rules in phonology, grammar and syntax will be examined and the child's mastery of discourse types and discourse rules will also be considered.

Ms. Mitchell-Kernan

Because the following courses numbered 250 and above are nonrepetitive in content, the Graduate Council has ruled that they may be repeated for credit on recommendation of the graduate adviser.

251A-251B. The Fossil Evidence for Human Evolution. (2 courses)

Prerequisite: consent of instructor. Course 251A is prerequisite to 251B. No credit will be allowed for course 251A without course 251B. An examination and analysis of the fossil evidence for man's evolution.

Mr. Campbell

252. Selected Topics in Higher Cultures of Nuclear America.

(Formerly numbered 264.) Prerequisite: consent of the instructor.

Mr. Nicholson

253. Selected Topics in Cultures of Asia.

Prerequisite: consent of instructor. Emphasis on different subcultural areas will vary in accordance with the instructor.

Mr. Moerman

254. Selected Topics in Cultures of the Pacific Islands.

Prerequisite: consent of the instructor.

Mr. Newman

255A-255B. North American Indians.

Prerequisite: consent of the instructor. Credit to be given only at the completion of 255B. The full sequence may be repeated for credit.

Mr. Oswalt

256. Selected Topics in Arctic Cultures.

Prerequisite: consent of the instructor.

Mr. Oswalt

M257. South American Folklore and Mythology Studies.

(Same as Folklore M257.) Prerequisite: course 105A or consent of instructor. An examination of oral traditions and related ethnological data from various South American Indian societies against the background of the religious systems of these peoples.

Mr. Wilbert

258. Selected Topics in African Cultures.

Prerequisite: consent of the instructor.

Ms. Kuper

259A-259B. Contemporary Latin American Problems.

(Formerly numbered 265A-265B.) Prerequisite: consent of the instructor. Preference is given to students with a reading knowledge of Spanish or Portuguese. Credit to be given only at the completion of 259B. The full sequence may be repeated for credit.

The Staff

260. Studies in Symbolic Anthropology.

Prerequisites: course 144 or consent of instructor. Nature of symbolic relations (as distinguished from other referential ones), significance of symbolic systems (in terms of action, cognition, affectivity, contemplation), symbolic and isomorphic logic (as opposed to the causal one) are among the questions to be selected for analysis and discussion in this course.

Mr. Maquet

261. Selected Topics in Ethnology.

(Formerly numbered 252.) Prerequisite: consent of the instructor.

Mr. Wilbert

262. Special Topics in Social Anthropology.

(Formerly numbered 285.) Prerequisite: consent of the instructor.

Ms. Kuper

263. Selected Topics in Cultural Anthropology.

(Formerly numbered 286.) Prerequisite: consent of the instructor.

Mr. Goldschmidt

264. Selected Topics in Cultural Ecology. (1½ courses)

(Formerly numbered 284.) Prerequisite: consent of the instructor.

The Staff

265. Selected Topics in Cultures of the Middle East.

Prerequisite: course 110 or consent of instructor.

Ms. El Guindi

266. Selected Topics in Myth and Ritual.

(Formerly numbered 261.) Prerequisite: consent of the instructor.

Mrs. Kuper, Mr. Newman, Mr. Price-Williams

267. Selected Topics in Kinship.

(Formerly numbered 287.) Prerequisite: consent of the instructor.

Ms. Kuper

268. Selected Topics in Comparative Political Institutions.

(Formerly numbered 288.) Prerequisite: consent of the instructor.

The Staff

269. Selected Topics in Economic Anthropology.

(Formerly numbered 289.) Prerequisite: consent of the instructor.

The Staff

270. Selected Topics in Culture Change.

(Formerly numbered 267.) Prerequisite: consent of the instructor.

The Staff

271. Urban Anthropology. (1½ courses)

(Formerly numbered 291.) Prerequisite: course 160 or consent of the instructor.

Mr. Snyder

272A-272B. The Individual in Culture: Selected Topics.

Lecture, three hours. Prerequisites: consent of instructor. Course 272A is prerequisite to 272B. Credit to be given only at the completion of 272B.

Mr. Edgerton

273. Selected Topics in Culture and Personality.

(Formerly numbered 266.) Prerequisite: consent of the instructor.

Mr. Edgerton, Mr. Langness, Mr. Weisner

274A. Methods in Psychological Anthropology.

(Formerly numbered 274A-274B.) Prerequisite: consent of instructor. Methods for studying personality, motivation, socialization in fieldwork. Includes naturalistic observation, interviewing, unobtrusive measures, participant observation, and excludes standardized testing procedures. Field exercises using various methods are integral to the seminar.

Mr. Weisner

274B. Methods in Psychological Anthropology.

(Formerly numbered 274A-274B.) Prerequisite: consent of instructor. Adequate background in psychology in fields of personality, clinical psychology and pyschological testing. This course deals with diverse standardized tests applicable in cross-cultural research. It covers the methods of study of aspects of personality, perception, cognition, and mental health as applicable to non-Western and particularly primitive cultures.

Mr. Edgerton

275. Mathematical Models in Anthropology.

Prerequisite: permission of the instructor. Several approaches to developing mathematical models and their use will be considered. In particular, Markovian chains will be introduced and models based on them will be used to test various hypotheses about social organization. Optimization theory will be considered as a basis for constructing theoritical models.

Mr. Read

M276A. Linguistic Anthropology I.

(Same as Linguistics M246A.) Prerequisite: consent of instructor. Research in verbal interaction, emphasizing the use of conversational structures.

Mr. Moerman

M276B. Linguistic Anthropology II.

(Same as Linguistics M246B.) Prerequisite: consent of instructor. This seminar aims to provide interested students basic information on Black American English, an important minority dialect in the United States. The social implications of minority dialects will be examined from the perspectives of their genesis, maintenance and social functions. The seminar also aims to acquaint students with problems and issues in the field of sociolinguistics through a case study approach.

Ms. Mitchell-Kernan

M276C. Linguistic Anthropology III.

(Same as Linguistics M246C.) Prerequisite: consent of instructor. Problems in the relations of language to culture.

Ms. McClaran

277. Comparative Studies of International Communities.

Prerequisite: course 157 or consent of instructor. Questions concerning the ideational, societal, and individual significance of intentional communities will be selected and discussed in depth with reference to particular collectivities.

Mr. Maquet

278. Seminar in Comparative Studies of Socialization.
Selected topics in the cross-cultural study of socialization and child training. Methods, ethnographic data, and theoretical orientations. Emphasis on current research.
Mr. Weisner

279. Seminar in Comparative Urbanization.
Discussion, three hours. Prerequisite: consent of instructor. Discussion and research on selected issues in the comparative study of the growth and structure of urban nuclei and social institutions in Africa, Latin America and the United States.
Mr. Epstein, Ms. Kuper

280. Selected Topics in Principles of Human Ecology.
(Formerly numbered 275.) Prerequisite: consent of the instructor.
The Staff

281. Selected Topics in Population Genetics.
(Formerly numbered 276.) Prerequisite: consent of the instructor. A consideration of some of the special methods of the genetics of human populations and their current application in research.
Mr. Williams

282A-282B. Human Microevolution.
(Formerly numbered 277.) Prerequisite: consent of the instructor.
The Staff

283. Optimization Theory.
(Formerly numbered 295.) Prerequisite: course 173A or equivalent, or permission of instructor. An exploration of possible applications of optimization theory in anthropology, with particular emphasis on uses for physical anthropology. Ways of solving optimization problems will be discussed.
Mr. Read

284. Physical Anthropology Colloquium.
To be graded on an S/U basis only. Selected topics on the status of current research in biological anthropology.
The Staff

M285A-285B. Seminar in European Archaeology. (½ course each)
(Same as Archaeology M250A-250B and Indo-European Studies M250A-250B.) Prerequisite: consent of instructor. Credit is given only upon completion of both quarters. The full sequence may be repeated for credit. Studies in ancient European archaeological materials, and their relationship to the Near East, Western Siberia, and Central Asia.
Mrs. Gimbutas

286. Selected Topics in Historical Reconstruction and Archaeology.
(Formerly numbered 271.) Prerequisite: consent of the instructor. Interpretation of historical development through archeological research. Application of ethnohistory to archeological problems.
Mr. Meighan, Mr. Nicholson

287. Selected Topics in Prehistoric Nonagricultural Societies.
(Formerly numbered 272.) Prerequisite: consent of the instructor. Regional studies in the development of early human culture.
Mr. Meighan

288. Selected Topics in Problems in Old World Archaeology.
(Formerly numbered 273.) Prerequisite: consent of the instructor.
Mr. Sackett

289. Selected Topics in Prehistoric Civilizations of the New World.
(Formerly numbered 274.) Prerequisite: consent of the instructor.
Mr. Nicholson

290. Problems in Southwestern Archaeology.
(Formerly numbered 278.) A consideration of prehistoric cultural systems in the American Southwest, with emphasis on the description and explanation of organizational variability and change. Examination of the historical development of major theories, problems and methodologies.
Mr. Hill

291. Analysis of Field Data.
(Formerly numbered 293.) Prerequisites: course 293 or other field training course. Supervised analysis of ethnographic materials by students who have participated in a related field training course. Students will work with their own as well as general project data in the preparation of articles for professional journals.
The Staff

M292. Research Methods in Community Health.
(Same as Public Health M245A.) Prerequisite: Public Health 160A, or consent of the instructor. Preparation for planning and conducting research projects; methods and techniques of community health research; the basic skills in research methodology.
Mr. Reeder

293A. Selected Topics in Field Training in Ethnography. (1 to 2 courses)
(Formerly numbered 293.) Prerequisite: consent of instructor. Supervised collection of ethnographic information in the field. Students will spend full time in the field for most of the period.
The Staff

293B. Practicum in a Field Language. (1 to 2 courses)
Prerequisite: consent of instructor. Intensive training in an indigenous language as preparation for work in the field.
The Staff

M294A. Seminar in Ethnographic Film.
(Formerly numbered 270A.) (same as Theater Arts M209C.) Prerequisite: graduate standing and consent of the instructor. The ethnographic film as a form of realist cinema and its relations to cultural anthropology.
Mr. Hawkins, Mr. Moerman

M294B-294C. Ethnographic Film Direction. (1 or 2 courses)
(Formerly numbered 270B-270C.) (same as Theater Arts M265A-265B.) Prerequisite: course 209C, graduate standing and consent of the instructor. Advanced study of problems in the production of ethnographic films. M294B is offered in the winter quarter and M294C is offered in the spring quarter.
Mr. Hawkins, Mr. Moerman

295. Seminar in Visual Anthropology.
Prerequisite: course M294A and consent of instructor. Analysis of visual anthropological materials and discussion of their implications for ethnography and other social sciences. Students will be expected to have completed fieldwork in visual anthropology and to present its results to the seminar.
The Staff

M296. Seminar: Dating Techniques in Environmental Sciences and Archaeology.
(Same as Geography M278) Prerequisite: consent of the instructor. A colloquium devoted to topics in dating techniques in environmental sciences, archaeology, and physical anthropology as well as laboratory instruction and experimental work. May be repeated for credit.
Mr. Berger

297. Selected Topics in Field Training in Archaeology. (1 or 2 courses)
(Formerly numbered 283.) Prerequisite previous experience in archaeology. Advanced training in archaeological excavation techniques, including organization of projects, supervision of field crews, methodology of field recording and preliminary analysis of field data. To be offered in summers only.
The Staff

298. Research Colloquium. (½ to 1 course)
(Formerly numbered 294.) A context for the presentation of graduate field reports and research reports. On successful completion of his qualifying examinations each graduate student will register in this course for at least one quarter to present his research report. Satisfactory/Unsatisfactory grades only will be assigned.
The Staff

299. The Roots of Human Behavior.
Prerequisite: consent of instructor. An examination of the behavior of living non-human primates and of the evolution and biological basis of human behavior.
Mr. Campbell

501. Cooperative Program. (½ to 2 courses)
Prerequisite: approval of UCLA Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Individual Studies for Graduate Students. (¼ to 2 courses)

597. Preparation for the Doctoral Qualifying Examination. (½ to 3 courses)

599. Research for Dissertation. (½ to 3 courses)
Ph.D. dissertation research or writing. Student will have completed qualifying examination and ordinarily will take no other course work.
The Staff

■ ARCHAELOGY (INTERDEPARMENTAL)

Alexander Badawy, Ph.D., *Professor of Art.*
C. Rainer Berger, Ph.D., *Professor of Geography and Geophysics.*
Giorgio Buccellati, Ph.D., *Professor of Ancient Near East and History* (Department of Near Eastern Languages).
Marija Gimbutas, Ph.D., *Professor of European Archaeology* (Department of Slavic Languages).
Clement W. Meighan, Ph.D., *Professor of Anthropology.*
Henry B. Nicholson, Ph.D., *Professor of Anthropology.*
Wendell H. Oswalt, Ph.D., *Professor of Anthropology.*
Richard C. Rudolph. Ph.D., *Professor of Oriental Languages.*
J. LeRoy Davidson, Ph.D., *Emeritus Professor of Art.*
Katharina Otto-Dorn, Ph.D., *Emeritus Professor of Islamic Art.*
Hung-hsiang Chou, Ph.D., *Associate Professor of Oriental Languages.*
Christopher B. Donnan, Ph.D., *Associate Professor of Anthropology.*

Susan B. Downey, Ph.D., *Associate Professor of Art.*
James Hill, Ph.D., *Associate Professor of Anthropology.*
Steven Lattimore, Ph.D., *Associate Professor of Classics and Classical Archaeology.* (Chairman of the Interdepartmental Program).
James R. Sackett, Ph.D., *Associate Professor of Anthropology.*
Timothy Earle, Ph.D., *Assistant Professor of Anthropology.*
Donald F. McCallum, Ph.D., *Assistant Professor of Art.*

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John B. Callender, Ph.D., *Associate Professor of Egyptology* (Department of Near Eastern Languages).
Paul A. Clement, Ph.D., *Emeritus Professor of Classics and Classical Archaeology.*
C. W. Clewlow, Ph.D., *Lecturer in Anthropology.*
Jay D. Frierman, M.A., *Lecturer in Near Eastern Archaeology* (Department of Near Eastern Languages).
Kan Lao, *Academician, Emeritus Professor of Oriental Languages.*
Dwight Read, Ph.D., *Assistant Professor of Anthropology.*
Arnold Rubin, Ph.D., *Associate Professor of Art.*
Stanislav Segert, Ph.D., *Professor of Biblical Studies and Northwest Semitics* (Department of Near Eastern Languages).

An interdepartmental committee administers graduate degree programs leading to the M.A. and Ph.D. in Archaeology, in addition to the individual departmental programs in which archaeological specialization is possible. There is no undergraduate program in Archaeology leading to a B.A. degree.

As is outlined in the Program's "Guidelines" brochure, (which will be sent to all applicants upon request), the interdisciplinary degree requires a planned program of graduate study in two or more departments. Students whose program will be largely within a single department (in such fields as ancient history, anthropology, art history, classics, Indo-European studies, Near Eastern languages, and Oriental Languages) are referred to the separate degree programs offered by the appropriate department.

Graduate adviser: Steven Lattimore.

Admission to Graduate Status

For general requirements, see the Graduate Division section. Any undergraduate major in an appropriate discipline will be considered for admission into the program. The minimum Grade Point Average required for admission is 3.0. A Graduate Record Examination (Aptitude Test) Report is mandatory. The following admission materials must be submitted *directly* to the Chairman of the Archaeology Program: an acceptable Plan of Study (including a statement of the applicant's objectives, an outline of projected course work and a general indication of a thesis or dissertation topic); three letters of recommendation; a research paper, relevant to archaeology, or comparable evidence of scholarly work. The deadlines for receipt of these materials are the same as those observed by Graduate Admissions, i.e., February 15 for Fall Quarter, October 1 for Winter Quarter and December 30 for Spring Quarter.

Requirements for the M.A. degree in Archaeology

1. Twelve 4 unit courses *(taken for a letter grade)* are required, distributed as follows: six upper division courses (100 series) (only one 199 course is allowed); six graduate courses (200 and 500 series), of which not more than three may be in the same department. (Only one of these courses may be in the 500 series.) Archaeology 200 must be taken at least once.
2. Passing of a language examination in the first year of graduate study. Ordinarily, the language will be German, French, Spanish, or Russian. The committee may require additional language skills in modern and/or ancient languages if such skills are needed for scholarly work in the area of the student's interests.
3. All students receiving the M.A. in archaeology must demonstrate both theoretical and practical knowledge of methods and techniques actually used in archaeological field work. This requirement may be met in several ways; the general standard is that no graduate degrees will be awarded to archaeologists until they have field experience and are competent to conduct field research in archaeology.
4. Completion of an M.A. thesis.

In addition, all requirements of the Graduate Division (residence, unit patterns, etc.) must be met. Consult the Graduate Division brochure, Standards and Procedures for Graduate Study at UCLA I.

Requirements for the Ph.D. degree in Archaeology

1. M.A. degree from an appropriate program.
2. Reading knowledge of at least two languages, both to be passed by the end of the second year of graduate study. Additional languages may be required (see item 2 above).
3. Item 3 above unless the requirement has been previously met.
4. Passing of written qualifying examination in at least the following three fields; a) Regional culture history; b) Topical specialization; c) Analytical methodology and theory.
5. Oral qualifying examination.
6. A doctoral dissertation which will embody the results of original research and constitute a contribution to knowledge.

Upper Division Courses

Upper division courses taken to fulfill degree requirements in the Archaeology Program are to be chosen with the aid of the student's adviser from the listings of the departments (see below). It should be noted, therefore, that the two following multiply-listed courses are not required of students in the program.

M131. European Archaeology: Proto-Civilizations of Europe.
(Same as Indo-European Studies M131.) A survey of European cultures from the beginning of the food-producing economy in the 7th millennium B.C. to the beginning of the Bronze Age in the 3rd millennium B.C.
Mrs. Gimbutas

M132. European Archaeology: The Bronze Age.
(Same as Indo-European Studies M132.) Prerequisite: course M131 or consent of the instructor. A survey of European cultures from around 3000 B.C. to the period of the destruction of the Mycenaean culture about 1200 B.C. The course covers the Aegean area and the rest of Europe.
Mrs. Gimbutas

Graduate Courses

Prerequisite for all courses: consent of the instructor. All courses may be repeated for credit upon recommendation of adviser. Of the following graduate courses only Archaeology 200 is required.

200. Archaeology Colloquium. (¼ to 1 course)
Seminar, two hours. Prerequisite: Archaeology major or consent of instructor. The development of archaeology as a discipline. Major intellectual trends and current issues in archaeology. Scientific and humanistic viewpoints presented by archaeologists from different academic departments. May be taken repeatedly for credit; however, M.A. candidates may apply this course only twice toward the fulfillment of the departmental M.A. requirements.
The Staff

M250A-250B. Seminar in European Archaeology. (½ course each)
(Same as Anthropology M285A-285B and Indo-European Studies M250A-250B.) Prerequisite: consent of the instructor. Credit is given only upon completion of both quarters. The full sequence may be repeated for credit. Studies in ancient European archaeological materials, and their relationship to the Near East, Western Siberia, and Central Asia.
Mrs. Gimbutas

259. Field Work in Archaeology. (½ to 2 courses)
Participation in archaeological field excavations or museum research under supervision of staff archaeologists. A minimum of one month of field time away from the campus is required.
The Staff

***296. Bibliographical Update in Archaeology. (½ course)**
Prerequisite: consent of the instructor. Discussion and critical analysis of recent literature in the general field of archaeology, with special regard for methodology, theory and general applications.
The Staff

Individual Study and Research

596. Individual Studies for Graduate Students. (½ to 2 courses)
Hours to be arranged. Prerequisite: consent of the instructor.
The Staff

597. Preparation for Doctoral Qualifying Examinations. (½ to 2 courses)
Prerequisite: completion of formal course work and passing of language examinations before enrollment. Graded S/U.
The Staff

*Not to be given 1976-1977.

598. M.A. Thesis Preparation. (½ to 2 courses)
Prerequisite: consent of the instructor. Graded S/U.
The Staff

599. Dissertation Research and Preparation. (½ to 2 courses)
Prerequisite: consent of the instructor. Graded S/U.
The Staff

Related Courses in Other Departments

Most archaeology courses are taught in the departments. They are listed here for reference, but students should consult the departmental course lists for full descriptions and prerequisites.

General

Anthropology 111B. Fossil Man and His Culture.
156. Cultural Ecology.
170A. Field Training.
173A-173B. Mathematical Anthropology.
175A. Strategy of Archaeology.
175B. Archaeological Research Techniques.
M175C. Dating Techniques in Environmental Sciences and Archaeology. (Same as Geography M178.)
175E. Laboratory Analysis in Archaeology.
183. History of Archaeology.
215. Explanation of Societal Change.
230. Analytical Methods in Archaeological Studies.
232. Archaeology.
251A. The Fossil Evidence for Human Evolution.
264. Selected Topics in Cultural Ecology.
M296. Selected Topics in Dating Techniques in Environmental Sciences and Archaeology (Same as Geography M271).

Art 265. Field Work in Archaeology.

Near Eastern Languages: Ancient Near East
261. Practical Field Archaeology.

New World

Anthropology 106B. Peoples of California: Prehistory
106D-106E. Archaeology of North America.
123C. Ancient Civilizations of Western Middle America. (Nahuatl Sphere)
123D. Ancient Civilizations of Eastern Middle America. (Maya Sphere)
123E. Ancient Civilizations of Andean South America.
252. Selected Topics in Higher Cultures of Nuclear America.
M285A-285B. See Indo-European Studies M250A-250B.
287. Selected Topics in Prehistoric Non-agricultural Societies.
289. Selected Topics in Prehistoric Civilizations of the New World.
290. Problems in Southwestern Archaeology.

Art
118A. The Arts of Oceania.
118B. The Arts of Pre-Columbian America.
118D. The Arts of Native North America.
217. Topics in Oceanic Art.
218. Topics in Pre-Columbian Art.
219. Topics in Native North American Art.

Old World—Europe

Anthropology 109A-109B. Old Stone Age Archaeology.
288. Selected Topics in Problems in Old World Archaeology.

Art 103A. Greek Art.
103B. Hellenistic Art.
103C. Roman Art.
103D. Etruscan Art.
221. Topics in Classical Art.
222A-222B. Greco-Roman Art.
223. Classical Art.

Classics 151A-151B-151C Classical Archaeology.
251A-251D. Seminar in Classical Archaeology.
252. Topography and Monuments of Athens.
253. Topography and Monuments of Rome.

Indo-European Studies M131. European Archaeology: Proto-Civilizations of Europe (Same as Archaeology M131).
M132. European Archaeology: The Bronze Age (Same as Archaeology M132).
M250A-250B. Seminar in European Archaeology. (Same as Archaeology M250A-250B and Anthropology M285A-285B).

Old World—Near East

Anthropology 123A-123B. Origins of Old World Civilization.

Art 101A-101B-101C. Egyptian Art and Archaeology.
101D. Art of the Ancient Near East.
210. Egyptian Art.
211. Topics in Egyptian Art.

History 140A-140B. History of Ancient Mesopotamia and Syria.
203. History of Ancient Egypt in the Late Period.
240J. Near Eastern History.

Near Eastern Languages: Ancient Near East
160A-160B. Introduction to Near Eastern Archaeology.
161A-161B-161C. Archaeology of Mesopotamia.
162. Archaeology of Palestine.
220. Seminar in Ancient Egypt.
250. Seminar in Ancient Mesopotamia.
260. Seminar in Ancient Near Eastern Archaeology.

Old World—Islam

Art 104B-104C-104D. Architecture and the Minor Arts of Islam in the Middle Ages.
212. Problems in Islamic Art.
213. Problems in Islamic Art.

Old World—Africa

Art 118C. The Arts of Sub-Saharan Africa.

Old World—India and the Far East

Art 114A. The Early Art of India.
114B. Chinese Art.
114C. Japanese Art.
115A. Advanced Indian Art.
115B. Advanced Chinese Art.
115C. Advanced Japanese Art.
259. Topics in Asian Art.
260. Asian Art.

Oriental Languages 170A-170B-170C. Archaeology in Early and Modern China.
188A-188B. Chinese Paleography.
270. Seminar: Selected Topics in Chinese Archaeology.
275. Seminar: Selected Topics in Chinese Cultural History.

Other Related Programs

Related courses (not listed individually) include regional geography, ancient history and regional history, ethnography, folklore, history of technology, and courses in museum methods. Also recommended are the appropriate modern and ancient languages for the student's area of study.

■ ARCHITECTURE AND URBAN PLANNING

(Department Office, 1118 Architecture Building)

Marvin Adelson, Ph.D., *Professor of Architecture/Urban Design.*
Samuel Aroni, Ph.D., *Professor of Architecture/Urban Design.*
Leland S. Burns, Ph.D., *Professor of Planning.*
John Friedmann, Ph.D., *Professor of Planning.*
Peter Kamnitzer, M.Arch., M.S., *Professor of Planning.*
Charles Moore, Ph.D., *Professor of Architecture/Urban Design.*
Harvey S. Perloff, Ph.D., *Professor of Planning (Dean and Chairman of Department).*
Edward W. Soja, Ph.D., *Professor of Planning.*
David Stea, Ph.D., *Professor of Architecture/Urban Design and Planning.*
Thomas R. Vreeland, Jr., M.Arch., *Professor of Architecture/Urban Design.*
J. Eugene Grigsby, III, Ph.D., *Associate Professor of Planning.*
Frank E. Kupper, M. Arch., *Associate Professor of Architecture/Urban Design.*
Murray A. Milne, M.Arch., *Associate Professor of Architecture/Urban Design.*
William Mitchell, M.E.D., *Associate Professor of Architecture/Urban Design (Head, Architecture/Urban Design Programs).*
George Rand, Ph.D., *Associate Professor of Architecture/Urban Design.*
Charles Rusch, M.Arch., *Associate Professor of Architecture/Urban Design. (Associate Dean).*
Helmut Schulitz, M.Arch., *Associate Professor of Architecture/Urban Design.*
Donald Shoup, Ph.D., *Associate Professor of Planning.*
Martin Wachs, Ph.D., *Associate Professor of Planning. (Head, Urban Planning Program).*
W. David Conn, D.Phil., *Assistant Professor of Planning.*
Allan Heskin, Ph.D., LL.B., *Assistant Professor of Planning.*

Coy Howard, M.A., *Assistant Professor of Architecture/Urban Design.*
Barclay Hudson, Ed.D., *Assistant Professor of Planning.*
Jurg Lang, M.Arch., *Assistant Professor of Architecture/Urban Design.*
Donald McAllister, Ph.D., *Assistant Professor of Planning.*
Karen Hill Scott, Ed.D., *Assistant Professor of Planning.*

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Michael Bobrow, B.Arch., *Lecturer in Architecture/Urban Design.*
John C. Bollens, Ph.D.,*Professor of Political Science.*
Bonham Campbell, E.E., *Associate Professor of Engineering and Applied Sciences.*
William A. V. Clark, Ph.D., *Professor of Geography.*
Simon Eisner, B.A., *Adjunct Professor of Planning.*
Ernest Engelbert, M.P.A., Ph.D., *Professor of Political Science.*
Robert C. Fried, Ph.D., *Professor of Political Science.*
Ronald Filson, M.Arch., *Adjunct Assistant Professor in Architecture/Urban Design.*
Guillermo Geisse, M.C.P., *Visiting Professor of Planning.*
Baruch Givoni, Ph.D., *Visiting Professor of Architecture/Urban Design.*
Donald G. Hagman, LL.B., L.M., *Professor of Law.*
Bruce Herrick, Ph.D., *Associate Professor of Economics.*
Thomas S. Hines, Ph.D., *Associate Professor of History.*
Craig Hodgetts, M.Arch., *Lecturer in Architecture/Urban Design.*
James E. Krier, J.D., *Professor of Law.*
Robin Liggett, M.Sc., *Lecturer in Architecture and Urban Planning.*
Emma McFarlin, Ph.D., *Adjunct Associate Professor of Planning.*
Henry W. McGee, Jr., J.D., LL.M., *Professor of Law.*
Xavier Mendoza, D.B.S., *Lecturer In Planning.*
Paul M. Merifield, Ph.D., *Lecturer of Geology.*
Donald Mills, B.Arch., *Lecturer in Architecture/Urban Design.*
Frank G. Mittelbach, M.A., *Professor of Management.*
Anthony R. Orme, Ph.D., *Professor of Geography.*
Richard Schoen, M.Arch., *Lecturer in Architecture/Urban Design.*
Gary T. Shwartz, J.D., *Professor of Law.*
David Sears, Ph.D., *Professor of Political Science.*
Arie Shachar, Ph.D., *Visiting Professor of Planning.*
Norma Sklarek, B.Arch., *Lecturer in Architecture/Urban Design.*
O. Mathias Ungers, M.Arch., *Lecturer in Architecture/Urban Design.*
Walter Westman, Ph.D., *Lecturer in Planning.*
Steven Williams, J.D., *Visiting Professor of Law.*

M180. Visual Thinking.
(Same as CPS M140.) Review of concepts of perception and conception (e.g., imagery, reasoning, memory, representation, communication) as they apply to the design process; special emphasis on the role of visual and schematic thinking in design problem-solving. Training of visual skills.
Mr. Rusch

M190. Man and His Environment: Urban Form and Urban Life.
(Same as Creative Problem Solving M190.) This course aims to introduce students to the kinds of problems that arise in creating and maintaining an environment for urban activities, and the approaches and methods of architecture and urban planning in helping to cope with such problems. The students are exposed to the complexities involved in giving expression to human needs and desires in the provision of shelters and movement systems; to the possiblilities and limitations of technology and building forms; and the issues involved in relating the man-made to the natural environment. The students are encouraged to comprehend the major urban issues both as citizens and as potential technical experts.
Mr. Perloff.

191. Modern Architecture: The Herioc Period. (½ or 1 course)
A brief history of modern architecture in Europe in the first half of this century. Starting with Behrens and the German Werkbund the course explores De Stijl in Holland, Purism in France, Constructivism in Russian, Futurism and Rationalism in Italy, the Berlin School and the Bauhaus in Germany.

M192. Housing and Settlement Patterns.
(Same as CPS M181.) Patterns of spatial organization in housing and small settlements in a range of cultures. Interaction between spatial patterns and prevailing social attitudes toward the individual, the family, land ownership and toward authority, aggression, and communalism.
Mr. Stea, Mr. Vreeland

M195. Engineering and Environmental Geology.
(Same as Geology M139.) Lecture, two and one half hours, and field trips. Prerequisites: Geology 1 or 100; 111A recommended. Principles and practice of soil mechanics and foundation engineering in light of geologic conditions, recognition, prediction and control of abatement of subsidence, landslides, earthquakes, and other geologic aspects of urban planning and subsurface disposal of liquids and solid wastes.
Mr. Merifield

M196. Geomorphology.
(Sames as Geography M102.) Lecture, three hours. Prerequisite: Geography 1 or equivalent or junior standing or consent of instructor. A study of the processes responsible for shaping the world's landforms with emphasis on the relationship between the energy and materials involved and the magnitude and organization of the surface forms produced.
Mr. Orme

199. Special Studies. (or 2 courses)
Prerequisite: consent of instructor. Independent research or investigation on a selected topic to be arranged with a faculty member. May be repeated for credit.
The Staff

201A. Architectural Theory.
Lecture, three hours. Varying present-day and historical descriptive and normative frameworks for the discussion of architecture and its relation to other aspects of the environment. The effects of literary, art, and other forms of criticism on architectural theory. Epochs and styles, ideologies and social settings for architecture.
Mr. Kupper

M201B. Elements of Planning Theory.
(Same as Engineering M299A.) Lecture, three hours, discussion, two hours. Prerequisite: second year standing. The course provides a broad overview of the history of planning theory and focuses on current theories concerning the linkage of a scientific-technical intelligence to organized social actions.
Mr. Friedmann, Mr. Hudson

M202. Urban Planning and Controls.
(Same as Law M224.) Analysis of the legal and administrative aspects of the regulation of land use and development, and the problems and techniques of urban planning; dwelling legislation, building codes, zoning, subdividion controls, public acquisition of land, tax controls, and urban redevelopment.
Mr. Hagman

203A-203B. Decision-Making in Planning and Design.
Lecture, three hours. Statistical decision theory and alternative design solutions for coping with different degrees of future uncertainty in planning; nature of models for rational behavior in presence of conflicts of interest; individual and group decision-making under uncertainty.
Mr. Adelson

204. Imaging the Future.
Lecture, three hours, discussion, one hour. Introduction to social and technological forecasting, including: nature, and limitations of forecasting ideology and values in forecasting, review of integravtive forecasting techniques, and the role of forecasting in environmental planning, design and management processes.
Mr. Adelson

M205. Seminar: Political and Administrative Aspects of Planning.
(Same as Political Science M228C.) Lecture, four hours. A study of the political constraints on and support for effective planning. To be explored are the relations between planning performance, on the one hand, and forms of government, distribution of power, political culture, law and social structure on the other.
Mr. Engelbert, Mr. Fried

M207A. Policy Applications of Economic Analysis.
(Same as Economics M200.) Prerequisite: graduate standing. Not open to students in the Department of Economics. Survey of the uses of economic theory in public policy applications. Reviews economic analysis in market and non-market systems of economic organization.
Mr. Herrick

208. Social Theory for Planning.
Lecture, three hours. Examination of literature and theories from different disciplines which attempt to account for social change. "Models" such as "change, conflict, and equilibrium" will be used to critically evaluate this literature, particularly as they attempt to account for minority groups' development within America.
Mr. Grigsby

209. Special Topics in Planning Theory. (½ to 2 courses)
Lecture three hours. Seminar on topics in planning theory, selected by the faculty. May be repeated for credit.
The Staff

210. Health Care Facilities.
Studies the context of health care delivery and the impact on the process of planning health care facilities. Student work is a case study of an existing Southern

California hospital. Studies in detail the process of the design of hospitals and the operational requirements of individual departments of the hospital. May be repeated for credit.

Mr. Bobrow

211A-211B. Urban Regional Development Theory.

Lecture, three hours. Prerequisites: course 207 or equivalent prerequisite to 211A; 211A prerequisite to 211B. Economic growth and development in urban and regional systems, and the resulting changes in spatial patterns. Special attention to associate planning problems. Generally taken in first year.

Mr. Burns, Mr. Shoup

212A-212B. Urbanization and National Development

Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. An advanced research seminar for students enrolled in the doctoral program. The first quarter deals with theoretical aspects of urbanization in the context of national development. The second quarter addresses major policy issues.

Mr. Friedmann, Mr. Geisse, Mr. Soja

213. Social Indicators and Reports for Metropolitan Regions.

Lecture, three hours, Prerequisite: second year standing. Research seminar concerned with the development of social indicators for evaluating and reporting the performance of complex urban systems.

Mr. Grigsby, Mr. Perloff

M214. Comparative Community Political Systems.

(Same as Political Science M224H.) Lecture, three hours. Critical evaluation of the literature on community power and secondary analysis of data from extant research (primarily American, but increasingly comparative). Special attention to power distributions, leadership recruitment, and public and private decision-making.

Mr. Sears

M215. Urban Government.

(Same as Law M223.) Legal problems involving local governmental entities: sources and extent of powers and duties with respect to personnel, finance, public works, community development, and related topics.

Mr. Schwartz

216. Processes of Change.

Discussion, four hours. Prerequisite: consent of instructor. Change as a pervasive and fundamental part of the environment; the problem of decision-making and design for a nonstatic and unpredictable future. Vernacular architecture and urbanism; evolutionary and revolutionary change and growth; obsolescence vs. deterioration; replacement; determinate and indeterminate assemblage.

Mr. Schulitz

M217. Urban Government

(Same as Political Science M229.) Lecture, three hours. An analysis of the policies, processes, interrelations and organization of governments in heavily populated areas.

Mr. Bollens

218A-218B. Urban Structure: Analysis and Modeling.

Discussion, three hours. Prerequisite: consent of instructor. Generation of conceptual frameworks on the urban structure based on empirical data, urban theories and mathematical models. Individual and group research on selected aspects of urban systems. Application of models in decision-making, particularly in urban design projects.

Mr. Lang

219. Special Topics in Urban Design. (½ to 2 courses)

(Formerly numbered 219P.) Lecture, three hours. Seminar on topics in urban design selected by the faculty. May be repeated for credit.

The Staff

220A. Quantitative Methods: Basic Analytical Concepts.

Lecture, three hours. Topics include: a review of algebraic vocabulary leading to models of social processes; problems of data inference (including data errors and transformation of research findings to public policy); applications of basic calculus to planning models, focussing on the problem of optimization. The course provides exposure to standardized computer programs useful for planning. Designed for students with little background in mathematics.

Ms. Liggett

220B. Quantitative Methods: Urban Data.

Lecture, three hours. An introduction to the sources, presentation, and interpretation of data for urban planning and design. Topics to be covered include elements of probability theory, probability distributions, sampling, estimation methods, hypothesis testing, analysis of variance, correlation, regression, and factor analysis.

Ms. Liggett, Mr. Soja

220C. Quantitative Methods: Models.

Lecture, three hours. Prerequisite: course 220A, 220B or consent of instructor. An introduction to mathstatistical modeling methods with emphasis on urban growth and spatial allocation models.

Mr. Wachs

221. Project Evaluation and Programming.

Lecture, three hours. Prerequisite: course 207 or consent of the instructor. Techniques for the evaluation of projects, programs, and organizational effectiveness; benefit-cost analysis; programming-planning-budgeting systems; critical path methods; system design and comparison.

Mr. Hudson

222A. Spatial Organization and Planning, I.

Lecture three hours. An introduction to the concepts and methods of spatial analysis as they apply to problems of planning and urban design. The organization of space in human societies is examined at a variety of scales, from the role of personal space and distancing in interpersonal behavior to studies of income distribution and social justice to urban areas. The emphasis is on developing a greater sensitivity to the spatial perspective in its role as a framework for planning and policy decisions. Generally taken in first year.

Mr. Soja

222B. Spatial Organization and Planning, II.

Lecture, three hours. Prerequisite: 222A or consent of instructor. An extension of concepts and approaches developed in 222A to the regional, national and international scales. Emphasis will be given to the theory and practice of spatial planning including an evaluation of regional growth stategies, national settlement policy, growth center concepts and the normative-ideological issues involved in international development planning. Generally taken in the first year.

Mr. Shachar, Mr. Soja

223A. Professional Development Seminar (A)

Lecture three hours. A lecture-seminar-project course offering an introduction to the planning profession and, more specifically, to the Urban Planning Program at UCLA. An overview of the forces that shaped its practice over time and an exploration of various professional roles for planners. Planning education will be viewed as a response to changing needs and as a catalyst for emerging roles for professional planners. Several short projects are designed to expose students to real world planning problems and to the various viewpoints and methods that the Areas or Policy Concentration specialities would bring to bear. 223A is generally taken Fall quarter of the first year as an introduction to 223B and C.

Mr. Heskin, Mr. Kamnitzer

223B-223C. Professional Development Seminar (B) (C).

Lecture, three hours. Seminar intended to provide linkage between academia and practice for students. Concerned primarily with problems of professional practice, the seminar will provide the opportunity for students to work on projects for and with clients. Course deals with institutional development through the use of planning tools (i.e., research methodology, report and proposal writing, statistical analysis, and program evaluation).

Mr. Heskin, Mr. Kamnitzer

224. Methodology: Design Theory.

Lecture, three hours. A survey of the literature on systematic methods and design including problem solving, information handling, artificial intelligence, and decision-making in the design process. Seminar.

Mr. Milne, Mr. Mitchell

225. Cognitive Processes in Design.

Lecture, three hours. Review of concepts of perception and conception (e.g., imagery, reasoning, memory, representation, communication) as they apply to the design process. Special emphasis on the role of visual and schematic thinking in design problem-solving.

Mr. Rusch

226A. Computer Applications in Architecture and Urban Planning (Introductory).

Lecture three hours. Introduction to electronic computers and the FORTRAN IV programming language, with emphasis on writing and executing programs specifically applicable to architecture, urban design and planning. The course will also provide an introduction to computer mapping techniques. No prerequisite or prior knowledge of computing is required.

Ms. Liggett

226B. Computer Applications in Architecture and Urban Planning (Advanced).

Lecture, three hours. Prerequisite: course 226A or equivalent. Seminar on advanced computing techniques and modeling as applied to architecture and urban planning. This course will introduce the PCI programming language but will assume students have previous computing experience in another language.

Ms. Liggett

227. Computer-Aided Design.

(Formerly numbered 411.) Discussion, three hours. Prerequisite: consent of instructor. An examination of existing computer-based systems for aiding decision-making. Topics will include artificial intelligence, self-organizing systems, and hardware capabilities and limitations. An attempt will be made to develop and test components of a computer design partner.

Mr. Milne, Mr. Mitchell

228. Research in Design Methods.

Lecture, three hours. Prerequisites: courses 224, 226 or equivalent. Developmental work on a specific method of design. Theoretical and operational problems of a design method: degree of systemization, man-machine relationships, areas of application, problems of translation and compatibility with other methods. May be repeated for credit.

Mr. Milne, Mr. Mitchell

229. Special Topics in Planning Methods. (½ to 2 courses)

Lecture, three hours. Seminar on topics in planning methodology selected by the faculty. May be repeated for credit.

The Staff

230A-230B. Advanced Seminar in Urban-Regional Development Policy.

Lecture, three hours, discussion, two hours. Prerequisite: courses 211 and 220B or consent of instructor. Focus on integration of diverse perspectives in urban and regional development policy, including theory, methodology and policy. Will include various admixtures of (1) formal lectures, (2) student-led symposia, (3) research papers and/or theses, (4) collaborative work, and (5) independent study. The Advanced Seminar is the vehicle through which students begin to develop their ideas for a thesis, or through which the comprehensive exam is administered. Credit only on completion of 230B, with 230A receiving a grade of IP.

Mr. Burns, Mr. Friedmann, Mr. Soja

M231. Urban Housing and Redevelopment.

(Same as Law M275.) Lecture, three hours, discussion, one hour. The course will comprehensively consider the rebuilding and construction of American cities with the major emphasis upon the "housing process" the way in which shelter and related facilities are created by the institutions which direct housing activities in urban areas. Students are encouraged to undertake research projects with an emphasis on field research in lieu of a substantial portion of the final examination.

Mr. McGee

M232A. Advanced Quantitative Analysis.

(Same as Geography M270.) Lecture, two hours, laboratory, two hours. Prerequisite: course 171 or equivalent or consent of the instructor. Advanced topics in the utilization of mathematical and statistical techniques for geographic research. Emphasis on linear models, factor analysis and grouping procedures as applied to geographic data bases.

Mr. Clark

M232B. Spatial Statistics.

(Same as Geography M272.) Lecture, two hours, discussion, one hour, laboratory, one hour. Prerequisites: Mathematics 50B or Geography 171 and consent of instructor. Specific techniques useful in the analysis of spatial distributions, including both point and areal patterns, and emphasizing spatial descriptive statistics, probability models of spatial distributions, and statistical surfaces.

Mr. Clark

233. Analysis of Public Service Systems.

Lecture, two hours, discussion, two hours. The applications of systems analysis to problems of planning public systems. Specific methods are presented for the definition and delimitation of systems, formulation of objectives, generation evaluation of alternatives and the application of analysis to decision-making and policy formulation. Case studies are drawn from various public service sectors.

Mr. Shoup, Mr. Wachs

234. Seminar in Spatial Development Policy.

Lecture three hours. Prerequisites: course 222B or some background in analytical human geography; or consent of instructor. An advanced course dealing with the analysis measurement, and interpretation of spatial change in developing countries, particularly in East and West Africa. It combines an indepth examination of spatial development theory (especially with regard to spatial diffusion and settlement systems models), comparative studies in the geography of modernization, and a detailed assessment of some current African regional development plans. Generally taken in the second year.

Mr. Shachar, Mr. Soja

235. Architectural Case Study.

(Formerly numbered 405.) Discussion, three hours. Prerequisite: consent of instructor. An architectural project is presented for analysis and discussion. Topics include initial formulation, programming and planning, design analysis and development, implementation, and use. Representatives of client, user, and professional and technical participants are interviewed.

Mr. Schoen, Mr. Vreeland

236. Urban Form. (½ to 2 courses)

Discussion, four hours. Seminar on recent and historical urban design projects, elucidating the planning objectives, structuring principles, operational characteristics, physical components, and environmental consequences of each project. Development of a definitional framework, analytical criteria, and theoretical direction in the examination of urban form.

Mr. Kupper

237. Elements of Urban Design.

Lecture, three hours. Introduction into basic knowledge of elements and methods of urban design. A multidisciplinary approach leading to an understanding of the political, socio-economic and technological framework of urban systems and its dynamic interrelations.

Mr. Lang, Mr. Schulitz

238. Research in Architectural and Urban Analysis.

(Formerly numbered 439.) Discussion, three hours. Prerequisite: consent of instructor. Selected topics in architectural and urban systems. Documentation and project work; field work.

Mr. Lang, and the Staff

239. Special Topics in Urban-Regional Development Policy. (½ to 2 courses)

Lecture, three hours. Seminar on topics in urban and regional development policy selected by the faculty. May be repeated for credit.

The Staff

240. Advanced Seminar in Public Service Systems.

Lecture, three hours. Prerequisites: course 233 or consent of instructors and second or third year standing. A seminar dealing with the general system within which services are supplied publicly or semi-publicly, the specific sectors comprising the system, and analytical techniques for evaluating the efficiency and effectiveness of services delivered to the public.

Mr. Shoup

M241A. Urban Transportation Planning Policy.

(Same as Engineering M288A.) Lecture, four hours. Prerequisite; Engineering 106A, 193A; or AUP 207 or equivalent. Historical over-view of urban transportation planning and the current political and administrative frameworks for planning; the economic and social basis for travel; measuring the performance of urban transportation systems; basic approaches to transportation systems evalutaion.

Mr. Wachs

M241B. Urban Travel Demand Analysis.

(Same as Engineering M288B.) Lecture, four hours. Prerequisite; Engineering 106A, 193A, M288A, or AUP 207 or equivalent; AUP 220A-220B-220C or equivalent; AUP M241A. Methods of modelling and forecasting travel in urban transportation systems; basic data collection methods; models of trip generation, distribution, modal split, traffic assignment; direction demand models; behavioral demand models; case studies of travel analysis in Los Angeles and elsewhere.

Mr. Wachs

242. Systems Building

(Formerly numbered 426.) Discussion, four hours. Prerequisite: consent of instructor. Survey of past and present developments in Europe, the USSR, and the USA. Impacts, demands, socioeconomic and legal constraints, user needs, performance specifications. Systems engineering and design. Measurement regulation, modular coordination, closed systems, open systems, design of systems, subsystems, components, elements, materials.

Mr. Aroni, Mr. Schulitz

243. Research in Environmental Technology.

(Formerly numbered 429.) Discussion, three hours. Prerequisite: consent of instructor. Selected topics in environmental technology. Documentation and project work; field work.

Mr. Aroni, Mr. Schoen

244. Projects in Urban Building Systems.

(Formerly numbered 444.) Discussion, three hours. Advanced topics in prototype development. Identification of needed and potential improvements in design, production, management, use, and adaptation of human habitation. Evaluation of emerging methods in the development of prototypical building systems.

Mr. Schulitz

245. Architectural and Urban Systems.

(Formerly numbered 420.) Lecture, three hours. Prerequisite: consent of instructor. The systems approach. Description of architectural and urban systems. Introduction to building systems. Techniques of systems analysis; representation and modeling. Case study of systems analysis.

Mr. Aroni, Mr. Milne, Mr. Schoen

246. Transportation and Communication.

(Formerly numbered 421.) Lecture, three hours. Environmental impacts of evolutionary transportation and communication systems; emerging tradeoffs between transportation and communication systems; survey of new transportation and communication technology hardware systems; prototype design of transportation/communication model interface facilities.

The Staff

247. Design Seminar in Educational Systems and Facilities.

(Formerly numbered 441.) Laboratory, six hours. Explores education as an environmental system, including goals, institutional structure, functions, technology, interactions with other social systems, and possible innovations. Examines implications for design of educational structures, facilities, equipment and arrangements. Requires design and critique of alternative physical or functional features.

Mr. Adelson

M248. Urban Transportation Law. (¾ course)

(Same as Law M281.) Lecture, three hours. This course will begin with an exploration of the urgent policy questions facing the urban transportation decision-maker today. It will then focus on the existing governmental programs for urban transportation, on the policies they embody, and on the public institutions created to or charged with the duties of administering them.

Mr. Schwartz

249. Special Topics in Public Service Systems. (½ to 2 courses)

Lecture, three hours. Seminar on selected topics in planning for public service systems selected by the faculty. May be repeated for credit.

The Staff

250A-250B. Advanced Seminar in Social Development Policy. (½ or 1 course)

Lecture three hours, discussion two hours. Prerequisites: courses 251 or 252A-252B; 220B. Lectures and discussions and organized individual and group research on salient aspects of social development policies in planning. Will include various admixtures of (1) formal lectures, (2) student-led symposia, (3) research papers and/or theses, (4) collaborative work, and (5) independent study. The Seminar is the vehicle through which the comprehensive examination is administered. Credit on completion of 250B, with 250A receiving a grade of IP.

The Staff

251. Planning for Multiple Publics.

Lecture, three hours. Prerequisite: recommended background in statistics and research design. Course is designed to explore the planning needs of various social groups in urban settings. Students will be required to explore existing literature and research studies to determine appropriate mechanisms of planning for multiple publics. The course will have students analyze communities in the Los Angeles metropolitan area as a means of gaining insights into the practical, theoretical, and methodological problems of planning for multiple publics. Generally taken in the first year.

Mr. Grigsby

252A. Human Lives in Development.

Lecture, three hours. Covers the growth and development of the individual throughout the life cycle. In-depth attention given to various theories regarding human development, drawing implications for planning approaches. Emphasis is on psycho-social basis of individual development. Some proposed approaches are also offered for using human development information in social impact analysis.

Ms. Scott

252B. Developmental Foundations of Social Planning.

Lecture three hours. Prerequisite: course 252A or consent of instructor. Advanced problem-oriented course focussing on the connection of human development information to the planning process. The planning for social change, through the use of human development information, is stressed. Interdependence between human behavior and policy impacts is discussed. Students are required to work with a client (government agency, community group, etc.) on a sectoral problem and implications for social policy and programs, based on their study of this problem, will be explored.

Ms. Scott

253. Application of Behavioral Research to the Design Process.

Lecture, three hours. Prerequisite: course 258 or previous course in one of the following: experimental design, survey research, unobtrusive measures. Application of behavioral research to the design process. This course attempts to begin the difficult task of bridging the gap between research and design by building upon the ideas and techniques generated in AUP 258 and applying them to research in a field situation and the translation of the results of this research into a preliminary design solution in a selected community. Emphasis will be placed on problem definition, the generation of meaningful research questions and understandable results, iterative approaches to the research/design interface, and novel ways of presenting design ideas.

Mr. Rand, Mr. Rush

254. Image and Cultural Symbolization.

Discussion, three hours. Prerequisite: consent of instructors. Seminar examining the purely communicative aspects of the visually perceived environment. Readings, discussion and experimentation, and observation.

Mr. Rand

255. Urban Morphology: Definitions and Consequences.

Lecture, three hours. An analysis of urban spatial form and its socio-economic and behavioral bases and consequences. Special emphasis is placed on ecological approaches (e.g., social area analysis, urban growth models, factorial ecology) and behavioral analysis (cognitive mapping, Urban imagery, attitudes toward human and material resources).

Mr. Stea

256. Housing Patterns.

Lecture, three hours. The patterns of spatial organization in housing and small settlements are studied as a reflection and reinforcement of a variety of individual, familial, and societal determinants, including individualism, communalism, cosmology, defense, and mobility. A variety of societies and cultures are examined including primitive and traditional societies throughout the world, past and contemporary trends in industrialized areas, and communal and utopian experiments.

Mr. Vreeland

257. Social Meaning of Space.

Discussion, three hours. Tracing the evolution of the concept of space from its origins in ritual and primitive social organizations. Concentrates on the child's evolving conception of space, literature on perceptual development and studies of adaption to the spatial order of the man-made environment.

Mr. Rand

258. Research in Man-Environment Relations. (½ to 2 courses)

Selected topics for research in social and behavioral relations to environment. This course is intended to provide a teaching space for visiting teachers in the social and behavioral sciences. It may be repeated since its contents are not set and differ each time it is offered.

The Staff

259. Special Topics in Social Development Policy. (½ to 2 courses)

Lecture, three hours. Seminar on topics in social development policy selected by the faculty. May be repeated for credit.

The Staff

260A-260B. Advanced Seminar in Environmental Planning and Management. (½ course each)

Lecture three hours, discussion two hours. Prerequisite: course 207 or consent of the instructor. Lectures and discussions and organized individual and group research on salient aspects of environmental planning and management. Will include various admixtures of (1) formal lectures, (2) student-led symposia (3) research papers and/or theses, (4) collaborative work, and (5) independent study. The Seminar is the vehicle through which students will develop ideas for the thesis or through which the comprehensive examination is administered. Credit only on completion of 260B with 260A receiving a grade of IP.

Mr. Conn, Mr. McAllister

261A. Ecology and Man.

Lecture, three hours. Discussion of basic ecological principles relevant to environmental planning, including characteristics of ecosystems, energy transfer, biogeochemical cycles, dominance and niche theory, diversity and stability, species-area relation, etc. Attention will be drawn to man's historical role in modifying ecosystems. Generally taken during the first year.

Mr. Conn

261B. Environmental Impact And Resource Management

Lecture, three hours. Prerequisite: course 261A or consent of instructor. Application of ecological principles to the analysis of environmental impacts and the management of natural and urban-regional resources.

The Staff

262. Residuals Management. (½ to 1 course)

Lecture, three hours. Prerequisites: course 207 and 263A or consent of instructor. Advanced seminar covering a selected topic (to be specified each year) in the management of atmospheric emissions or solid wastes or nuclear radiation. Intended for (although not restricted to) students specializing in Environmental Planning and Management, and generally taken during the second year. May be repeated for credit.

Mr. Conn

263A. Introduction to Environmental Evaluation

Lecture, three hours. Prerequisites: course 207 or an intermediate course in micro-economics. The ability to evaluate alternative planning actions is one of the most important skills required of all planner. This course is designed to provide students with a solid background and understanding of the strengths and weaknesses of various evaluation methodologies, including cost-benefit, map overlay, panel of experts, etc. This course has a special orientation to evaluation of problems involving environmental impacts. Should be taken in the first year of study.

Mr. McAllister

263B. Seminar on Environmental Evaluation.

Lecture, three hours. Prerequisite: course 263A. Discussions of advanced topics in environmental evaluation. Purpose of course is to develop skills in conducting evaluations of projects and programs of environmental significance. Student is required to write a major report in which a proposed public project is evaluated.

Mr. McAllister

M264A. Environmental Law and Policy. (¾ course)

(Same as Law M272.) Lecture, three hours. The course first examines, from perspectives meaningful to legal institutions, the nature of environmental problems. It then considers the means by which law has responded, and can and should respond, to problems of environmental quality. Both common law and legislative and administrative measures are considered. The course uses the air pollution problem as the primary vehicle for study.

Mr. Krier, Mr. Williams

M264B. Seminar on Air Pollution. (½ course)

(Same as Law M346.) Discussion, two hours.

Mr. Krier

M265A-265B Urban Affairs Seminar. (½ course, ½ course)

(Same as Law M332.) The purpose of the course is to explore in a concrete case setting the application of legal tools to the solution of planning and land use problems. Real situations are selected in which significant planning problems exist that appear to be amenable to solution by careful analysis and application of legal tools. A number of case studies are selected so that students may choose one issue which directly interests them. For each case a specific client works with the class in presenting to it the problem that client is facing, and remains available through the course of the project for consultation; the end product for each case is the presentation of a formal report. Clients include the City Planning Commission, the Environmental Quality Board, the Housing Authority, and others. No prerequisites. Credit received only upon completion of M265B.

Mr. Hagman

266. Seminar on Land-Use Planning.

Lecture, three hours. Prerequisites: courses 207, 211A, 261A, 263A, or consent of instructor. A seminar-discussion course that builds on the basic planning concepts and knowledge discussed in other planning courses. The topics of discussion include the current practice of land-use planning, issues and problems, land-use planning as a tool for environmental protection and enhancement, and evolving policy.

Mr. McAllister

267. Finance of Local Public Services.

Prerequisite: course 207 or consent of instructor. An examination of the major types of local government revenue sources (taxes, user charges, intergovernmental aid, borrowing). Discussion of revenue decision-making processes, relations, questions of equity, the role of revenue sharing, and social objectives attainable with revenue instruments.

Mr. Shoup

266. Uses of Urban Data.

Lecture three hours. This course will cover various kinds of data which can be used and/or are used in planning studies. Heavy emphasis will be placed on census data and mapping techniques. Course will explore uses of school data, employment data, utility building, etc., in preparation of impact analyses, evaluation reports, and updating census. Generally taken in the first year.

Mr. Grigsby

269. Special Topics in Environmental Planning and Management. (½ to 2 courses)

Lecture, three hours. Seminar topics in enviornmental planning and management selected by the faculty. May be repeated for credit.

The Staff

270. Seminar in Environmental Design. (½ to 1 course)

Lecture, three hours. Activities of the environmental design professions, related disciplines and professions, and interdisciplinary groups. Historical development of architecture, engineering, and urban planning. Issues of philosophy, theory, and design. Concepts in science, art, technology, and management which have influenced architecture and urban design.

The Staff

271A-271B-271C. History and Future of Environment.

Lecture, three hours. What man has done to change environment through history. Symbolic, cultural, functional, bio-technical domains as generators of architecture and urban planning. Value systems in environmental change: policies, plans, and design proposals as the record of the humanized environment. Alternative futures.

The Staff

273. Research Methods in Social Development Policy.

Lecture, three hours. Prerequisite: open to advanced students in early stages of thesis or dissertation preparation. Reviews basic research approaches commonly used in planning or applied social research. In-depth study of methodologies, instrumentation, and statistical approaches available to planners. Case studies, including major reports, will be reviewed and students are expected to develop (1) a research proposal, (2) a cogent research or evaluation design, and (3) instruments (such as survey questionnaires) appropriate to design offered.

Ms. Scott

274. Introduction to Urban Design.

Lecture three hours. Overview of trends in urban design. Attempt at redefinition of the field from the perspective of the planner. Exploration of those theories, methods, and skills taught at SAUP and other departments which are potentially applicable to urban design. A seminar utilizing brainstorming, reading, guest lectures and discussions. The course is expected to aid in the continuing clarification of the planner's contribution to and role in urban design. Generally taken in the first year.

Mr. Kamnitzer, Mr. Stea

275A-275B. Comprehensive Planning Project.

Prerequisite: second year standing. The comprehensive project is offered by at least two faculty members representing different Areas of Policy Concentration in the Urban Planning Program and brings together students of varying backgrounds and interests in joint solution of a problem in urban planning and development. Each project counts the equivalent of 8 units, total, and will span two quarters. Because of the time required for the completion of project work it is expected that students enrolled in a project will choose the Comprehensive Examination Plan option in place of the Master's thesis. Credit on completion of 275B.

The Staff

276A-276B. Planning Workshop. (1 to 2 courses)

Lecture, three hours, discussion, two hours. Prerequisite: course 410 or Art 153A-153B or demonstrated background in architectural design, or consent of instructor. Planning projects with a focus on physical planning. Emphasis on synthesis, combined with iterative evaluation of the emerging solutions. Projects may be reality bound, hypothetical, or in the form of exploring the impact of non-physical forces on the physical environment. Development of presentation skills, both graphic and verbal, is an essential component of this workshop.

Mr. Kamnitzer and the Staff

277A-277B-277C. Urban Design Research Seminar. (½ course)

Lecture, three hours. Prerequisite: course 274. Built on AUP 274, this research seminar continues through three subsequent quarters to search for the "design content" of planning theories, methods and skills. Students will report on content of planning courses as they advance through the program and will jointly search for optimal applications of the learning acquired to the field of urban design. 277A generally taken in the first year. 277B and 277C generally taken in the second year.

Mr. Kamnitzer, Mr. Stea

278. Research Methods in Man-Environment Relations.(½ to 1 course)

Lecture, three hours, discussion, two hours. A survey of a variety of research methods applicable to problems on the man-environment interface, including both those now frequently employed (e.g. survey research) and others not so well known (e.g. ecological psychology, ethnomethodology, etc.). Emphasis will be placed on understanding the nature of research, upon the application, advantages and disadvantages, of the various methods rather than upon the learning techniques. The course will start with a review of certain concepts basic to the philosophy of science, emphasize practice in the application of research methods to selected exercises and a specific field situation, and conclude with some commentary upon the nature and future of statistical methods in the study of man-environment relations.

Mr. Stea

279. Models of the Housing Market.

Lecture three hours. Prerequisite: course 207 or consent of instructor. Analysis of models of metropolitan housing markets, with attention to their implications for different housing assistance policies, such as housing allowances, building code enforcement, interest rate and construction, subsidies, public housing, urban renewal, and rent control. The spatial organization of housing submarkets, the causes and effects of residential segregation, and the economics of construction and maintenance decision, will be discussed.

Mr. Shoup

280. Information Systems.

(Formerly numbered 412.) Discussion, three hours. Prerequisite: consent of instructor. Information-processing models of design. The relations between information flows and organizational structure. New techniques for information handling in design: storage and retrieval systems, automated document production, computer-assisted design techniques.

Mr. Mitchell

281. Mathematical Models in Architectural Design.

An introduction to concepts and techniques of mathematical modeling in architecture. Basic mathematics needed to develop models. The formal description of built form: data structures. Practical case studies and exercises dealing with the use of mathematical models in architectural design.

Ms. Liggett, Mr. Mitchell

282. Social Impact Analysis.

Lecture, three hours. Prerequisite: recommended 220A-220B-220C, a course in advanced statistics, a course in survey research and methodology; or consent of instructor. This course will explore ways of creating methods for assessing and determining social impacts on communities. Intent will be to develop both methodologies and policy formulation for assisting in community development. Enrollment limited. Generally taken in second year.

Mr. Grigsby

283. Law and the Quality of Urban Life.

Lecture three hours. This course is an introduction to law as an urban system and is directed primarily toward those interested in social and advocacy planning. The course will be organized around a number of urban problems such as employment, housing, social welfare, and land use and examine the law's role as a partial cause and cure of these problems. Although certain legal principles will be stressed, the course examines law as a changing process rather than a collection of principles. It is a goal of the course that the students develop a facility to interact with law and lawyers in a positive and forceful manner.

Mr. Heskin

284. Evaluative Research.

Lecture three hours. This course will focus on the conceptual approach, methods and problems encountered in conducting evaluative research. Topics covered will begin with the purposes of evaluation, follow through with steps involved in the evaluative process, and conclude with some discussion on the uses and future of evaluation in planning. Case studies will be used as examples and a mini-course in cost-benefit analysis will be offered.

Ms. Scott

290A-290B. Seminar in Advanced Research Methods. (½ course each)

Prerequisite: recommended for, but not restricted to, students who have passed the Oral Qualifying Examination for the Ph.D. Preparation for research, particularly dissertation research. Includes problem identification and definition, hypothesis testing, analytical method, experimentation design, empirical analysis, policy translation, and evaluation of research quality. Four (4) units are required for Ph.D. students. Open to Master's students interested in research. May be repeated for credit. This course is grades S/U.

Mr. Burns, Mr. Friedmann

401. Projects in Architecture.

Laboratory, three hours. Prerequisite: consent of instructor. A number of different projects in relevant problem areas will be offered by faculty members from which the student may choose. May be repeated for credit.

The Staff

402. Projects in Urban Design.

Laboratory, three hours. Prerequisite: consent of instructor. A number of different projects in relevant problem areas will be offered by faculty members from which the student may choose. May be repeated for credit.

The Staff

410. Fundamentals of Design.

(Formerly numbered 222.) Discussion, three hours. Prerequisite: consent of instructor. Training of basic design skills: approaches to design, scheduling of design tasks, techniques of conceptualization and communication. May be repeated for credit.

The Staff

423A-423B. Architectural Technology. (½ to 1 course each)

Lecture, three hours. Prerequisite: consent of instructor. The analysis and design of technical subsystems, including site work, structure, enclosure, environmental controls, energy, services, transportation and communication, production and distribution. Emphasis on both organization and implementation.

Mr. Aroni, Mr. Milne

424A-424B. Environmental Controls.

Lecture, three hours. Prerequisite: Basic Newtonian physics. The extent to which physical form controls luminous, thermal, and auditory environmental energy. Countermeasures which modify the effects of climate and pollutants on the human habitat. Specific transportation, communication, and energy delivery systems and interface equipment.

Mr. Milne

425A-425B-425C. Structural Systems.
Lecture, three hours. Prerequisite: Basic Newtonian physics. An integrated study of load-bearing structural systems. Basic statics and mechanics of structures. Exploration of various structural behavior modes and structural systems in architecture, including frame, planar, massive, suspension, membrane and shell configuration. Materials of construction.
Mr. Aroni

451. Elements and Multiples.
Laboratory, nine hours. Prerequisite: consent of instructor. Units of habitation, work, education, etc., are designed as "elements" and then combined in functional complexes, bringing out new technical and organizational considerations. Questions of overall planning and management are discussed.
The Staff

452. Redevelopment.
Laboratory, nine hours. Prerequisite: consent of instructor. An existing urban situation is surveyed and design studies for redevelopment and rehabilitation are prepared, including residence traffic and pedestrian circulation, community services, and commerical facilities. The effect of environmental change on community life is examined.
The Staff

453. Urban Facilities.
Laboratory, eight hours. Medium scale projects which have local meaning and become elements of growth and development in city-wide metropolitan systems. Examples are: elementary and secondary schools, commerical development, housing, community service facilities.
The Staff

454. Regional Facilities and Networks.
Lecture, three hours. The planning of a major urban component, such as an airport, hospital, university, and its reciprocal involvement with the pattern of regional activity, transportation, land use, organization and communication.
The Staff

460. Architectural Management.
Lecture, three hours. Problems of land development and real estate. The professions of architecture and planning: traditional and innovative organizational forms. Manufacture, distribution, transport, and on-site construction/assembly. Controls and resources: government programs and restrictions; financing and administration; costs estimation; materials and labor availability.
The Staff

461. Professional Organization and Practice.
Lecture, three hours. The profession of architecture: historical development, relation to other professions and disciplines, the changing role of the architect. Architecture and professional societies: The American Institute of Architects, state and national registration boards, educational accreditation. Legal and ethical questions relating to the practice of architecture. Emerging forms of architectural practice.
Mr. Schoen

490. Urban Innovations Group Workshop.
Laboratory. Prerequisite: consent of Workshop Staff. Applied research and development work in the Urban Innovations Group Workshop under the supervision of the workshop staff. Client-oriented projects concerned with significant urban, social or technical problems of the physical environment. May be repeated for credit.
The Staff

494. Supervised Independent Teaching. (½ to 2 courses)
Supervised individual teaching experience. This course is graded S/U and may be repeated for credit.
The Staff

495P. Teaching Clinic in Urban Planning. (½ course)
Supervised teaching clinic will include discussion of teaching experiences, teaching methods, procedures, etc. Guest lecturers from other departments on campus will be invited to participate in the course. This course is required of all Teaching Associates in the Urban Planning Program and will be an integral part of the teaching associate program (May be repeated for credit.) This course is graded S/U.
Mr. Wachs and Staff

496. Special Projects in Architecture. (½ to 2 courses)
Prerequisite: consent of instructor. Projects initiated by either individual students or student teams, and directed by a member of the faculty. May be repeated for credit.
The Staff

496F. Field Projects. (½ to 2 courses)
This course is graded S/U only; may be repeated for credit.
The Staff

497. Special Projects in Urban Design. (½ to 2 courses)
Prerequisite: consent of instructor. Projects initiated by either individual students or student teams, and directed by a member of the faculty. May be repeated for credit.
The Staff

501. Cooperative Program. (½ to 2 courses)
Prerequisite: Approval of UCLA Graduate Advisor and Graduate Dean. Approval of host campus Instructor, department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.
The Staff

596A. Directed Individual Research and Study in Architecture and Urban Design. (½ to 2 courses)
May be repeated for credit.

596P. Research in Planning. (½ to 2 courses)
May be repeated for credit.
The Staff

597P. Preparation for the Comprehensive Examination for the Master's Degree or Qualifying Examinations for the Ph.D. Degree. (½ to 2 courses)
May be repeated for credit. Graded S/U.
The Staff

598A. Preparation in Architecture/Urban Design for the Master's Thesis. (½ to 2 courses)
Prerequisite: consent of the instructor. May be repeated for credit.
The Staff

598P. Preparation for the Master's Thesis in Urban Planning. (½ to 2 courses)
May be repeated for credit. Graded S/U.

599P. Doctoral Dissertation Research in Planning. (½ to 2 courses)
May be repeated for credit. Graded S/U.

■ ART

(Department Office, 1300 Dickson Art Center)

Samuel Amato, B.F.A., *Professor of Art.*
Oliver W. Andrews, A.B., *Professor of Art.*
Alexander Badawy, B.Arch., D.I.A., Ph.D., *Professor of Art.*
Karl M. Birkmeyer, Ph.D., *Professor of Art.*
E. Maurice Bloch, Ph.D., *Professor of Art and Curator of Graphic Arts.*
William J. Brice, *Professor of Art.*
Raymond B. Brown, M.A. *Professor of Art (Acting Chairman of the Department).*
Jack B. Carter, M.A., *Professor of Art.*
Elliot J. Elgart, M.F.A., *Professor of Art.*
Robert F. Heinecken, M.A., *Professor of Art.*
Thomas Jennings, M.A., *Professor of Art.*
J. Bernard Kester, M.A., *Professor of Art.*
Lee Mullican, *Professor of Art.*
Gordon M. Nunes, M.A., *Professor of Art.*
Carlo Pedretti, M.A., *Professor of Art.*
Jan Stussy, M.F.A., *Professor of Art.*
Otto-Karl Werckmeister, Ph.D., *Professor of Art.*
Laura F. Andreson, M.A., *Emeritus Professor of Art.*
Helen Clark Chandler, *Emeritus Professor of Art.*
J. LeRoy Davidson, Ph.D., *Emeritus Professor of Art.*
Annita Delano, *Emeritus Professor of Art.*
Archine V. Fetty, M.A., *Emeritus Professor of Art.*
Lester D. Longman, Ph.D., L.H.D., D.F.A., *Emeritus Professor of Art.*
Katharina Otto-Dorn, Ph.D., *Emeritus Professor of Art.*
Josephine P. Reps, *Emeritus Professor of Art.*
Frederick S. Wight, M.A., *Emeritus Professor of Art.*
Karl E. With, Ph.D., D.F.A., *Emeritus Professor of Art.*
Susan B. Downey, Ph.D., *Associate Professor of Art.*
Mitsuru Kataoka, M.A., *Associate Professor of Art.*
Velizar Mihich (Vasa), *Associate Professor of Art.*
John A. Neuhart, *Associate Professor of Art.*
Arnold Rubin, Ph.D., *Associate Professor of Art.*
Nathan Shapira, Dottore in Architettura, *Associate Professor of Art.*
Julius D. Kaplan, Ph.D., *Assistant Professor of Art.*

Fred Marcus, M.F.A., *Assistant Professor of Art.*

Alice E. M'Closkey, M.A., *Assistant Professor of Art.*

Donald F. McCallum, Ph.D., *Assistant Professor of Art.*

Adrian Saxe, B.F.A., *Assistant Professor of Art.*

James R. Valerio, M.F.A., *Assistant Professor of Art.*

Madeleine Sunkees, B.Ed., *Assistant Professor of Art, Emeritus.*

♦

Benjamin B. Johnson, M.A., *Lecturer in Art.*

Ioli K. Maxeiner, M.A., *Acting Assistant Professor of Art.*

Donald Roberts, *Lecturer in Art.*

Robert Wark, Ph.D., *Lecturer in Art.*

Jean Weisz, M.A., *Lecturer in Art.*

It is recommended that each student majoring in art have each quarter's program approved by a departmental adviser.

The departmental major offered in the College of Fine Arts leads to the degree of Bachelor of Arts with the opportunity to specialize in one of three areas: (1) Art History, (2) Painting/Sculpture/Graphic Arts (A Portfolio may be required as basis for acceptance to Junior standing. Applicants will be notified.) (3) Design.

Preparation for the Major

Art History. Courses 50, 51, 52, 53 54 and 55.

Painting / Sculpture / Graphic Arts. Courses 10A, 10B, 20A, 20B, 25; and two courses selected from 50, 51, 52, 53, 54, 55.

Design. Courses 31A, 31B, 32A, 32B, 34A, 34B; and three courses selected from 50, 51, 52, 53, 54, 55.

The Major

Art History. A minimum of ten upper division art history courses selected in consultation with an art history adviser, including at least one course from at least five of the following nine groups: 1) 101A, 101B, 101C, 101D; 2) 103A, 103B, 103C, 103D; 3) 104B, 104C, 104D; 4) 105A, 105B, 105C, 105D, 105E; 5) 106A, 106B, 106C, 108A, 108B, 109A, 109B, 109C, 109D, 120A, 121A; 6) 110A, 110B, 110C, 110D, 120B, 121B; 7) 112A, 112B; 8) 114A, 114B, 114C, 114D, 115A, 115B, 115C; 9) 118A, 118B, 118C, 118D, 119A, 119B, 119C. No more than three courses listed under "Related Courses in Other Departments" may count as part of the major. Any "Related Course" applied on the major may not also be applied to College " Breadth Requirements." Other appropriate courses in anthropology, classics, literature, foreign languages, history, philosophy, music and theater arts are recommended as non-major electives for the degree.

Special majors in historical and geographical area: These are set up primarily for the unusual students who are to work in greater depth on a particular phase of art instead of the normal vertical development. They will study related material around the art of some particular period or area. *Limited in number and to be approved by special committee.*

Painting/Sculpture/Graphic Arts. A minimum of 14 upper division courses selected in consultation with a painting/sculpture/graphic arts adviser including one course each in courses 130, 132, 133, 135, 137, 140, 145 and 147; two courses selected from courses 101-122 and four courses of art electives.

Design. A minimum of 12 upper division courses selected in consultation with an adviser including eight courses from 161A-172B; at least one course from 192-193M and three courses of art electives.

Admission to Graduate Status

Painting/Sculpture/Graphic Arts or Design. In addition to meeting the requirements of the Graduate Division, the student will usually be expected to have a bachelor's degree in Art. Students whose preparation in Art is deficient as determined by the departmental adviser will be required to take additional work before proceeding with the graduate program.

Art History. In addition to the University minimum requirements, the student must have a bachelor's degree with a major in the history of art, with a minimum of 44 quarter units or 32 semester units, not including studio courses in art. The undergraduate major must include at least one advanced-level course (quarter or semester) in five of the following six areas: a) Egypt, Ancient Near East, Classical; b) Medieval, Islamic; c) Renaissance, Baroque, Prints and Drawings; d) Modern European and American, Prints and Drawings; e) Indian, Chinese, Japanese, Islamic; f) African, Oceanic, Native North and South American. No area may be offered in satisfaction of more than one requirement. Students whose preparation in Art is deficient as determined by the departmental advisor will be required to take additional work not applicable to the graduate degree. Deficiencies may be fulfilled by taking upper division courses or competency examinations in the deficient area.

Requirements for the Master's Degree

For the general University requirements, see the Graduate Division. The Art Department offers graduate study in three areas of specialization: (1) History of Art, (2) Painting / Sculpture / Graphic Arts, (3) Design. When applying for admission, the student is expected to designate the area of specialization.

Art History. The program for the Master of Arts Degree in art history follows the Comprehensive Examination plan. Students are required to take a minimum of nine quarter courses in art history at UCLA: at least four graduate seminars, one of which must be 201; at least three graduate lecture courses, and no more than two "directed studies" (596). The M.A. degree requires the completion of a major and two minors. Students intending to major in areas included in categories e. and f. (above) will choose at least one minor from areas included in categories a. through d., while students intending to major in areas included in categories a. through d. will choose at least one minor from areas included in categories e. and f. The program for the degree is worked out under the guidance of the advisors in the student's major and minor areas. Reading knowledge of French and German is required of all students except those intending to major in Chinese or Japanese art; the first language examination must be passed upon admission or during the first quarter of residence study, and the second within three quarters of residence. Students intending to major in Chinese or Japanese art history who are not native speakers of the relevant language will substitute either Chinese or Japanese for either French or German. M.A. candidates pass a six hour written examination in the major field of study and a three hour examination in each of the two minor fields. No formal thesis is required, but the student is required to present a paper in his major field, about 50 pages in length, on a topic approved by his examination committee, and normally requiring one quarter of full time study.

Painting / Sculpture / Graphic Arts or Design. The Master of Arts program with these specializations follows the Comprehensive Examination Plan, a minimum of nine courses of graduate work including a minimum of five courses in the 200 series in the field of specialization. The final comprehensive examination is oral and is given within the context of the candidate's creative work. Those majoring in painting/sculpture/graphic arts may concentrate on painting, sculpture, printmaking or photography in their advanced project. Majors in design may emphasize communication imagery, image transfer, electronic imagery, costume, ceramics, glass, design and structure, fiber structures, textiles, landscape design, industrial design or exhibition design. All candidates are expected to have a general knowledge of the history and theory of art. The specific program for the Master of Arts degree is determined in consultation with a faculty member.

Master of Fine Arts Degree in Painting/Sculpture/Graphic Arts or Design.

The program requires a minimum of 18 courses, with at least ten courses in the 200 series. Candidates must have completed, whether as undergraduates or graduate students, a minimum of ten courses in art history. The painting/sculpture/graphic arts candidate must complete a minimum of 11 courses in the field of specialization (including 10 courses in the 200 series), which includes course work supervised by his graduate committee. Candidates in design must complete a minimum of 13 courses in the field of specialization (including ten courses in the 200 series), which includes course work supervised by the graduate committee. Students who have an M.A. degree may be accepted as candidates for the M.F.A., but the M.A. degree is not a prerequisite. The M.F.A. is the highest degree for prospective professional artists. Three years of graduate work will normally be required to complete the requirements in terms of quality of creative work. Additional information concerning programs is available through the Art Department.

Doctor of Philosophy Degree in Art History.

The M.A. in art history from UCLA or its equivalent is required for admission to the Ph.D. program. Acceptance of the M.A. in art history from another institution will be decided by the departmental graduate review committee. If an acceptable M.A. from another institution is deficient in either French or German, this deficiency must be made up by passing a language examination in the first quarter of residence. In addition to the general University regulations for the Doctor of Philosophy Degree, including the dissertation and final examination (see Doctoral Degrees), the candidate must satisfy the following departmental requirements: A program of study worked out with the student's advisory committee (the member of the art history faculty responsible for the student's field of specialization, another member of the art history faculty, and a faculty member from another department), to comprise the following: three art history courses in the 200 and 500 series; five courses in other departments (excluding first year language courses) pertinent to the student's field of study; instruction in one or more additional languages, if considered necessary by the student's guidance committee; a written qualifying examination, six hours in length, in the student's major field, including its relation to other disciplines, administered by the student's guidance committee.

Lower Division Courses

Painting / Sculpture / Graphic Arts courses are supervised by the following faculty, augmented by visiting staff: painting and drawing, Amato, Brice, Elgart, Mullican, Nunes and Stussy; sculpture, Andrews.

10A. Drawing.
Studio, eight hours; six hours arranged. Beginning course in drawing.

10B. Drawing.
Studio, eight hours; six hours arranged. Prerequisite: course 10A. Beginning course in figure drawing.

20A. Painting.
Studio, eight hours; six hours arranged. Prerequisite: courses 10A and 10B. Beginning course in painting.

20B. Painting.
Studio, eight hours; six hours arranged. Prerequisite: course 20A. Composition and color.

25. Sculpture.
Studio, eight hours; six hours arranged. Modeling and basic sculptural form.

30A. Introduction to Design and Technology.
Lecture, three hours; discussion, one hour. Understanding the design process with emphasis on development of visual awareness; a study of technological, economic, environmental, and cultural factors influencing the design of objects. Open to non-majors, and available to Art majors for credit.

The Design Staff

31A. Fundamentals of Design.
Lecture, two hours; laboratory, four hours. Exploration of color in theory and practice. Development and articulation of sensory concepts. May be taken concurrently with 32A. Not open for credit for those who have had Art 150A.

31B. Fundamentals of Design.
Lecture, two hours; laboratory, four hours. Prerequisite: course 31A or equivalent. Interrelation of three dimensional form concepts as a foundation for creativity; origination and solution of problems. May be taken concurrently with 32B. Not open for credit for those who have had Art 150B.

32A-32B. Visual Presentation.
Demonstration, discussion and laboratory, eight hours. 32A is prerequisite to 32B. Translation of perception through delineation, drawing, and other descriptive media. May be taken concurrently with Art 31A-31B. Not open for credit for those who have had 153A or 153B respectively.

Mr. Vasa

34A-34B. History of Design.
Lecture, three hours; discussion, one hour. 34A is prerequisite to 34B. Analysis of significant concepts of form in relation to social, technological, and historical developments. Not open for credit for those who have had 154A or 154B respectively.

50. Ancient Art.
Lecture, three hours; quiz, one hour. Open to Freshmen and to students who have not had credit for former 1A or 100A. Prehistoric, Egyptian, Mesopotamian, Aegean, Greek, Hellenistic and Roman art and architecture.

Miss Downey

51. Medieval Art.
Lecture, three hours; quiz, one hour. Open to Freshmen and students who have not had credit for former 1B or 100B. Early Christian, Byzantine, Islamic, Carolingian, Ottomian, Romanesque, and Gothic art and architecture.

Mr. Werckmeister

52. Renaissance Art.
Lecture, three hours; quiz, one hour. Open to Freshmen and students who have not had credit for former 1B or 100B. Art and architecture from 1400 to 1600 in Italy, Flanders, Germany, France, and Spain.

Mrs. Weisz

53. Baroque Art.
Lecture, three hours; quiz, one hour. Open to Freshmen and students who have not had credit for former 1C or 100C. Art and architecture from 1600 to 1800 in Italy, France, Netherlands, Germany, Spain, England and the United States.

Mrs. Weisz

54. Modern Art.
Lecture, three hours; quiz, one hour. Open to Freshmen and students who have not had credit for former 1C or 100C. Art and architecture from 1800 to the present in Europe and the United States.

Mr. Kaplan

55. Africa, Oceania, and Native America.
Lecture, three hours; quiz, one hour. Required of art history majors. Comparative approach, emphasizing economic, cultural, and historical aspects of selected artistic traditions which developed outside the spheres of influence of the major European and Asiatic civilizations.

Mr. Rubin

Related Courses in Other Departments

Integrated Arts 1A-1B-1C.

Upper Division Courses

HISTORY AND THEORY OF ART

101A. Egyptian Art and Archaeology.
Lecture three hours. Prerequisite: course 50. A comprehensive study of art in Ancient Egypt from the earliest times to the Roman period, covering architecture, sculpture, graphic and minor arts. Relations with contemporaneous arts of the Aegean and Greece.

Mr. Badawy

101B. Egyptian Art and Archaeology.
Lecture three hours. Prerequisite: course 101A. Continuation of 101A.

Mr. Badawy

101C. Egyptian Art and Archaeology.
Lecture three hours. Prerequisite: course 101B. Continuation of 101B.

Mr. Badawy

101D. Art of the Ancient Near East.
(Formerly numbered 104A.) Lecture three hours. Prerequisite: course 50. Art and architecture of Mesopotamia, the Hittites and the Levant. Not open to students who have had credit for Art 104A.

Mr. Badawy

103A. Greek Art.
Lecture three hours. Prerequisite: course 50. A survey of the art and architecture of Greece from the archaic period through the 5th century B.C.

Miss Downey

103B. Hellenistic Art.
Lecture, three hours. Prerequisites: courses 50 and 103A. The art and architecture of Greece from the fourth centruy B.C. through the first century B.C.

Miss Downey

103C. Roman Art.
Lecture, three hours. Prerequisite: course 50. The art and architecture of Rome and its Empire from ca. 300 B.C. to A.D. 300.

Miss Downey

103D. Etruscan Art.
Lecture, three hours. Prerequisite: course 50. The arts of the Italic peninsula from ca. 1000 B.C. to the end of the Roman Republic.

Miss Downey

104B-104C-104D. Architecture and the Minor Arts of Islam in the Middle Ages.
Lecture, three hours. Prerequisites: course 104B for course 104C; course 104C for 104D.

105A. Early Christian Art.
Lecture, three hours. Prerequisite: course 51 or consent of the instructor. The origins and development of the architecture, sculpture, and painting of early Christianity, to the Iconoclastic controversy. (Not open to students who have had credit for 105A.)

105B. Early Medieval Art.
Lecture, three hours. Prerequisite: course 51 or consent of the instructor. Art and architecture of Western Europe from the Migration period until 1000 A.D.

Mr. Werckmeister

105C. Romanesque Art.
Prerequisite: course 51. Art and architecture of Western Europe in the 11th and 12th centuries.
Mr. Werckmeister

105D. Gothic Art.
Lecture, three hours. Prerequisite: course 51. Art and architecture of Europe in the 13th century.
Mr. Werckmeister

105E. Byzantine Art.
Lecture, three hours. Prerequisite: course 51 or consent of instructor. The theory and development of Byzantine Art from the Iconoclastic controversy to 1453, and the diffusion of Byzantine Art in Armenia, Georgia, the Caucasus, and Russia. Not open to students who have received credit for Art 105A prior to Spring 1972.

106A. Italian Art of the Trecento.
Lecture, three hours. Prerequisite: course 52 or consent of instructor. Art and architecture of the 14th century.
Mr. Birkmeyer

106B. Italian Art of the Quattrocento.
Lecture, three hours. Prerequisite: course 52. Art and architecture of the 15th century.
Mr. Birkmeyer, Mr. Pedretti, Mrs. Weisz

106C. Italian Art of the Cinquecento.
Lecture, three hours. Prerequisite: course 52. Art and architecture of the 16th century.
Mr. Pedretti, Ms. Weisz

106A. Northern Renaissance Art.
Lecture, three hours. Prerequisite: course 52. Painting and Sculpture in the Northern Renaissance.
Mr. Birkmeyer

106B. Northern Renaissance Art.
Lecture, three hours. Prerequisite: course 108A. Painting and Sculpture in the Northern Renaissance.
Mr. Birkmeyer

109A. Baroque Art.
Lecture, three hours. Prerequisite: course 53. Art and architecture of Italy and Spain, 16th to late 17th century.

109B. Baroque Art.
Lecture, three hours. Prerequisite: course 109A. Art and architecture of Northern Europe, 16th to late 17th century.

109C. European Art of the 18th Century.
Lecture, three hours. Prerequisite: course 53. Painting, architecture and sculpture of the 18th century will be examined in the light of political and intellectual developments. Special emphasis will be given to the effect of the rise of democratic institutions, especially the French Revolution.

109D. Art and Architecture of Georgian England.
Lecture, three hours.
Mr. Wark

110A. European Art of the 19th Century.
Lecture, three hours. Prerequisite: course 54. Neoclassicism and Romanticism, with emphasis upon France—the development and influence of David, Ingres and Delacroix.
Mr. Kaplan

110B. European Art of the 19th Century: Realism and Impressionism.
Lecture, three hours. Prerequisite: course 54. An inquiry into the problem of realism with emphasis on French Art, but including developments in England and Germany.
Mr. Kaplan

110C. European Art of the 19th and 20th Century: Post Impressionism to Surrealism.
Lecture, three hours. Prerequisite: course 54. A study of the major developments in Modern Art, 1880's-1930, including Seurat, Cezanne, Gauguin, Van Gogh, Art Nouveau, Fauvism, German Expressionism.
Mr. Kaplan

110D. Contemporary Art.
Lecture, three hours. Prerequisite: course 54. European and American art since World War II.
Mr. Kaplan

112A. American Art.
Lecture, three hours. Architecture in the United States from the Colonial period to the present.
Mr. Bloch

112B. American Art.
Lecture, three hours. Painting and sculpture in the United States in the 18th and 19th centuries.
Mr. Bloch

114A. The Early Art of India.
Lecture, three hours. Prerequisite: not open to Freshmen. Survey of Indian Art from the Indus Valley cultures to the 10th century. Emphasis will be given to the Buddhist and Hindu backgrounds of the arts.

114B. Chinese Art.
Lecture, three hours. Not open to Freshmen. Survey of the arts of China from the Neolithic times to the 18th century. The various arts will be related to the developing historical background of the country.
Mr. McCallum

114C. Japanese Art.
Lecture, three hours. Not open to Freshmen. Japanese art from its beginning in pre-history through the 19th century. Emphasis will be placed on the development of Buddhist art and its relationship with the culture.
Mr. McCallum

114D. The Later Art of India.
Lecture, three hours. Prerequisite: course 114A or consent of instructor. Survey of Indian Art from the 10th century to the 19th century. The decline of Buddhist Art, the last efflorescence of Hindu architecture, Muslim painting and architecture, and Rajput painting.

115A. Advanced Indian Art.
Lecture, three hours. Prerequisite: course 114A. Study in Indian sculpture and architecture.

115B. Advanced Chinese Art.
Lecture, three hours. Prerequisite: course 114B. Study in Chinese painting and sculpture.
Mr. McCallum

115C. Advanced Japanese Art.
Lecture, three hours. Prerequisite: course 114C. Study in Japanese painting and sculpture.
Mr. McCallum

118A. The Arts of Oceania.
Lecture, three hours. Prerequisite: course 55 or consent of the instructor. Survey of the arts of the major island groupings of the Pacific, emphasizing style-regions and broad historical relationships.
Mr. Rubin

118B. The Arts of Pre-Columbian America.
Lecture, three hours. Prerequisite: course 55 or consent of the instructor. Survey of the sequence of cultures which developed in the area between (and including) Mexico and Peru, from ca. 1000 B.C. until the conquest.
Mr. Rubin

118C. The Arts of Sub-Saharan Africa.
Lecture, three hours. Prerequisite: course 55 or consent of the instructor. Survey, emphasizing sculpture, from the Western Sudan to the Congo Basin, with special reference to the historical and cultural ramifications of the arts.
Mr. Rubin

118D. The Arts of Native North America.
Lecture, three hours. Prerequisite: course 55 or consent of the instructor. Survey of painting, sculpture, and other arts, from the Eskimo to the peoples of the Caribbean and the Southwestern United States.
Mr. Rubin

119A. Advanced Studies in African Art: The Western Sudan.
Lecture, three hours. Prerequisite: course 118C and consent of the instructor. Graduate students in Art History may receive credit toward M.A. and Ph.D. requirements. Consideration of the network of stylistic, historical, and cultural relationships existing among the peoples of the upper Niger River Valley and adjacent portions of the Western Guinea Coast.
Mr. Rubin

119B. Advanced Studies in African Art: The Guinea Coast.
Lecture, three hours. Prerequisite: course 118C and consent of the instructor. Graduate students in Art History may receive credit toward M.A. and Ph.D. requirements. The royal and popular arts of the coastal region between Ghana and Nigeria, including the Nok Culture, ancient Ife, Benin, and other surviving bronze and terra-cotta traditions.
Mr. Rubin

119C. Advanced Studies in African Art: The Congo.
Lecture, three hours. Prerequisite: course 118C and consent of the instructor. Graduate students in Art History may receive credit toward M.A. and Ph.D. requirements. The arts of the Equatorial Forest and Southern Savannah style-regions, from Northern and eastern Nigeria through the Congo River Basin, eastern and southern Africa.
Mr. Rubin

120A. History of Prints.
Lecture, three hours. Development of style and techniques of expression in the graphic arts, from the 15th century to the early 16th century.
Mr. Bloch

120B. History of Prints.
Lecture, three hours. Development of style and techniques of expression in the graphic arts from the 16th century to modern times.
Mr. Bloch

121A. Critical and Historical Studies in Drawing.
Lecture, three hours. Development of style and means of expression in drawing from late Middle Ages to the Early Renaissance.
Mr. Bloch

121B. Critical and Historical Studies in Drawing.
Lecture, three hours. Development of style and means of expression in drawing from Late Renaissance to the present.
Mr. Bloch

122. History of Style and Ornament.
Lecture, three hours. Development of stylistic ideas and motifs in the Western world and their expression in design media from the Renaissance to 1900. A study in connoisseurship.
Mr. Bloch

125. Tutorial Conferences.
Discussion, two hours. Prerequisites: courses 50, 51, 52, 53, and 54. Restricted to undergraduate art history majors. Discussion of selected art topics with emphasis on related readings in music, literature, history and philosophy. Oral reports. Course grading will be on Passed/Not Passed basis only.
Art History Staff

Related Courses in Other Departments

Anthropology 144. Aesthetic Anthropology

Classics 151A. Classical Archaeology: Greco-Roman Architecture.
151B. Classical Archaeology: Greco-Roman Sculpture.
151C. Classical Archaeology: Greco-Roman Painting.

History 117. History of Ancient Egypt.

Near Eastern Languages 161A-161B-161C. Archaeology of Mesopotamia.

Oriental Languages 170A-170B-170C. Archaeology in Early and Modern China.

Philosophy 161. Aesthetic Theory.

PAINTING/SCULPTURE/GRAPHIC ARTS

Painting/Sculpture/Graphic Arts courses are supervised by the following faculty, augmented by visiting staff: painting and drawing, Amato, Brice, Elgart, Mullican, Nunes and Stussy; printmaking, Brown; sculpture, Andrews; photography, Heinecken.

130. Life Drawing.
Studio, eight hours; five hours arranged. Prerequisites: courses 10A, 10B, or consent of instructor. Maximum three courses. Studies from the model.

132. Drawing.
Studio, eight hours; five hours arranged. Prerequisite: consent of the instructor. Maximum two courses. Drawing as a terminal medium of artistic expression.

133. Painting.
Studio, eight hours; five hours arranged. Prerequisites: courses 10A-10B, 20A-20B, or consent of the instructor. Maximum three courses. Varied media and subjects. Composition, interpretation, expression.

135. Life Painting.
Studio, eight hours; five hours arranged. Prerequisite: course 133. Maximum three courses. Varied media. Composition, interpretation, expression.

137. New Forms and Concepts.
Studio, eight hours; five hours arranged. Prerequisites: courses 10A, 10B, 20A, 20B or consent of instructor. May be repeated for a maximum of eight units. Varied forms and processes. Concept art, performance and investigation of a variety of media, including film and video.

140. Print Making.
Studio, eight hours; five hours arranged. Prerequisites: courses 10A-10B, 20A-20B, 132, or consent of the instructor. Maximum three courses. Selected studies in engraving, etching, drypoint, aquatint, softground, lithography, woodcut, and mixed media. Traditional and experimental studies. Fine printing.

145. Sculpture.
Studio, eight hours; five hours arranged. Prerequisites; courses 10A-10B, 25 or consent of the instructor. Maximum three courses. Modeling or carving. Clay, plaster, wood, stone, metals, and welding. Plaster casting.

147. Photography.
Studio, eight hours; five hours arranged. Prerequisites: courses 10A-10B, 20A-20B, or consent of the instructor. Maximum three courses. Photography as a medium of artistic expressions.

DESIGN

I. Comparative Studies in Design

161A. Ceramics.
Lecture, three hours; laboratory, to be arranged. The evolution of ceramic form through geographic, social, and technological influences.
Mr. Saxe

161B. Clothing.
Lecture, three hours; laboratory, to be arranged. Clothing and body ornamentation; symbolic significance and evolving forms within their social, cultural, and geographic context.
Ms. M'Closkey

161C. Graphics.
Lecture, three hours; laboratory, to be arranged. Symbols, signs and images, within social, cultural and historical contexts.
Mr. Jennings, Mr. Neuhart

161D. Glass.
Lecture, three hours; laboratory, to be arranged. The evolution of glass form and technology through geographic and sociological influences.
Mr. Marcus

161E. Industrialization.
Lecture, three hours; laboratory, to be arranged. Industry, design, and society; their changing relationships.
Mr. Shapira

161F. Landscape.
Lecture, three hours; laboratory, to be arranged. The analysis of concepts affecting the aesthetic and ecological quality of the landscape.
Mr. Roberts

161G. Shelter.
Lecture; three hours; laboratory, to be arranged. An analysis of dwelling types and forms; the forces affecting them.

161H. Textiles.
Lecture, three hours; laboratory, to be arranged. Concepts of construction, ornamentation, expression, and utility.
Mr. Kester in charge

161J. Video Imagery.
Lecture, three hours; laboratory, to be arranged. Electronic audiographs in relation to pictorial forms; nonderivitive "process level" characteristics and content-level perception.
Mr. Kataoka, Mr. Neuhart

II. Concept and Form in Design

162A. Ceramics.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, or equivalent. Introduction to creative development of ceramic materials and processes.
Mr. Saxe

162B. Ceramics.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 162A or equivalent. The interaction of ideas, structure, and process. May be repeated once.
Mr. Saxe

163A. Clothing.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, or equivalent. Social, cultural, and technological influences on contemporary clothing.
Ms. M'Closkey

163B. Clothing.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 163A or equivalent. Communication through forms of costume and body adornment. May be repeated once
Ms. M'Closkey

164A. Fiber Structures.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, or equivalent. Design and technology of woven forms; essential elements, tools, and processes.
Mr. Kester in charge

164B. Fiber Structures.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 164A or equivalent. The derivation of non-loom processes utilizing pliable elements. May be repeated once.
Mr. Kester in charge

165A. Graphics.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, or equivalent. The development of letterforms, typography, and reproduction technology.
Mr. Jennings, Mr. Neuhart

165B. Graphics.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 165A or equivalent. Empiric and systematic graphic concepts, including methods, symbols, and media technology. May be repeated once.
Mr. Jennings, Mr. Neuhart

166A. Glass.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or

equivalent. The development of forms in glass; off-hand methods including blowing, molding, and coldworking.
Mr. Marcus

166B. Glass.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 166A or equivalent. Theories of glass forming; colorants, lustres, acids, and surface delineation. May be repeated once.
Mr. Marcus

167A. Industrialized Materials.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or equivalent. The influence of diverse media, structures, and systems on form development.
Mr. Shapira

167B. Industrialized Materials.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 167A or equivalent. Theories of newly developed technological materials and processes as conceptual influences. May be repeated once.
Mr. Shapira

168A. Landscape.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or equivalent. The modification, conservation, and utilization of natural land elements.
Mr. Roberts

168B. Landscape.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 168A or equivalent. The specific relationship of modified natural elements to human requirements. May be repeated once.
Mr. Roberts

169A. Product.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or equivalent. Theoretical evolution of form in industry; synthesis of function, aesthetics, mechanical, and material properties.
Mr. Shapira

169B. Product.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 169A or equivalent. Empiric resolution of form factors influencing concept interpretations for industry. May be repeated once.
Mr. Shapira

170A. Shelter.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or equivalent. The determination of criteria for designing spatial enclosures.

170B. Shelter.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 170A or equivalent. The definition of structure and space in relation to human needs. May be repeated once.

171A. Textiles.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, or equivalent. Surface modification through ornament.
Mr. Kester in charge

171B. Textiles.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 171A or equivalent. Dyeing theories and processes; natural and synthetic colorants. May be repeated once.
Mr. Kester in charge

172A. Video Imagery.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or equivalent. Introduction to electronic image - making; video - tape and "live" representation.
Mr. Kataoka, Mr. Neuhart

172B. Video Imagery.
Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 172A or equivalent. Electronic audiographic recording explored for its sensory potential; video-tape as record of process and content levels. May be repeated once.
Mr. Kataoka, Mr. Neuhart

III. Proseminars in Design

192. Proseminar in Design: Resources.
Proseminar, three hours. Prerequisite: consent of adviser. Investigation of resources for creativity as an introduction to research. Concurrent enrollment in one course in Concept and Form recommended. Enrollment through Design faculty advisers. Can be repeated once.
Design Staff

193A-193M. Proseminar in Design: Senior Studies.
Proseminar, three hours. Prerequisite: consent of adviser. Members of the faculty will examine specific problems relevant to Design theory and performance. Topics for investigation will be announced in advance. Open to senior and advanced students through Design faculty advisers. May be repeated for a maximum of three courses.
Design Staff

PAINTING/SCULPTURE/GRAPHIC ARTS

195. Proseminar in Painting/Sculpture/Graphic Arts.
Discussion, three hours. Prerequisites: courses 10A, 10B, 20A, 20B. Analysis and discussion in Painting, Sculpture, and Graphic Arts with variable topics such as the comparison and contrast of traditional and contemporary concepts and media, and relationships to other arts.
The Staff in Painting/Sculpture/Graphic Arts

Special Studies for All Majors

197. Honors Course.
Hours to be arranged. Prerequisite: 3.0 over-all, 3.5 in major, consent of instructor, junior or senior standing. Individual studies for majors. Maximum two courses.
The Staff

199. Special Studies in Art. (½ to 2 courses)
Hours to be arranged. Prerequisites: 3.0 in major, consent of instructor, senior standing. Individual studies for majors. Maximum, two courses.
The Staff

Graduate Courses

Prerequisite for all courses: consent of the instructor. All courses may be repeated for credit upon recommendation of adviser. Not open to undergraduate students. See College of Fine Arts, Unit Requirement. Course 201 through 265: exact topics of both graduate lecture courses and seminars vary.

201. Historiography of Art History.
Seminar, two hours. A critical study of the various approaches to art history through the centuries.
The Staff in Art History

202. Methodology of Art History. (½ to 2 courses)
Sections oriented to the development and refinement of specialized research skills appropriate to particular periods and areas in the history of art.
The Staff in Art History

205. Studies in Prints.
Seminar, two hours.
Mr. Bloch

206. Studies in Drawings.
Seminar, two hours.
Mr. Bloch

207. Studies in Prints.
Lecture, two to three hours.
Mr. Bloch

208. Studies in Drawings.
Lecture, two to three hours.
Mr. Bloch

210. Egyptian Art.
Seminar, two hours.
Mr. Badawy

211. Topics in Egyptian Art.
Lecture, two to three hours.
Mr. Badawy

212. Problems in Islamic Art.
Lecture, two to three hours.

213. Problems in Islamic Art.
Seminar, two hours.

216. Topics in African Art.
Lecture, two to three hours.
Mr. Rubin

217. Topics in Oceanic Art.
Lecture, two to three hours.
Mr. Rubin

218. Topics in Pre-Columbian Art.
Lecture, two to three hours.
Mr. Rubin

219. Topics in Native North American Art.
Lecture, two to three hours.
Mr. Rubin

220. The Arts of Africa, Oceania and Pre-Columbian America.
Seminar, two hours.
Mr. Rubin

221. Topics in Classical Art.
Lecture, two to three hours.
Miss Downey

222A-222B. Greco-Roman Art.
Seminar, two hours. A detailed study of the sculpture and architecture of Syria and Mesopotamia in the Greco-Roman Period. Credit and letter grade will be given only on completion of the full seminar sequence.
Miss Downey

223. Classical Art.
Seminar, two hours.
Miss Downey

224. Topics in Medieval Art.
Lecture, two to three hours.
Mr. Werckmeister

225. Medieval Art.
Seminar, two hours.
Mr. Werckmeister

226A-226B. Medieval Art and Architecture.
Seminar, two hours. Credit and letter grade will be given only on completion of the full seminar sequence.

230. Italian Renaissance Art.
Seminar, two hours.
Mr. Pedretti, Mr. Weisz

231. Leonardo and Renaissance Theory of Art.
Seminar, two hours.
Mr. Pedretti

232. Topics in Italian Renaissance Art.
Lecture, two to three hours.
Mr. Pedretti, Mrs. Weisz

233. Topics in Northern Renaissance Art.
Lecture, two to three hours.
Mr. Birkmeyer

235. Northern Renaissance Art.
Seminar, two hours.
Mr. Birkmeyer

240. Baroque Art.
Seminar, two hours.

241. Topics in Baroque Art.
Lecture, two to three hours.
Mr. Pedretti, Mrs. Weisz

244. Topics in European Art from 1700 - 1900.
Lecture, two to three hours.
Mr. Wark

245. European Art from 1700 to 1900
Seminar, two hours.

246. Art and Architecture of Georgian England.
Seminar, two hours.
Mr. Wark

252. Topics in Modern Art.
Lecture, two to three hours.
Mr. Kaplan

253. Modern Art.
Seminar, two hours.
Mr. Kaplan

254. Topics in American Art.
Lecture, two to three hours.
Mr. Bloch

255. American Art.
Seminar, two hours.
Mr. Bloch

259. Topics in Asian Art.
Lecture, two to three hours.
Mr. McCallum

260. Asian Art.
Seminar, two hours.
Mr. McCallum

265. Field Work in Archaeology. (½ to 2 courses)
Participation in Archaeological excavations or other archaeological research under supervision of the staff.
The Staff in Art History

271. Graduate Painting. (½ to 2 courses)
Hours to be arranged.

272. Graduate Printmaking. (½ to 2 courses)
Hours to be arranged.

273. Graduate Sculpture. (½ to 2 courses)
Hours to be arranged.

274. Graduate Photography. (½ to 2 courses)
Hours to be arranged.

279. Seminar in Art.
Seminar, two hours. Painting, Sculpture, Graphic Arts. Other forms and systems. Studies in concept, experience, process.
The Staff in Painting/Sculpture/Graphic Arts.

280. Communication Imagery. (½ to 2 courses)
Laboratory, two to four hours. Exploration of graphic processes in visual systems. Design theory and procedures related to typography, letter form, photography and the graphic film as they communicate visually.
Mr. Neuhart

281. Image Transfer. (½ to 2 courses)
Laboratory, two to four hours. Advanced experimental work in print processes. Employment of the fixed image, such as offset lithography, offset or letter press, screen printing and emulsion printing, through photo/mechanical means.
Mr. Jennings

282. Electronic Imagery. (½ to 2 courses)
Laboratory, two to four hours. Electronic imagery. The recognition of the fugitive image in creative and recording processes such as video and the computer generated image.
Mr. Kataoka

283. Costume. (½ to 2 courses)
Seminar, two hours; laboratory, two hours. Advanced formulation and development of design ideas for contemporary fashion, dance, drama or ritual. Research on the evolution of style and modes of expression in historical and modern costumes.
Mrs. M'Closkey

284. Ceramics. (½ to 2 courses)
Seminar, two hours; laboratory, two hours. Advanced research and application of ceramic theory and methodology. Emphasis on the development of a responsible personal aesthetic. Includes, but is not limited to, investigations of clay and glaze design technology, design for industry, clay as medium, and the historical importance of ceramics as a socially responsible discipline.
Mr. Saxe

285.Glass. (½ to 2 courses)
Laboratory, two to four hours. Formal investigation and research in glass methods and processes as a creative discipline.
Mr. Marcus

287. Design and Structure. (½ to 2 courses)
Laboratory, two to four hours. Exploration of form with emphasis on experimentation with materials and processes.
Mr. Vasa

288. Fiber Structures. (½ to 2 courses)
Laboratory, two to four hours. Advanced formative work in traditional and experimental processes of fabric construction utilizing fiber media.
Mr. Kester

289. Textiles. (½ to 2 courses)
Laboratory, two to four hours. Advanced experimental work with the elements of fabric design, including surface manipulation and methods of fabrication, which may include but are not limited to dye and printing processes.

290A-290B-290C. Design Seminar — A Collaborative View.
Seminar, three hours.

290A. Formalization Processes.
Critical examination of theoretical concepts underlying the design process, including the initiation of an idea, its interpretation and execution by the designer.

290B. Design Programming.
Critical examination of idea development into model or procedural form for execution and/or production by others.

290C. Visual Communication.
Critical examination of imagery in its social context.
Mr. Neuhart

291. Landscape Design. (½ to 2 courses)
Laboratory, two to four hours. Articulation of landscape elements, including conservation and planning.
Mr. Roberts

294. Industrial Design. (½ to 2 courses)
Laboratory, two to four hours. Development of design strategies and process methods for industrial production.
Mr. Shapira

295. Exhibition Design. (½ to 2 courses)
Laboratory, two to four hours. Interpretation and presentation of materials for exhibition.
Mr. Carter

Professional Courses

401. History of Museums and Collecting.
Prerequisite: B.A. in Art History.
The Staff

402. Connoisseurship.
Prerequisite: B.A. in Art History.
The Staff

403A-403B. Restoration, Preservation and Conservation.
Prerequisite: B.A. in Art History.
Mr. Johnson

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses)
Prerequisite: consent of the instructor.
The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. (½ to 2 courses)
Prerequisite: consent of the instructor.
The Staff

598. Research for and Preparation of the Master's Thesis. (½ to 2 courses)
Prerequisite: consent of the instructor.
The Staff

599. Research for and Preparation of the Doctoral Dissertation. (½ to 2 courses)
Prerequisite: consent of the instructor.
The Staff

Related Courses in Another Department

Classics 251A. Seminar in Classical Archaeology: The Aegean Bronze Age.
251B. Seminar in Classical Archaeology: Greco-Roman Architecture.
251C. Seminar in Classical Archaeology: Greco-Roman Sculpture.
251D. Seminar in Classical Archaeology: Greco-Roman Painting.

The Department of Art reserves the right to hold for exhibition purposes examples of any work done in classes and to retain for the permanent collection of its galleries such examples as may be selected.

UCLA FREDERICK S. WIGHT ART GALLERIES

The UCLA Frederick S. Wight Art Gallery, adjacent to Dickson Art Center, presents a program of changing exhibitions of regional, national and international significance, including a range of historical, ethnic and contemporary forms of art. Included in this program are exhibitions by faculty and students of the Painting/Sculpture/Graphic Arts and Design areas, and exhibitions assembled from the extensive collections of the Museum of Cultural History, focusing on non-Western and folk art. The Grunwald Center for the Graphic Arts maintains a print study collection and presents a series of exhibitions related to the Art Department's program of advanced studies in the graphic arts and art history.

■ ASTRONOMY

(Department Office, 8979 Mathematical Sciences Building)

George O. Abell, Ph.D., *Professor of Astronomy.*
Lawrence H. Aller, Ph.D., *Professor of Astronomy.*
Richard E. Lingenfelter, B.A., *Professor of Geophysics and Astronomy in Residence.*
Miroslav Plavec, Ph.D., *Professor of Astronomy (Chairman of the Department).*
Daniel M. Popper, Ph.D., *Professor of Astronomy.*
Harland W. Epps, Ph.D., *Associate Professor of Astronomy.*
Roger K. Ulrich, Ph.D., *Associate Professor of Astronomy.*
Holland C. Ford, Ph.D., *Assistant Professor of Astronomy.*
David C. Jenner, Ph.D., *Adjunct Assistant Professor of Astronomy.*
Michael A. Jura, Ph.D., *Assistant Professor of Astronomy.*

♦

Donald E. Osterbrock, Ph.D., *Director of Lick Observatory.*

Classes for Non-Majors

Astronomy 3 and 4 are essentially nonmathematical courses open to the general university student. Astronomy 4 covers special topics to a somewhat greater depth and requires some preliminary elementary background in astronomy.

Students who have good ability to comprehend mathematical and physical concepts may select, according to their level, any of the courses 80, 101, 103, 104, 115, 117, 127.

Advising

Every student enrolled in the curriculum in astronomy is required to have each quarter a program approved by a departmental adviser.

Preparation for the Major

Required: Physics 8A-8E; Mathematics 31A, 31B, 31C, 32A, 32B, 32C; course 3 or the equivalent in either German, French, Russian or Spanish. Recommended: Astronomy 80, Chemistry 11A.

The Major

Required: Astronomy 101, 103A-103B-103C; 115, 117, 127; Physics 105A-105B; 110A-110B, 115A-115B, 131A. Mathematics: at least one upper division course chosen from 130 through 152. Recommended: Astronomy 80, 104, 180; Physics 108, 112A, 112B, 124, 131B.

Honors Program in Astronomy

Senior majors in Astronomy with a 3.25 grade point average in all Astronomy, Mathematics, and Physics courses are eligible for the Honors Program in Astronomy. In addition to completing all courses required for the major, the honors student must complete two quarters of 199. To receive honors and highest honors at graduation, the grade point average must remain 3.25 or higher and the work in 199 must reflect original research and be accepted by the departmental honors committee.

Requirements for the Master's Degree

General Requirements. See Master's Degrees. The Department offers work under The Comprehensive Examination Plan. This examination is given annually in fields specified by the Department. The requirements for the master's degree should normally be completed at the end of one year, and must be completed not later than two years after beginning graduate studies.

The record of each graduate student admitted from another institution will be evaluated in consultation with the student to determine whether undergraduate courses in physics or astronomy are required to strengthen the student's background. The student should have undergraduate preparation equivalent to our undergraduate major, which consists of the courses: Astronomy 101, 103A-103B-103C, 115, 117, 127, Physics 105A-105B, 110A-110B, 115A-115B, and 131A.

Requirements for the Degree of Doctor of Philosophy

General Requirements. See Doctoral degrees. The candidate must obtain a master's degree. (See the preceding section.) All astronomy Ph.D. candidates are further required to serve one year as a teaching assistant or the equivalent.

A graduate student's annual evaluation is based on: (1) course grades, (2) research projects realized in the C-parts of graduate course (see below under Graduate Courses), (3) annual comprehensive examinations which establish his general level of knowledge in the core courses offered during the previous academic year. While certain minimum requirements must be satisfied in each of these three fields, a credit point system permits the student to make up partly for deficiencies in one field by outstanding results in another. These requirements should normally be satisfied within 9 quarters, and not later than within 12 quarters. When starting his work on a thesis, the candidate will also be required to pass an oral qualifying examination, conducted by his doctoral committee, that will test his preparation to conduct a specialized research problem.

The Department of Astronomy operates an off-campus observatory at Ojai, California, which features a 24-inch reflecting telescope and a 10-inch Schmidt telescope that are available to students in their independent study and research programs in connection with courses 199, 596A and 599.

Lower Division Courses

3. Astronomy: The Nature of the Universe.
Lectures three hours, discussion one hour. Not open to students who have taken or are taking Astronomy 101. An essentially nonmathematical course for the general university student on the development of ideas in astronomy, and what has been learned of the nature of the universe, including recent discoveries and developments.
The Staff

4. Topics in Modern Astronomy.
Lectures four hours, discussion one hour. Prerequisite: course 3 or the equivalent. For the general university student with previous introduction to astronomy. Selected topics (such as evolution of the solar system and stars, and cosmology) are treated in some depth, but without formal mathematics, emphasizing their significance and relationships to other sciences.
The Staff

10. Practice in Observing. (½ course)
Meets one evening a week for two and one-half hours. Prerequisite: knowledge of plane trigonometry and some previous or concurrent course in astronomy, or consent of the instructor. Practical work for beginners, including telescopic observations and laboratory exercises cognate to an introductory course in astronomy.
The Staff

Upper Division Courses

80. Topics in Contemporary Astrophysics.
Meets three hours per week. Prerequisites: Limited to freshmen and sophomores, enrollment 20, consent of instructor. Recommended to declared or potential astronomy or other science majors. This course is designed as an introduction to current topics in astrophysics. It should show to the student how contemporary astrophysics works and what kind of problems it tries to solve. Course requires the ability to understand mathematical and physical concepts rather than a definite knowledge in these disciplines.
The Staff

101. Introduction to Astronomy.
Meets four hours per week. Prerequisites: Physics 8A and Mathematics 31A-31B or their equivalents. Open to qualified sophomores as well as upper division students. Course 10 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.
The Staff

103A-103B-103C. Intermediate Astronomy.
103A meets four hours per week, 103B and 103C meet three hours per week. Prerequisites: Physics 8A-8D; Mathematics 31A-31C and 32A-32B; Astronomy

101 recommended. Course 103A: Spherical and Gravitational Astronomy. Course 103B: The Solar System; Introduction to Stellar Astronomy. Course 103C: Stellar Astronomy; Galactic and Extragalactic Astronomy.

The Staff

104. Astronomical Optics.

Meets three hours per week. Prerequisite: Physics 105A. Geometrical optics, including ray tracing and optical aberrations commonly encountered in optical design. Interference, diffraction, dispersion, photoelectric emission and other aspects of physical optics with particular emphasis placed on practical application in astronomical investigation.

Mr. Epps

115. Physical Foundations of Astrophysics.

(Formerly numbered 117A.) Meets three hours per week. Prerequisite: senior standing in astronomy or physics, or consent of instructor. Spectroscopy and spectral lines in stellar spectra. Theory of radiation and continuous stellar spectra. Astrophysics of the gaseous state of matter, ionization and excitation, and local thermodynamic equilibrium. Interaction between matter and radiation.

Mr. Epps, Mr. Ulrich

117. Stellar Atmospheres and Interstellar Matter.

(Formerly numbered 117B.) Meets three hours per week. Prerequisite: senior standing in astronomy or physics, or consent of instructor; Astronomy 115 or its equivalent. Introduction to radiative transfer, stellar atmospheres and their models. Curve of growth analysis and abundance determinations. Atmosphere of the Sun. Physical conditions in the interstellar medium and aspects of star formation.

Mr. Aller, Mr. Jura

127. Stellar Interiors and Evolution.

(Formerly numbered 117C.) Meets three hours per week. Prerequisites: senior standing in astronomy or physics, or consent of instructor. Recommended: Astronomy 115 (formerly 117C.) Physical conditions in stellar interiors. Energy production in stars. Stellar evolution from star formation through the normally observed stages to white dwarfs, neutron stars, and black holes. Novae, supernovae, other variable stars. Synthesis of chemical elements in stars.

Mr. Plavec, Mr. Ulrich

180. Senior Symposium on Topics in Modern Astronomy.

Meets three hours per week. Prerequisite: senior standing in astronomy or physics or consent of the instructor. Lectures by instructors in astronomy and related fields to supplement the regular course sequence. Topics may include: radio, infrared, UV and X-ray astronomy, observational cosmology, variable stars, planetary physics, pulsars and quasars.

Mr. Ulrich

199. Special Studies. (½ or 1 course)

Prerequisite: senior standing in astronomy or physics, with an outstanding record and consent of the instructor. Special studies with an individual faculty member. With prior approval, this course may be used to carry out a meritorious observing program at the UCLA Students' Observatory, or in special cases with the 24-inch reflector at the Department's Field Station in Ojai.

The Staff

Graduate Courses

Prerequisite to graduate courses is by consent of the instructor. Graduate courses 201 through 227 are offered in alternate years. With the exception of the introductory graduate course 200, the regular graduate courses consist of three quarters according to the following scheme: level A (winter quarter, 4 units): a basic survey course presenting the minimum knowledge in the field expected for all students who wish to obtain the Ph.D. degree, but who do not necessarily plan to specialize in the field covered by the course; Level B (spring quarter, 6 units): advanced level for those considering the possibility of taking up a research project in the field. Level C (fall quarter, following academic year, 8 units): individual research projects supervised by the instructor in the form of a laboratory. The introductory courses are given in the winter quarters so that (1) full use may be made of the favorable fall weather for observational projects, (2) new graduate students may be acquainted with the program and with the department in the introductory course 200, which is offered every year. Courses 230 and 240 are equivalent to the B courses.

200. Introduction to Graduate Study of Astronomy.

Prerequisite: to be taken by all newly entering graduate students. Surveys the various fields of astronomy and astrophysics, gives first acquaintance with working methods, and with the department. Basic astronomical nomenclature is surveyed, and the background in physics and mathematics is outlined as required in graduate courses.

The Staff

***201A-201B-201C. Astrophysics of the Solar System.**
(1 course, 1½ courses, 2 courses)

The sun, solar phenomena, and solar-terrestrial relationships. The interplanetary medium and astronomical plasma physics, comets, meteorites, meteors, satellites and planets, planetary atmospheres. Origin and evolution of the solar system.

Mr. Aller, Mr. Ulrich

***204A-204B-204C. Observational Astronomy.**
(1 course, 1½ courses, 2 courses)

Positional astronomy, data reduction, telescopes, photometric, spectroscopic and radio instruments and techniques. Includes laboratory.

Mr. Epps, Mr. Ford

208A-208B-208C. The Interstellar Medium.
(1 course, 1½ courses, 2 courses)

Dynamics and physics of interstellar gas and dust. Radio observations of the interstellar medium. Diffuse and planetary nebulae. Magnetic fields in space. Star formation. Topics in high energy astrophysics.

Mr. Aller, Mr. Ford, Mr. Ulrich

217A-217B-217C. Stellar Photospheres.
(1 course, 1½ courses, 2 courses)

Prerequisite: consent of the instructor. Physics of stellar photospheres and radiative transfer. The continuous and line spectra of stars. Chemical abundances in stars. Stars with extended and unstable atmospheres.

Mr. Aller, Mr. Plavec, Mr. Ulrich

219A-219B-219C. Stellar Systems.
(1 course, 1½ courses, 2 courses)

Statistical astronomy. Distance determination. Stellar motions and populations. Stellar dynamics. Structure of the Galaxy. Galaxies and clusters of galaxies. Distribution of matter in space. Cosmology.

Mr. Abell, Mr. Ford

***227A-227B-227C. Stellar Structure and Evolution.**
(1 course, 1½ courses, 2 courses)

Structure and evolution of the stars. Stellar energy sources and problems of nucleosynthesis. Theory of variable stars. Evolution of and mass exchange in binary stars. Final state of stellar evolution and degenerate stars. Supernova processes. Practical computation of stellar structure and evolution.

Mr. Plavec, Mr. Ulrich

230. Gamma-ray and X-ray Astronomy.

Gamma-ray and x-ray observations - galatic and extragalectic sources, spacial distributions, energy spectra and time dependences. Theory of high energy radiation processes: bremsstrahlung, compton scattering, synchrotron emission and nuclear interactions. Models of diffuse background and discrete sources of X- and gamma-radiation.

Mr. Lingenfelter

240. Modern Problems in Astronomy and Astrophysics.

Special topics offered by distinguished visiting professors. May be repeated for credit. Open to qualified graduate students in astronomy and in related fields (physics, meteorology, planetary and space physics).

250. Seminar on Current Astronomical Research. (½ course)

The Staff

M266. Cosmic Ray Physics.

(Same as Geophysics and Space Physics M266.) Cosmic ray composition, origin, acceleration, propagation, interactions with interstellar matter, magnetic field and radiation field, role in interstellar heating, nonthermal galactic radio and galactic x-and gamma-radiation, interactions in the earth's atmosphere.

M285. Origin and Evolution of the Solar System.

(Same as Geophysics and Space Physics M285.) Dynamical problems of the solar system; chemical evidences from geochemistry, meteorites, and the solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes; formation of the planets and satellite systems.

The Staff

Individual Study and Research

The following courses, 596A, 596L and 599, may be repeated by a student at the discretion of the Department.

596A. Directed Individual Studies. (½ to 2 courses)

The Staff

596L. Advanced Study and Research at the Lick Observatory. (½ to 3 courses)

Intended for graduate students who require observational experience as well as for those working upon observational problems for their theses.

The Staff

599. Doctoral Research and Writing. (2 to 3 courses)

Related Courses in Other Departments

The following courses are of interest jointly to qualified students in astronomy. Credit toward the M.A. in astronomy may be allowed for one or two of these courses.

Engineering 161A. Introduction to Astronautics.
261A. Principles of Space Flight.
261B. Seminar and Special Topics in Space Flight.

Meteorology 228A-228B. Theory of Radiation Transfer in Planetary Atmospheres.

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*Not to be given 1976-1977.

Geophysics and Space Physics 101. Introduction to Geophysics and Space Physics.
220. Planetary and Orbital Dynamics.
225A-225B. Physics and Chemistry of Planetary Interiors 1, 2.
228. Planetary Magnetism.
260. Topics in Magnetospheric Plasma Physics.

■ BACTERIOLOGY

(Department Office, 5304 Life Sciences Building)

R. John Collier, Ph.D., *Professor of Bacteriology.*
Frederick A. Eiserling, Ph.D., *Professor of Bacteriology.*
C. Fred Fox, Ph.D., *Professor of Molecular Biology in Bacteriology.*
June Lascelles, Ph.D., *Professor of Bacteriology.*
Rafael J. Martinez, Ph.D., *Professor of Bacteriology.*
Donald P. Nierlich, Ph.D., *Professor of Bacteriology.*
M. J. Pickett, Ph.D., *Professor of Bacteriology.*
Sydney C. Rittenberg, Ph.D., *Professor of Bacteriology.*
William R. Romig, Ph.D., *Professor of Bacteriology.*
Eli E. Sercarz, Ph.D., *Professor of Bacteriology.*
Jack G. Stevens, D.V.M., Ph.D., *Professor of Virology.*
Meridian Ruth Ball, Sc.D., *Emeritus Professor of Bacteriology.*
Gregory J. Jann, Ph.D., *Emeritus Professor of Bacteriology.*
Anthony J. Salle, Ph.D., *Emeritus Professor of Bacteriology.*
David R. Krieg, Ph.D., *Associate Professor of Bacteriology.*
Gary L. Wilcox, Ph.D., *Assistant Professor of Bacteriology.*
Bernadine Wisnieski, Ph.D., *Assistant Professor of Bacteriology.*

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John H. Campbell, Ph.D., *Associate Professor of Anatomy.*
Colin Franker, Ph.D., *Associate Professor of Dentistry.*
Robert A. Mah, Ph.D., *Associate Professor of Public Health.*
John H. Silliker, Ph.D., *Lecturer in Bacteriology.*
Raouf E. Yuja, M.D., *Assistant Clinical Professor of Hematology.*

Preparation for the Major

Biology 1A-1B; Chemistry 1A-1B-1C, 21, 22, 24; Mathematics 3A-3B-3C (or 11A-11B-11C); Physics 6A-6B-6C (or 8A-8B-8C-8D).

Pre-major

Students (new, transfer, or change of major) desiring to major in Bacteriology will first register as pre-bacteriology students. After a minimum of two quarters in this status, pre-bacteriology students may petition to change to the Bacteriology major on completion of the following: Ten of the 14 courses required in preparation for the major, completion of Bacteriology 101 with a grade of C or better. Students entering with 80 or more units credit, in order to specify pre-bacteriology as their major, must have completed general chemistry, one year; Biology 1A-1B or equivalent; and one of the following: organic chemistry with laboratory, two courses; physics, one year; calculus, one year.

The Major

The degree program in Bacteriology has as its goals not only the introduction of the student to general and medical bacteriology, but also to the inseparably associated subdisciplines of biochemistry, genetics, cellular physiology, immunology and molecular biology. To qualify a student for study in such broadly related subjects, a heavy concentration of courses in the basic sciences (chemistry, mathematics and physics) is required. The student is then prepared for the advanced discussion of specialized topics required of him/her in the upper division courses. These include, in addition to the broad survey of general and medical microbiology presented in Bacteriology 101, 102, and 103, courses in the subcellular structure and physiology of bacteria, genetics, and specialized courses in microbiology which include advanced laboratory training. In addition to the core program, the student may choose elective courses from a diversity of microbiology-related topics to complete the program. It is this combination of rigor in the study of fundamentals and diversity and flexibility in making up the actual bacteriology major that makes this program appropriate preparation for those planning careers in a laboratory of bacteriology or biochemistry, or for further studies leading to higher academic or professional degrees in such fields as microbiology, medicine, dentistry, biochemistry, pharmacology, immunology, genetics, cellular physiology, and molecular biology.

Bacteriology 101, 102, 103, 111, 112, 131A-131B or M132, M185; Chemistry 153. One additional course chosen from Bacteriology upper division courses. One or two (to make total of 11 full courses) additional upper division Bacteriology courses from departmental list or courses from other science departments chosen with the approval of the Department. In addition to requirements for graduation prescribed by the College of Letters and Science, the student is required to maintain a minimal grade-point average of 2.0 (C) in the Department of Bacteriology courses. Additionally, a student must obtain a C average or better in Bacteriology 101, 102, 103 before continuing with further departmental upper division courses. A student repeating one of these courses must obtain a grade of B or better to remain in the Major.

Graduate Study

The Department of Bacteriology offers programs of study and research leading to the M.A. and Ph.D. degrees in Microbiology (see the Graduate Division). The general University regulations for admission to and requirements for these programs are described in the Announcement of the Graduate Division.

For admission to the graduate program in Microbiology, the student must have completed an undergraduate major in bacteriology or microbiology, or in a related field such as biology, chemistry, or biochemistry, with superior scholastic achievement. In addition to bacteriology, the following are also required in our undergraduate program: calculus; introductory physics; general biology; comparative genetics; general, organic, and biochemistry. A student may be admitted with background deficiencies to be remedied previous to or concurrent with the graduate program. Financial aid is available to qualified graduate students in the form of teaching assistantships, traineeships and research assistantships. More detailed information may be obtained by writing to the Graduate Adviser, Department of Bacteriology.

Advisement

Each graduate and undergraduate student must confer with a departmental adviser upon entrance and at least once during every subsequent quarter. Departmental advisers are assigned in Life Science 5304.

Lower Division Courses

6. Introduction to Microbiology.
Lecture, three hours. For the nontechnical student; an introduction to the biology of microorganisms (bacteria, viruses, protozoa, algae, fungi), their significance as model systems for understanding fundamental cellular processes, and their role in human affairs.
The Staff (F,W,Sp)

7. Microbiology for the Uninitiated.
Discussion, three hours. An approach to learning about microbiology and how scientific problems are proposed and solved by a rigorous study of current research publications, conducted by an expert in the research field. Subject matter varies each quarter. Seminar type course limited to fifteen students per section. For non-science majors, pass-fail basis only. May be taken only once.
The Staff (F,W,Sp)

10. General Bacteriology.
Lecture, three hours; laboratory-discussion, six hours. Prerequisite: Biology 1A-1B; Chemistry 1A, 1N. For Health Sciences students; not open for credit to students with credit in Bacteriology 101; does not substitute for Bacteriology 101 in the major. An introduction to the biology of bacteria and their role in diseases of man.
Mr. Wilcox (Sp), Ms. Wisnieski (Sp)

Upper Division Courses

101. Fundamentals of Bacteriology.
Lecture, three hours; laboratory, discussion, six hours. Prerequisites: Biology 1A-1B; Chemistry 21, 22. The historical foundations of the sciences; the structure, physiology, ecology and applications of bacteria.
Ms. Lascelles (F), Mr. Rittenberg (Sp) The Staff (W)

102. Introductory Virology.
Lecture, three hours; laboratory, four hours. Prerequisite: Bacteriology 101. Biological properties of bacterial and animal viruses; replication; methods of detection; interactions with host cells and multicellular hosts.
Mr. Romig, Mr. Stevens (W)

103. Host-Parasite Interactions.
Lecture, four hours. Prerequisites: Bacteriology 101, 102. M185 and Chemistry 153 strongly recommended. The biochemistry and biology of host-parasite interactions; host responses to invasion; mechanisms of virulence; bactericidal mechanisms, discussion on the immunity to infection by bacteria and viruses.
Mr. Martinez (Sp)

*Not to be given 1976-1977.

***105. Bacterial Diversity.**
Lecture, two hours; laboratory, six hours. Prerequisite: course 101. The biology of the major groups of bacteria, and the application of elective culture procedures.
Mr. Rittenberg (Sp)

106. Principles of Microbial Ecology.
Lecture, three hours. Prerequisites: Biology 1A-1B, Chemistry 22; Bacteriology majors must have completed Bacteriology 101. An introduction to the interactions of microbes and their environment, stressing the basic biological, biochemical, and physiological elements controlling growth in selected habitats and systems.
Mr. Mah, Mr. Nierlich (W)

108. Hematology. (½ course)
Prerequisite: senior standing and consent of the instructor. Diagnostic procedures used for the study of normal and pathological blood cells.
Mr. Yuja (W)

110. The Microbiology of Infection.
Lecture, three hours, laboratory, six hours. Prerequisite: courses 101, 102 and Chemistry 153, or consent of the instructor. The salient characteristics of bacteria, rickettsiae, and viruses, both pathogenic and adventitious, associated with diseases of man.
Mr. Pickett (F)

110C. The Laboratory Diagnosis of Infection. (½ course)
Laboratory, six hours. Prerequisite: course 110. Techniques in the laboratory examination of clinical material.
Mr. Pickett (W)

111. Structure and Assembly in Bacteria.
Lecture, three hours, discussion, one hour. Prerequisite: Bacteriology 101 and Chemistry 153; or consent of instructor. A review of current knowledge of the structural organization of procaryotic cells. Emphasis on isolation methods, chemical composition, structure and assembly of subcellular components, including membranes, walls, flagella, ribosomes and viruses.
Mr. Collier, Mr. Eiserling, Mr. Fox (W)

112. The Biochemistry of Bacterial Growth.
Lecture, three hours. Prerequisites: Bacteriology 101, M132 or equivalent, Chemistry 153; or consent of instructor. A review of current knowledge of bacterial growth and reproduction, considered at the molecular level. Discussions of the synthesis of DNA, RNA, and protein, the regulation of metabolism, and general cellular physiology.
Mr. Collier, Mr. Nierlich (Sp)

113. Bacterial Metabolism.
Lecture, three hours; discussion, one hour. Prerequisite: Chemistry 153; or consent of instructor. The major patterns of energy generation and biosynthesis, and their regulation. Discussion sections on selected topics will be centered around readings from the current literature. Lecture course may be taken concurrently with 113L.
Ms. Lascelles (W)

113L. Bacterial Metabolism Laboratory.
Laboratory, three hours. Prerequisites: Bacteriology 113, Chemistry 153, or consent of instructor. Biochemical techniques applied to problems of bacterial physiology. May be taken concurrently with Bacteriology 113.

119. *Phage and Bacterial Genetics.
Lecture, three hours. Prerequisite: courses 102, M132, or consent of instructor. Genetics of bacteria and bacteriophage with emphasis on mechanisms of transmission and recombination, episomes and viral reproduction.

131A-131B. Microbial and General Genetics.
Lecture and discussion, four hours. Prerequisites: Chemistry 22 (may be taken concurrently) and Biology 1A with grade of C or higher. Prerequisite for 131B: 131A and Chemistry 22. Genetics of bacteria and bacteriophage, plus selected topics on genetics of fungi, humans and other eucaryotes. Gene structure, function, mutation, transmission, recombination and regulation. Students entering course 131A will normally be expected to take course 131B the following quarter.
Mr. Krieg (131A, W; 131B, Sp)

M132. Comparative Genetics.
(Same as Biology M132.) Lecture, three hours; discussion, one hour. Prerequisites: Biology 1A-1B with grades of C or better, or consent of the instructor. Completion of Chemistry 22 or equivalent course in biochemistry, or consent of instructor. Mendelian principles; the gene: its structure, function, and chemistry, with emphasis on mutation, coding regulation, and transmission. Not open to students who have had Biology 134.
The Staff

M185. Immunology.
(Same as Biology M185 and Microbiology and Immunology M185.) Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 22, 24; course M132. Concurrent enrollment in Chemistry 153 is recommended. Introduction to immunobiology and immunochemistry. Cellular and molecular aspects of humoral and cell-mediated immune reactions.
Mr. Clark, Mr. Sercarz (F)

M186. Immunology Laboratory. (½ course)
(Same as Biology M186.) Laboratory, four hours. Prerequisites: course M185 (which may be taken concurrently); consent of instructor. This course will focus on a limited number of situations designed to train the student in organizing and evaluating immunological laboratory experiments.
Mr. Clark, Mr. Sercarz (W)

M187. Immunology Seminar. (½ course)
(Same as Biology M187 and Microbiology and Immunology M187.) Discussion, two hours. Prerequisites: course M185 (which may be taken concurrently); consent of instructor. Student presentation of selected papers from the immunology literature, correlated with the lectures in M185 and designed to serve as a forum for the critical analysis of research papers.
Mr. Clark, Mr. Sercarz (W)

188. Immunological Techniques. (½ course)
Laboratory, six hours. Prerequisites: course M185; consent of instructor. Practice in the technical areas of modern immunology and serology. Emphasis will be on critical evaluation of the strengths and limitations of the various techniques. For students who plan to go on in clinical microbiology or medical technology.
Mr. Sercarz (W)

195. Proseminar. (½ course)
Discussion, one hour. Prerequisite: senior standing and consent of instructor. Small groups of students and instructor discuss current research literature. Topic announced each quarter. Enrollment limited.
The Staff (F,W,Sp)

199. Special Studies in Bacteriology. (½ to 4 courses)
Prerequisites: open to students only with superior academic standing and consent of instructor and Department Chairman, based on written research proposal. Maximum enrollment for four quarters.
The Staff (F,W,Sp)

*Not to be given 1976-1977.

Microbiology

Graduate Courses

203. Advanced Microbial Genetics. (¾ course)
Lecture and discussion, three hours. Prerequisites: Bacteriology 101; 131A and 131B (or M132); Chemistry 153 or equivalent; undergraduate seniors may enroll with consent of the instructor. Discussion of genetic and biochemical principles and techniques used in the construction of bacterial strains. Topics discussed will include transduction, conjugation, transformation, restriction endonucleases, and DNA cloning.
Mr. Wilcox

204. Microbial Genetics.
Lecture, one hour; laboratory, nine hours. Prerequisite: consent of the instructor. Advanced methodology for the study of bacterial and viral genetics.
Mr. Romig

208. Regulatory Mechanisms in Microbial Physiology.
Lecture and discussion, three hours. Discussions based on the current literature on control mechanisms regulating fundamental cellular processes. Topics include the regulation of enzyme and gene activities at the molecular and cellular levels.
Mr. Nierlich

M211. Advanced Immunology Workshops. (No Credit)
(Same as Microbiology and Immunology M211.) Lecture, one hour; discussion, two hours; laboratory, three hours. Prerequisite: consent of the instructor. Combined laboratory, lecture and seminar sessions covering specialized subjects and methods in immunology will be offered in intensive periods of two to three day duration at appropriate times.
The Staff

213. Membrane Molecular Biology.
Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 153 or equivalent; Bacteriology 111, M132 and Chemistry 110A recommended but not required; undergraduate seniors may enroll with consent of instructor. The structural organization and properties of lipids and proteins in model and biological membranes, membrane isolation techniques, physical chemistry of lipid monolayers and bilayers, membrane transport, assembly of cellular and viral membranes, properties of membranes of tumor cells.
Mr. Fox

221W-221Z. Seminars and Symposia on Molecular Biology.
Lecture, two hours; discussion, three hours. Prerequisite: consent of instructor. Seminar courses which integrate topically with symposia organized and sponsored by the Molecular Biology Institute. These international symposia feature leading researchers in selected areas of molecular biology. Students registering for one of these seminars will receive an abstract booklet for the symposium and will use the abstracts as the starting point for weekly presentation on the topics to be treated at the symposium. The student will in this way prepare for participation in the symposium. Topics are announced each year on September 1 by the Department of Bacteriology and the Molecular Biology Institute.
Mr. Fox and the Staff

222A-222I. Advanced Topics in Microbiology. (½ course each)
Lecture and discussion, two hours. The subject matter of this course will be in an advanced field of microbiology in which the instructor has special proficiency. The fields for each quarter will be announced in the Schedule of Classes.
The Staff

225. Biochemical Methods in Microbial and Cell Biology. (2 courses)

Lecture and discussion, three hours: laboratory twelve hours. Prerequisite: consent of instructor. Emphasis will be on techniques for purification and characterization of proteins, including cell disruption, column chromatography, gel electrophoresis, ultracentrifugation, various optical methods, and use of radiosotopes.

Mr. Collier, Mr. Wilcox

M226. Chromosome Structure and Regulation.

(Same as Biological Chemistry M226, Biology M226, Chemistry M226, and Microbiology and Immunology M226.) Lecture, three hours. Prerequisite: consent of instructor. Lectures and panel discussions on the structural and functional organization of eukaryotic chromosomes.

Mr. Martinson, Mr. Tobin, Mr. Wall

233A-233B. Electron Microscopy.

Lecture, two hours; discussion and laboratory, ten hours. Prerequisite: consent of instructor, based on a written research proposal. Corequisite: concurrent enrollment in related studies in course 599. Principles of electron microscopy applied to research problems in molecular biology and microbiology. Includes particle quantifications, specimen preparation, studies of macromolecules. Course 233B emphasizes thin sectioning and related methods.

Mr. Eiserling (F,W)

250. Seminar in Microbial Metabolism. (½ course) Ms. Lascelles, Mr. Rittenberg

251. Seminar in Regulation and Differentiation. (½ course)

Mr. Collier, Mr. Nierlich, Mr. Wilcox

252. Seminar in Medical Microbiology. (½ course) Mr. Pickett

253. Seminar in Biochemistry of Host Defense Mechanisms. (½ course)

Lecture and discussion one hour. Prerequisite: consent of instructor. Discussion of the literature dealing with host defense mechanisms. The biochemical mechanisms of action of host defense will be stressed.

Mr. Martinez

255. Seminar in Bacterial Viruses. (½ course) Mr. Krieg

256. Seminar in Microbial Genetics. (½ course) Mr. Eiserling, Mr. Romig

M257. Seminar in Host-Parasite Relationships. (½ course)

(Same as Microbiology and Immunology M257.)

Mr. Miller, Mr. Pickett

M258. Advanced Immunology. (½ course)

(Same as Microbiology and Immunology M258). Lecture, two hours. Prerequisites: introductory course in Immunology equivalent to Microbiology and Immunology 201, or M185. Concurrent enrollment in M259. The major aspects of the immune system will be presented with emphasis on fundamental principles and on advances of the past five years. Grade or S/U.

The Staff

M259. Advanced Immunology Co-seminar. (½ course)

(Same as Microbiology and Immunology M259.) Discussion, two hours. Prerequisites: introductory course in Immunology equivalent to Microbiology and Immunology 201 or Bacteriology M185 or consent of the instructor. A seminar designed to amplify and extend information presented in form in concurrent course M258. Emphasis will be upon means of acquiring and evaluating new information in immunology. Students will be required to read original research articles, present formal reports and participate actively in critical discussions.

The Staff

M260. Immunology Forum. (½ course)

(Same as Microbiology and Immunology M260). Lecture, one hour. Prerequisite: Bacteriology M185. A broad range of current topics in immunology will be presented and discussed at an advanced frontier level. This is a continuing UCLA-wide, general graduate-level seminar involving faculty, postdoctoral immunologists, and graduate students from diverse departments.

The Staff

M263. Cellular Immunology Seminar. (½ course)

(Same as Microbiology and Immunology M263.) Prerequisite: consent of instructor. Critical discussions of the current literature in T and B cell immunology with emphasis on molecular mechanisms.

Mr. Sercarz

285. Seminar in Biological Membranes. (½ course)

Lecture and discussion, one hour. Prerequisites: consent of instructor. A review of current research literature on molecular topics in membrane biology.

Mr. Fox

M298. Seminar in Current Topics in Molecular Biology. (½ course)

(Same as Biological Chemistry M298, Biology M298, Chemistry M298, Microbiology and Immunology M298 and Molecular Biology M298.) Prerequisites: enrollment must be approved by the instructor and by the Graduate Adviser of the Interdepartmental Molecular Biology Ph.D. Committee. Each student enrolled conducts or participates in discussions on assigned topics.

The Staff

Individual Study and Research

596. Directed Individual Research. (½ to 3 courses) The Staff

596. Research for Master's Thesis. (½ to 3 courses) The Staff

599. Research for Doctoral Dissertation. (½ to 3 courses) The Staff

■ BIOCHEMISTRY

Undergraduate Biochemistry Major

The Biochemistry major is described in the Chemistry section. For further information consult the Chemistry Undergraduate Office, 2356 W. Young Hall.

Graduate Study

Programs of study and research leading to the M.S. and Ph.D. degrees in the general area of biochemistry are offered in the Department of Biological Chemistry, School of Medicine, in the Division of Biochemistry, Department of Chemistry, and in the Department of Biology. More detailed information regarding admission requirements and opportunities for graduate studies in these programs may be obtained by writing to the graduate adviser in the department in which you are interested.

■ BIOLOGICAL CHEMISTRY

(Department Office, 33-257 Center for the Health Sciences)

Robert M. Fink, Ph.D., *Professor of Biological Chemistry.*

Alexander N. Glazer, Ph.D., *Professor of Biological Chemistry.*

Isaac Harary, Ph.D., *Professor of Biological Chemistry.*

David R. Howton, Ph.D., Professor of Biological Chemistry in Residence.

Ralph W. McKee, Ph.D., *Professor of Biological Chemistry.*

*James F. Mead, Ph.D., *Professor of Biological Chemistry.*

Joseph F. Nye, Ph.D., *Professor of Biological Chemistry.*

*John G. Pierce, Ph.D., *Professor of Biological Chemistry (Vice-Chairman of the Department).*

*Sidney Roberts, Ph.D., *Professor of Biological Chemistry.*

Emil L. Smith, Ph.D., *Professor of Biological Chemistry (Chairman of the Department).*

Irving Zabin, Ph.D., *Professor of Biological Chemistry.*

Robert J. DeLange, Ph.D., *Associate Professor of Biological Chemistry.*

John Edmond, Ph.D., *Associate Professor of Biological Chemistry.*

Armand J. Fulco, Ph.D., *Associate Professor of Biological Chemistry.*

Dohn G. Glitz, Ph.D., *Associate Professor of Biological Chemistry.*

*Harvey R. Herschman, Ph.D., *Associate Professor of Biological Chemistry.*

*Bruce D. Howard, M.D., *Associate Professor of Biological Chemistry.*

David S. Sigman, Ph.D., *Associate Professor of Biological Chemistry.*

John E. Snoke, Ph.D., *Associate Professor of Biological Chemistry.*

Patrice J. Zamenhof, Ph.D., *Associate Professor of Biological Chemistry.*

William T. Wickner, M.D., *Assistant Professor of Biological Chemistry.*

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Rosyln B. Alfin-Slater, Ph.D., *Professor of Nutrition and Professor of Biological Chemistry.*

John P. Blass, M.D., Ph.D., *Assistant Professor of Psychiatry and Biological Chemistry.*

Max Dunn, Ph.D., LL.D., *Emeritus Professor of Chemistry and Biological Chemistry.*

*Samuel Eiudson, Ph.D., *Professor of Psychiatry in Residence and Professor of Biological Chemistry in Residence.*

*George J. Popjak, M.D., D.Sc., *Professor of Psychiatry and Biological Chemistry.*

Marian E. Swendseid, Ph.D., *Professor of Nutrition and Professor of Biological Chemistry.*

*Stephen Zamenhof, Ph.D., *Professor of Microbial Genetics and Professor of Biological Chemistry.*

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*Member of the Brain Research Institute.

Requirements for Admission to Graduate Status

1. For general University requirements for the M.S. degree, see the Graduate Division.

2. Minimum departmental requirements: applicants must have received the bachelor's degree, preferably with an undergraduate major in chemistry. Students who have degrees in a biological science are also eligible. A previous course in biochemistry is not a prerequisite for acceptance as a graduate student. Minimum course requirements for admission normally include the following: general chemistry; quantitative chemistry; organic chemistry (including laboratory); physical chemistry (including laboratory); general physics; and mathematics through calculus. In some cases the requirement in physical chemistry or mathematics may be fulfilled during the first-year of graduate study. Courses in life sciences such as biology (similar to Introductory Biology 1A-1B) or zoology or bacteriology and advanced quantitative analysis, qualitative organic analysis and advanced organic chemistry are recommended.

Concurrent M.D. and Ph.D. Programs

Students may enroll in both the School of Medicine and the Graduate Division in order to fulfill some graduate degree requirements while obtaining the M.D. degree. This dual registration makes it possible for a medical student to utilize for graduate work one vacation period and the four elective quarters during the four-year medical curriculum and to offer this work in partial fulfillment of the requirements for the Ph.D. The Department of Biological Chemistry offers this opportunity to qualified applicants. There are various ways in which some financial support can be made available to students in the program after completion of one or two years of the medical curriculum. Contact Robert DeLange, the Department Adviser, for further information concerning the program.

Requirements for the M.S. degree

1. General University Requirements.

2. Thesis Plan. Ten units from "core" courses M253, M255, M257, M261, M263, M267, and M269 following completion of a beginning course in biochemistry either before or after admission to graduate status. Completion of a satisfactory thesis based on laboratory research. Oral examination on thesis and a written qualifying examination if performance in core courses is not B or better. By arrangement in special cases a comprehensive examination may be substituted.

Requirements for the Ph.D. degree

1. General University Requirements.

2. Ten units from "core" courses M253, M255, M257, M261, M263, M267, and M269 following completion of a beginning course in biochemistry either before or after admission to graduate status plus courses 220, 260 and 599 and other courses recommended on an individual basis. A reading knowledge of German, Russian or French plus a second language (programs of special subjects such as computer techniques may be substituted for the second language.)

The Department of Biological Chemistry in the Medical School and the Division of Biochemistry of the Chemistry Department offer coordinated programs leading to the M.S. and Ph.D. degrees. Although there is close cooperation between the two departments, a student must be formally admitted into the program of one department or the other. For more information concerning graduate study in biological chemistry, write to Robert J. DeLange, Graduate Adviser, Department of Biological Chemistry, School of Medicine, Center for Health Sciences, University of California, Los Angeles, California 90024.

Upper Division Courses

101A-101B-101C. Biological Chemistry.

Lecture, three hours. Prerequisite: organic chemistry. Required in the medical curriculum; consent of the instructor is required for nonmedical students.

The Staff

101D. Biological Chemistry Seminar for Medical Students. (½ course)

Lecture or recitation, four hours. Required in the medical curriculum. Special subjects, such as metabolic defects, biochemistry of antibodies, neurobiochemistry, etc., are studied in depth by small groups meeting to present and discuss topics on the selected subject.

The Staff

101E. Biological Chemistry Laboratory.

Laboratory, seven hours. Required in the medical curriculum; consent of the instructor is required for nonmedical students. Experiments illustrating some of the procedures employed in clinical chemistry, enzymology and metabolic studies.

The Staff

102A-102B. Biological Chemistry Lecture (Dental Students).

Lecture, three hours. Prerequisite: courses for admission to dental school. Required in the dental curriculum; consent of the instructor is required for nondental students. The biochemical properties and structures of living systems are considered with special emphasis on mineral metabolism and nutrition.

The Staff

102C. Biological Chemistry Laboratory and Seminar (Dental Students). (½ course)

Laboratory, four hours. Required in the dental curriculum; consent of the instructor is required for nondental students. The laboratory, which consists of experiments designed to illustrate biochemical principles, involves studies on enzymes, metabolic processes, respiration and calcified structures. The seminars, which will be given by the students to small discussion groups, involve presentation of material from current research dealing with biochemical studies related to dentistry.

Mr. McKee, Mr. Snoke and the Staff

Graduate Couses

201A-201B. Biological Chemistry.

Lecture, three hours. Prerequisites: Organic chemistry, a course in undergraduate biochemistry other than a beginning survey course. Consent of instructor is required. A graduate level course in the fundamentals of biochemistry, with emphasis on mammalian biochemistry. Structure, function and metabolism of major cell constituents.

The Staff

220A-220B. Biochemical Preparations. (½ to 2 courses each)

Lecture or recitation, one hour; laboratory, by arrangement. Prerequisite: consent of the instructor. Laboratory techniques important in biochemical research; isolation, identification and determination of biologically active compounds.

Mr. Howard, Mr. Nyc

221. Functional Neurochemistry.

Lecture or recitation, three hours. Prerequisites: courses 101A-101B-101C or equivalent. Chemistry and metabolism of neural tissue with particular relationship to specialized function in the central nervous system.

Mr. Roberts and the Staff

222. Biochemistry of the Synapse. (½ course)

Lecture or recitation, two hours. Prerequisite: course 221. Detailed analysis of the research literature dealing with biochemistry of the synapse. Metabolism, storage and release of transmitter; transmitter receptors and functions; neuromal plasticity.

Mr. Howard

223. Current Topics in Neurochemistry. (½ course)

Lecture or recitation, two hours. Prerequisite: course 221. Detailed analysis of a circumscribed area of neurochemistry of current interest. One of the following topics may be presented: metabolic diseases affecting brain function, developmental neurochemistry, role of cyclic nucleotides in neural activity, biochemical differentiation of the nervous system, research methods in neurochemistry, brain specific macromolecules.

The Staff

M226. Chromosome Stucture and Regulation.

(Same as Biology M226, Chemistry M226, Microbiology M226, Microbiology and Immunology M226.) Lecture, three hours. Prerequisite: consent of instructor. Lectures and panel discussions on the structural and fuctional organization of eukaryotic chromosomes.

Mr. Martinson, Mr. Tobin, Mr. Wall

M253. Proteins and Nucleic Acids.

(Same as Chemistry M253.) Lecture or recitation, four hours. Prerequisites: courses 101A-101B or 201A-210B; Chemistry 156 and Chemistry 157A-157B or equivalent. Chemical and physical properties of proteins, amino acids, nucleotides and nucleic acids; structure and sequence determination; correlation of structure and biological properties; synthesis and properties of polypeptides and polynucleotides.

The Staff

M255. Biological Catalysis.

(Same as Chemistry M255.) Lecture or recitation, four hours. Prerequisites: courses 101A-101B or 201A-210B; Chemistry 156; Chemistry 157A-157B or equivalent. Discussion of approaches to the understanding of enzymes and enzymic catalysis; characteristics of different enzymes and enzymic reactions of special biological processes.

The Staff

M257. Physical Chemistry of Biological Macromolecules. (½ course)

(Same as Chemistry M257.) Lecture, two hours. Prerequisite: Chemistry 110A or 22 or consent of the instructor. Theory of hydrodynamic, thermodynamic, optical and x-ray techniques used to study the structure and function of biological macromolecules.

The Staff

260A-260B-260C. Seminar in Biological Chemistry. (½ course each)

Lecture or recitation, one hour. Prerequisite: consent of the instructor. Oral reports by graduate students on topics selected from current biochemical literature. Graded S/U only.

Mr. Glazer

M261. Advanced Chemistry and Biochemistry of Lipids. (½ course)

(Same as Chemistry M261.) Lecture, two hours. Prerequisites: courses 101A-101B or 201A-201B; Chemistry 157A-157B or equivalent. Knowledge of elementary chemistry and biochemistry of lipids essential. The biochemistry of lipids including chemical and physical characteristics of lipids and their metabolism.

Mr. Howton, Mr. Mead, Mr. Popjak

262A-262B-262C. Seminar in the Biochemistry of Proteins. (½ course each)

Lecture or recitation, one hour. Prerequisites: courses 101A-101B-101C and consent of the instructor. An advanced seminar in the field of protein structure including current methods used in research and the relationships between the structure and function of proteins.

Mr. Glazer

M263. Cellular Metabolism. (½ course)

(Same as Chemistry M263.) Lecture or recitation, three hours. Prerequisites: courses 101A-101B or 210A-210B; Chemistry 156; Chemistry 157A-157B or equivalent. Patterns of biological degradation and synthesis; metabolic interrelationships and control; energetics of metabolism.

The Staff

264. The Lipids in Physiology and Medicine. (½ course)

Lecture, two hours. Prerequisites: course M261 or equivalent with consent of instructor. Discussion of topics of interest concerning lipids in physiology and medicine, currently: the polyunsaturated fatty acids; the prostaglandins; biosynthetic control and functions of cholesterol; bile acids in physiology and disease; polar lipids in biomembrane structure and function; blood lipids and atherosclerosis; function of polar lipids in enzymes and transport; the hereditary sphingolipidoses; and lipid autoxidation and aging.

Mr. Howton, Mr. Mead and Mr. Popjak

265. Seminar in the Biochemistry of Nucleic Acids. (½ course)

Lecture or recitation, one hour. Prerequisites: Chemistry or Biological Chemistry M253 or equivalent. Biochemistry and chemistry of nucleic acids and nucleotides.

Mr. Glitz

266A-266B-266C. Seminar in the Biochemistry of Differentiation. (½ course each)

Lecture or recitation, one hour. Prerequisite: consent of the instructor. A review of the current literature covering the chemical mechanisms underlying the developmental process including: control of gene expression, metabolism in developing systems, specific expression of function and control of enzyme synthesis, external parameters determining cellular expression in the whole organism and the single cell.

Mr. Harary, Mr. Herschman

M267. Nucleic Acid and Protein Metabolism. (½ course)

(Same as Chemistry M267). Lecture, two hours. Prerequisites: courses 101A-101B or 210A-210B; Chemistry 157A-157B or equivalent. Mechanisms of nucleic acid and protein biosynthesis and degradation and their interrelationships with molecular genetics and control.

The Staff

M269. Developmental Biochemistry. (½ course)

(Same as Chemistry M269) Lecture, two hours. Prerequisites: Biological Chemistry 267 or consent of instructor. This course will deal with the biochemical aspects of development, specific tissue and cell function, and differential gene expression. The biochemistry of cell division, macromolecular synthesis, chromatin function in gene expression, cell-cell interactions, membrane organization, and growth will be studied as they contribute to such topics as hormone induction, morphogenesis and viral transformation. Emphasis will be placed on the use of differentiating *in vivo* systems and cell culture as models.

Mr. Harary and Mr. Herschman

M298. Seminar in Current Topics in Molecular Biology. (course)

(Same as Biology M298, Chemistry M298, Microbiology and Immunology M298 and Molecular Biology M298.) Discussion, one hour. Prerequisite: enrollment must be approved by the instructor and by the Graduate Adviser of the Interdepartmental Molecular Biology Ph.D. Committee. Each student enrolled conducts or participates in discussions on assigned topics. May be repeated for credit.

The Staff

Individual Study and Research

596. Directed Individual Study and Research. (½ to 3 courses)

Laboratory, by arrangement. Prerequisite: consent of graduate adviser.

The Staff

597. Preparation for Examinations. (½ to 1 course)

Prerequisite: consent of the graduate adviser. Individual study for qualifying examination for Ph.D. or comprehensive examination for the master's degree.

The Staff

598. Preparation of the Master's Thesis.

Prerequisite: consent of the graduate adviser. Preparation of research data and writing of master's thesis.

The Staff

599. Research for and Preparation of the Doctoral Dissertation. (½ to 3 courses)

Prerequisite: consent of the graduate adviser. Preparation of research data and writing Ph.D. dissertation. Graded S/U.

The Staff

■ BIOLOGY

(Department Office, 2203 Life Sciences Building)

Albert A. Barber, Ph.D., *Professor of Cell Biology.*

George A. Bartholomew, Ph.D., *Professor of Zoology.*

John N. Belkin, Ph.D., *Professor of Zoology.*

Joseph Cascarano, Ph.D., *Professor of Cell Biology.*

Martin L. Cody, Ph.D., *Professor of Biology.*

Nicholas E. Collias, Ph.D., *Professor of Zoology.*

Wilbur T. Ebersold, Ph.D., *Professor of Botany.*

*Roger O. Eckert, Ph.D., *Professor of Biology.*

Eric B. Edney, Ph.D., *Professor of Biology.*

Franz Engelmann, Ph.D., *Professor of Biology.*

John H. Fessler, Ph.D., *Professor of Molecular Biology.*

Malcolm S. Gordon, Ph.D., *Professor of Biology.*

*Alan D. Grinnell, Ph.D., *Professor of Biology.*

Thomas R. Howell, Ph.D., *Professor of Zoology.*

Thomas W. James, Ph.D., *Professor of Cell Biology.*

J. Lee Kavanau, Ph.D., *Professor of Biology.*

George G. Laties, Ph.D., *Professor of Plant Physiology.*

F. Harlan Lewis, Ph.D., *Professor of Biology.*

O. Raynal Lunt, Ph.D., *Professor of Biology.*

Austin J. MacInnis, Ph.D., *Professor of Cell Biology.*

Leonard Muscatine, Ph.D., *Professor of Zoology.*

Park S. Nobel, Ph.D., *Professor of Biology.*

Everett C. Olson, Ph.D., *Professor of Zoology.*

Bernard O. Phinney, Ph.D., *Professor of Biology.*

Dan S. Ray, Ph.D., *Professor of Molecular Biology.*

Winston A. Salser, Ph.D., *Professor of Molecular Biology.*

Charles A. Schroeder, Ph.D., *Professor of Botany.*

Richard W. Siegel, Ph.D., *Professor of Biology.*

Larry Simpson, Ph.D., *Professor of Cell Biology.*

Fritiof S. Sjostrand, M.D., Ph.D., *Professor of Molecular Biology.*

Clara M. Szego, Ph.D., *Professor of Biology.*

Henry J. Thompson, Ph.D., *Professor of Botany.*

J. Philip Thornber, Ph.D., *Professor of Molecular Biology.*

Peter P. Vaughn, Ph.D., *Professor of Zoology.*

Boyd W. Walker, Ph.D., *Professor of Zoology.*

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

David Appleman, Ph.D., *Emeritus Professor of Plant Physiology.*

Gordon H. Ball, Ph.D., *Emeritus Professor of Zoology.*

Jacob B. Biale, Ph.D., *Emeritus Professor of Biology.*

Frederick Crescitelli, Ph.D., *Emeritus Professor of Cell Biology.*

Karl C. Hamner, Ph.D., *Emeritus Professor of Botany.*

Arthur W. Haupt, Ph.D., *Emeritus Professor of Botany.*

Theodore L. Jahn, Ph.D., *Emeritus Professor of Zoology and Cell Biology.*

Mildred E. Mathias, Ph.D., *Emeritus Professor of Botany.*

Orda A. Plunkett, Ph.D., *Emeritus Professor of Botany.*

Flora Murray Scott, Ph.D., *Emeritus Professor of Botany.*

Vladimir Walters, Ph.D., *Emeritus Professor of Zoology.*

Clifford F. Brunk, Ph.D., *Associate Professor of Cell and Molecular Biology.*

David J. Chapman, Ph.D., *Associate Professor of Biology.*

*Member of the Brain Research Institute.

William R. Clark, Ph.D., *Associate Professor of Cell Biology.*
George C. Gorman, Ph.D., *Associate Professor of Biology.*
Harumi Kasamatsu, Ph.D., *Associate Professor of Biology.*
John R. Merriam, Ph.D., *Associate Professor of Genetics.*
James G. Morin, Ph.D., *Associate Professor of Zoology.*
John D. O'Connor, Ph.D., *Associate Professor of Cell and Developmental Biology.*
Frank Almeda, Jr., Ph.D., *Assistant Professor of Biology.*
Ayesha E. Gill, Ph.D., *Assistant Professor of Biology.*
Elma Gonzalez, Ph.D., *Assistant Professor of Cell Biology.*
Michael Grunstein, Ph.D., *Assistant Professor of Biology.*
Henry A. Hespenheide, Ph.D., *Assistant Professor of Biology.*
Judith A. Lengyel, Ph.D., *Assistant Professor of Biology.*
Kenneth A. Nagy, Ph.D., *Adjunct Assistant Professor of Biology.*
Paul H. O'Lague, Ph.D., *Assistant Professor of Biology.*
Jane A. Peterson, Ph.D., *Assistant Professor of Biology.*
Allan J. Tobin, Ph.D., *Assistant Professor of Biology.*
Elaine M. Tobin, Ph.D., *Assistant Professor of Biology.*
Richard R. Vance, Ph.D., *Assistant Professor of Biology.*

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Robert Barrett, Ph.D., *Lecturer in Biology.*
Elsie C. Collias, Ph.D., *Research Associate in Zoology.*
Jared M. Diamond, Ph.D., *Professor of Physiology.*
Jean B. Harrison, Ph.D., *Lecturer in Biology.*
Charles L. Hogue, Ph.D., *Research Associate.*
Richard Lassen, *Museum Scientist, Vertebrate Paleontology.*
James G. Miller, *Senior Museum Scientist, Ornithology and Mammalogy.*
J. William Schopf, Ph.D., *Professor of Geology.*
M. Ann Spence, Ph.D., *Assistant Professor of Psychiatry and Biomathematics in Residence.*
David Verity, B.S., *Museum Scientist, Botanical Gardens and Herbarium.*

Preparation for the Major

Required: Biology 1A-1B; Chemistry 1A-1B-1C, Chemistry 21, 22, 24; Mathematics 3A-3B-3C or Mathematics 31A-31B-31C; Physics 6A-6B-6C. Students will be coded as Prebiology majors until the preparation for the Major has been completed with a grade of C or better in each course. Subsequently, a student is eligible for admission to the Biology Major.

Requirements for the Major

Eleven courses, consisting of 5 courses chosen from the designated core list, 2 additional upper division Biology elective courses, and 4 courses which may be chosen from upper division Biology or any upper division courses in Mathematics (except Mathematics 100 through 107), Physics, Chemistry (courses in biochemistry and physical chemistry are especially recommended), Bacteriology, or courses from the following approved list: Anthropology 130A-130B; Biomathematics 107, 110; Geography 110, 112, 116A; Geology 115, 116, 120B; Public Health 160B-160C. A six unit course counts only as one course towards the requirements for the major. A maximum of four units of 199 courses in any approved department *or* eight units of Biology 190 may be used towards fulfillment of the major. The College requires that at least 6 upper division courses be taken including four courses (16 units) in the major. If both Bacteriology 101 and 105 are taken to fulfill core requirements, then only 3 additional courses may be elected from other departments to complete major requirements.

Courses taken to fulfill any of the requirements for the Preparation for the Major or for the Biology Major must be taken for a letter grade and not Pass/Not Pass.

The core consists of 5 courses, one from each of the following groups: (a) Morphology Systematics: Biology 101, 102, 105, 110, 153, Bacteriology 101; (b) Environmental Biology: Biology 111, 119, 120 plus 122 (both 120 and 122 must be taken to meet the core requirement); Bacteriology 105; (c) Genetics: Biology M132, 134; (d) Developmental and Molecular Biology: Biology 137, 138, 144, 146; (e) Physiology: Biology 158, 162, 165, 166. Any of these courses not used to fulfill core requirements may be used as Biology electives.

This department has no undergraduate foreign language requirement. However, all students planning graduate work or professional training should remember that many graduate and professional schools recommend or require some training in one or more foreign languages. Specific requirements of the institutions of your choice should be considered in planning your program.

All incoming students (Freshman and Transfers) must see a departmental adviser before they register for classes. In addition, all students majoring in Biology must confer with a departmental adviser by the start of the junior year, and again during the senior year, to make up a curriculum that will best suit their interests. Transfer students who have 80 units or more must have completed one year of general Chemistry, Biology 1A-1B or its equivalent, and one of the following sequences: 1) one year of calculus; 2) one year of calculus-based physics; or 3) two courses in organic chemistry with laboratory in order to be coded as Prebiology majors. In order to be eligible for admission to the Biology major, students must have completed all courses required in the "Preparation for the Major" with a grade of C or better in each course. Advising appointments and sample curricula, are available from the Biology Student Affairs Office.

During Spring Quarter the Department offers to qualified undergraduate students the Field Biology Quarter, during which a limited number of students enroll for two or three serially-arranged field courses, and for no other biology or non-biology courses. The program is designed to give Biology majors with special interest in ecology and population biology intimate exposure to research potential and methods in the field.

Qualified undergraduate students may take graduate courses if they obtain consent of the instructor.

Honors in Biology

Requirements for admission to candidacy for Honors in Biology are the same as those required for admission to the Honors Program of the College of Letters and Science. Highest Honors in Biology are awarded to those students who have a G.P.A. of 3.60 or better at graduation, and who have satisfactorily completed honors research course 190 in addition to completion of the Biology major.

Graduate Study

The departmental requirements (including those in chemistry, physics and mathematics) for a bachelor's degree in Biology represent most of the background necessary as preparation for research leading to advanced degrees in Biology, but certain fields of study will require additional training in the basic sciences.

Students who plan to enter a graduate school are urged to seek advice of staff members in their field of interest. Prospective applicants to this department are invited to visit the campus for this purpose.

The Department offers M.A. and Ph.D. degrees in Biology with specialization in the following fields: animal behavior, animal and plant systematics, biophysical ecology, cell biology, comparative physiology, developmental biology and embryology, cytology, ecological physiology, electron microscopy and ultrastructure, Electrophysiology, endocrinology, entomology, general physiology, genetics, herpetology, ichthyology, immunology, insect physiology, invertebrate zoology, mammalogy, marine biology, membrane physiology, molecular biology, neuroanatomy, neurobiology, neurophysiology and sense organ physiology, ornithology, parasitology and physiology of parasitism, phycology and algal physiology, physiological ecology, plant morphology, plant biochemistry and physiology, plant hormones, population and community ecology, protozoology and protozoan physiology, radiation biology, soils, vertebrate morphology and vertebrate paleontology, and vertebrate physiology.

A number of Biology departmental staff also serve as advisers for the Molecular Biology Interdepartmental Ph.D. degree (see Molecular Biology).

Work in additional fields may be pursued by qualified students on a limited basis through directed individual studies at the Santa Catalina Marine Biological Laboratory. These fields are: oceanology, comparative physiology of marine organisms, marine ecology, marine botany and physiology, marine invertebrate zoology, and developmental biology of marine organisms. Consult the Student Affairs Office for additional information.

Requirements for the Standard Credential in Secondary Teaching

Consult the UCLA ANNOUNCEMENT OF THE GRADUATE SCHOOL OF EDUCATION.

Requirements for the Master's Degree

In addition to the general requirements of the Graduate Division, the Department of Biology

requires oral and/or written examinations of any candidate for the Master's degree. Although there is no formal foreign language requirement for the Master's degree in Biology, a reading knowledge of a foreign language is a prerequisite for admission to certain seminars and advanced courses.

Requirements for the Doctor's Degree

In addition to the general requirements of the Graduate Division, every candidate for thePh.D. degree is required to pass departmental examinations and to serve as a Teaching Assistant for at least one year. There is no standard language requirement for the Ph.D. in Biology; the language requirement for each candidate is determined by the sponsor based on the needs of the candidate.

Lower Division Courses

1A. Introductory Biology: Molecular and Cellular.

Lecture, three hours; laboratory, three hours. Prerequisite: Chemistry 1A. Offered primarily for majors in Bacteriology, Biology, and other science departments, as well as premedical and predental students. Lecture: cell types, organelles, chemical composition, metabolism, photosynthesis, genetic code, Mendelian laws, mitosis, meiosis, differentiation and early development. Laboratory: the light microscope, unicellular organisms, osmosis, electron transfer reactions in mitochondria and chloroplasts, cell growth, enzyme induction, fertilization and early development.

The Staff

1B. Introductory Biology: Organismic and Population.

Lecture, three hours; laboratory, three hours. Prerequisite: Biology 1A. Lecture: Comparative morphology and embryology of Chordates, invertebrates, and vascular plants; function of animal organ systems; growth, hormones, gas exchange, translocation in vascular plants; organism and community energetics; population growth and regulation. Laboratory: gross dissection of a vertebrate; microdissection of an invertebrate; vascular plant morphology and reproduction; metabolism, muscle physiology.

The Staff

2. Principles of Biology.

Lecture, three hours; laboratory, one and one-half hours. Lecture: structure and chemical composition of cells, animal structure and diversity, cellular respiration, photosynthesis, major organ systems with emphasis on human, cell division, reproduction, development, ecology, population growth, genetics, evolution. Laboratory: structure and function of cells, morphology of plants and animals, circulatory and nervous systems, embryology, plant diversity and adaptation, human genetics. Offered for students other than majors in the biological sciences. Not open to students who have had Biology 1A-1B.

Ms. Harrison

10. Plants and Civilization.

Lecture, three hours; lecture-demonstration, one hour. The origin of crop plants; man's role in the development, distribution, and modification of food, fiber, medicinal and other plants in relation to their natural history. Designed for non-majors.

Mr. Schroeder

11. Field Botany.

Lecture, two hours; laboratory, six hours; required field trips. An introduction to the systematics, morphology, and ecology of the local flora (native and cultivated). Use of keys for identification; morphological characteristics of common families of vascular plants; plant communities and environmental factors affecting their distribution; emphasis on California. Designed for non-majors.

The Staff

12. Taxonomy and Ecology of Ornamental Plants.

Lecture, one hour; laboratory and field trips, six hours. The origin, classification and identification of the more important ornamental plants in southern California with special emphasis on their environmental requirements and adaptation. Designed for non-majors.

Mr. Schroeder

13. Evolution of Life.

Lecture, three hours; discussion, one hour. Limited to 100 students. Not open to Life Sciences majors. An introduction to biology within the framework of evolutionary theory. The relationships of evolutionary thought to other areas of knowledge and society. Natural selection and the origin of variation are examined in the context of genetics, molecular biology, physiology, phylogeny, population dynamics, behavior and ecology. Stress is laid upon the critical role of historical processes.

Mr. Olson

14. The Nature of Life.

Lecture, three hours. Not open to Life Sciences majors. An introduction to biology by a survey of the foundations of modern thought on the nature of life. Living processes will be viewed in the framework of the historical development of molecular and cellular biology.

Mr. James

20. Introduction to Human Heredity.

Lecture, two hours; discussion, one hour; laboratory, two hours. This course is not open to students with a previous college course in genetics, nor is it intended to satisfy the requirements of medical or dental schools. Man's inheritance and its biological basis will be introduced through lectures, readings and laboratory exercises with *Drosophila*. Topics will include prenatal development, Mendelizing factors, the role of chromosomes in heredity and the role of genes in disease and population structure.

Mr. Merriam

21. Field Biology.

Lecture, three hours; required field trips. Prerequisite: course 2. An introduction to the natural history and ecology, interrelationships, and classification of the common animals and plants with emphasis on western North America.

The Staff

25. The Oceans.

Lecture, three hours; discussion, one hour. Not open to students in the life sciences or to students who have taken *Geology 15*. *Limited to 40 students.* Physical and chemical processes that take place in the oceans with emphasis on their effects on organisms.

Mr. Walker

30. Biology of Cancer.

Lecture, four hours. An introduction to molecular, cellular and clinical aspects of cancer and a consideration of the sociological and psychological impact of cancer on the individual and society. Each lecture-discussion period will be given by an invited lecturer who is prominent in cancer research or treatment. (Credits may not be applied toward fulfillment of the Biology major).

Mr. Clark

Upper Division Courses

Upper division standing and completion of Biology 1A-1B or equivalent or consent of instructor are required for admission to all upper division courses. Enrollment in core courses (Biology 101, 102, 105, 110, 111, 119, 120, 122, M132, 134, 137, 138, 144, 146, 153, 158, 162, 165, 166) is restricted to Biology, Psychobiology and Biochemistry majors. All students in other majors who wish to enroll in core courses can only do so by obtaining the consent of the instructor.

101. Biology of Algae, Lichens and Fungi.

Lecture, four hours. Prerequisite: completion of all courses listed under Preparation for the Major. A survey of the algae, fungi and lichens, including morphology, systematics and phylogeny. Introduction to their ecology and physiology. Emphasis on the use and importance of algae, lichens, and fungi as experimental organisms. Optional laboratory section given as course Biology 150.

Mr. Chapman

102. The Biology of Land Plants.

Lecture, two hours; laboratory, six hours. Prerequisite: completion of all courses listed under Preparation for the Major. An introduction to the morphology, anatomy and reproduction of the liverworts, mosses, ferns and seed plants. Emphasis is given to their development in relation to function.

The Staff

103. Taxonomy of Flowering Plants.

Lecture, two hours; laboratory and field trips, six hours. The evolution, systematics, and distribution of the families of flowering plants. Morphology, principles of taxonomy, phylogenetic systems, nomenclature, modern methods of investigation.

The Staff

105. Biology of Invertebrates.

Lecture, three hours; laboratory, six hours (includes field trips). Prerequisite: completion of all courses listed under Preparation for the Major. Introduction to the systematics, evolution, natural history, morphology and physiology of the invertebrates.

Mr. Morin, Mr. Muscatine

106A-106B. Experimental Marine Invertebrate Zoology. (1½ courses each)

Lecture, two hours; laboratory, 12 hours. Prerequisites: courses 105 and 166 (latter may be taken concurrently with 106A) or the equivalent and the consent of the instructor. Course 106A is a prerequisite to 106B. An advanced course on natural history, physiology, biochemistry of invertebrates with emphasis on independent laboratory and field investigations.

Mr. Morin, Mr. Muscatine

107. Entomology.

Lecture, three hours; laboratory, six hours; field trips. An introduction to the morphology, ecology and classification of insects.

Mr. Belkin

108. Terrestrial Arthropods.

Lecture, three hours; laboratory, six hours; several field trips. Prerequisite: course 107 or consent of the instructor. Systematics, distribution, and bionomics of hexapods and arachnids.

Mr. Belkin

109. The Development of Evolutionary Theory. (½ course)

Lecture, two hours; discussion, one hour. A study of the historical development of the physical and biological concepts which have led to current evolutionary theory. These concepts are considered in context of the social circumstances in which they originated. Enrollment limited to 80 students.

Mr. Olson

110. Vertebrate Morphology.

Lecture, three hours; laboratory, four hours. Prerequisite: completion of all courses listed under Preparation for the Major. A study of vertebrate morphology and evolution from the viewpoint of: comparative anatomy of adult forms, developmental anatomy, and paleontology. Laboratory study of selected vertebrates.

Ms. Peterson, Mr. Vaughn

111. Biology of Vertebrates.

Lecture, three hours; demonstrations, field trips, discussions, three hours. Prerequisite: completion of all

courses listed under Preparation for the Major. The adaptations, behavior, and ecology of vertebrates.

Mr. Bartholomew, Mr. Gorman, Mr. Howell

112. Ichthyology.

Lecture, two hours; laboratory, six hours; field trips. Prerequisite: courses 110 and 111. The systematics, ecology and behavior of fishes, with special emphasis on local marine forms.

Mr. Walker

113. Herpetology. (1 or 2 courses)

Prerequisites: One of the following: Biology 111, 119, 120 or 122, and consent of the instructor. Herpetology will be offered alternately as a 4-unit course to be given during a conventional academic quarter, or as an 8-unit course as part of the Field Biology Quarter. The 4-unit course has lecture, three hours, laboratory, six hours, and approximately 4 week-end field trips. The systematics, distribution, physiology, behavior and ecology of amphibians and reptiles will be covered. The 8-unit course covers the same basic lecture and laboratory material in two intensive weeks. This is followed by an extended field trip where students will do individual field projects in behavior, physiological ecology, or field ecology.

Mr. Gorman

114. Ornithology.

Lecture, two hours; laboratory, discussion, field trips, six hours. Prerequisite: course 111 and consent of the instructor. Limited enrollment. The systematics, distribution, physiology, behavior and ecology of birds.

Mr. Howell

115. Mammalogy.

Lecture, two hours; laboratory and field trips, six hours. Prerequisite: course 111 or the equivalent and consent of the instructor. The evolution, ecology, behavior and physiology of mammals.

The Staff

116. The Evolution of Mammalian Dentitions.

Lecture, two hours; laboratory, six hours. Prerequisite: consent of the instructor. Limited enrollment. The origin and adaptive radiation of mammalian teeth is considered with special emphasis upon morphological aspects of change relative to function. Tooth histology and embryology are studied. Laboratory work involves study of dental morphology and histology.

Mr. Olson

M117. Vertebrate Paleontology.

(Same as Geology M117). Lecture, three hours; laboratory, three hours. Prerequisite: course 110. Recommended: a course in general geology. Limited enrollment. The fossil record of the evolution of the vertebrates, with emphasis on the morphology of primitive forms in the series from fish to mammal.

Mr. Vaughn

M118. Paleobotany.

(Same as Geology M118.) Lecture, three hours; laboratory, three hours. Prerequisite: one course in biological science or consent of instructor. Recommended: Geology 2 or equivalent. Survey of morphology, paleobiology, and evolution of vascular and nonvascular plants during geologic time, and particular emphasis on major evolutionary events.

Mr. Schopf

119. Environmental Biology.

Lecture, three hours; discussion, one hour. Prerequisite: completion of all courses listed under Preparation for the Major. This course is intended for biology majors who are concentrating in areas other than ecology and evolution. A general survey treating the environment as the agent of natural selection and the principles of evolution in populations. Adaptations, population genetics and ecology are emphasized. Particular attention is devoted to the vertebrates, especially man. Biology 119 is not open to students who have already taken Biology 111, 120 or 122.

The Staff

120. Evolutionary Biology.

Lecture, three hours; laboratory, two hours. Prerequisites: completion of all courses listed under Preparation for the Major. Recommended for biology majors specializing in environmental and population biology. Introduction to the mechanics and processes of evolution with emphasis on natural selection, population genetics, speciation, evolutionary rates, and patterns of adaptation.

The Staff

121. Seminar in Ecology. (½ course)

Discussion two hours. Prerequisites: course 119, 120 or 122 and consent of instructor. Undergraduate seminar in ecology; reading and discussion of current research, including preparation of review paper or annotated bibliography. May be repeated twice for credit.

Mr. Hespenheide

122. Ecology.

Lecture, three hours; laboratory, three hours. Prerequisites: completion of all courses listed under Preparation for the Major. Recommended for biology majors specializing in environmental and population biology. Introduction to population and community ecology, with emphasis on the growth and distribution of populations, interactions between species, and the structure, dynamics and functions of communities and ecosystems.

The Staff

123. Ecology of Marine Communities. (1 or 2 courses)

Prerequisites: course 122, approval for scuba diving from UCLA diving officer, and consent of instructor; course 105 and 112 are recommended. *This course will be offered either as a full quarter course for 4 units credit or in the Field Biology Quarter as a concentrated five-week course for 8 units credit.* Field study of the natural history and ecology of marine organisms and communities. Field work will involve scuba diving. Part of the course will be devoted to an independent research project.

Mr. Morin, Mr. Vance

124. Field Ecology. (1 or 2 courses)

Lecture, two hours; laboratory or field trip, ten hours. Prerequisites: course 120 or 122 and consent of instructor. Field and laboratory research in ecology, the collection, analysis and write-up of numerical data, with emphasis on design and execution of field studies. The course may either be given as a quarter-long course with weekend field trips, or as a single field trip conducted between quarters followed by lectures and tutorials for three weeks. When the course is given as part of the Field Biology Quarter, it will be 8 units and will last for five weeks (see above, under Requirements for the Major).

Mr. Cody

125. Plant Population Ecology. (1 or 2 courses)

Lecture, two hours; laboratory, six hours; field trips. Prerequisite: course 119 or 120, and consent of instructor. This course will be offered either as a full quarter course for 4 units credit or in the Field Biology Quarter as a concentrated five-week course for 8 units credit. A study of ecological variation, structure, distribution and reproductive biology of plant populations emphasizing field studies of selected populations and ecosystems.

Mr. Almeda, Mr. Thompson

126. Analysis of Ecological Data.

Lecture, three hours; laboratory, three hours. Prerequisite: consent of the instructor. Theory of experimental design and falsifiable hypotheses as applied to field ecology. Numerical and graphical methods of data reduction, with special emphasis on nonparametric procedures.

The Staff

M127. Soils, Plants, and Society.

(Same as Geography M127). Lecture, four hours; field trip. Prerequisites: Chemistry 1A, 1B, 1C or equivalent or consent of instructor. A general treatment of: soil development and morphology and the physical and chemical properties of soils as they relate to plant growth and distribution; soil resources, management, conservation and cultural aspects. Soil profiles examined on the field trip are used to explain developmental phenomena.

Mr. Lunt

128. Plant Physiological Ecology. (1 or 2 courses)

Lecture, three hours; laboratory, three hours. Prerequisites: Physics 6C or the equivalent. A biophysical analysis of plant-environmental interactions with emphasis on gaseous and heat fluxes for leaves, quantitative aspects of transpiration and photosynthesis, and a consideration of the water potential in the soil-plant-atmosphere continuum. Students will perform individual projects. When the course is given as part of the Field Biology Quarter it will be 8 units and the individual research project will be correspondingly expanded.

Mr. Nobel

129. The Behavior of Animals.

Lecture, three hours; discussion, three hours. Prerequisite: course 111 or consent of the instructor. Ecological significance, underlying mechanisms, and evolution of behavior, with special reference to animal sociology under natural conditions.

Mr. Collias

130. Behavior Research Problems.

Lecture, three hours; laboratory, two hours. Prerequisite: consent of the instructor. Systems controls and non-obtrusive sensing procedures for behavior studies in the laboratory and field. Rationale, design, and limitations of laboratory studies of behavior.

Mr. Kavanau

131. Insect Ecology. (1 or 2 courses)

Lecture, two hours; laboratory or field trip, eight hours. Prerequisites: course 119 or 120 or 122 and consent of instructor. Analysis of the ecological roles of insects in terrestrial communities, with emphasis on interactions with both plants and vertebrates. Students will perform group and individual field projects. The course may either be given as a quarter-long course with weekend field trips or as part of the Field Biology Quarter. When given as part of the Field Biology Quarter, it will be 8 units and the amount of field work increased accordingly.

Mr. Hespenheide

M132. Comparative Genetics.

(Same as Bacteriology M132.) Lecture, three hours: discussion/demonstration, one hour. Prerequisites: course 1A-1B with grade of C or better, or consent of instructor; completion of Chemistry 22 or equivalent course in biochemistry, or consent of instructor. Mendelian principles; the gene: its structure, function, and chemistry, with emphasis on mutation, coding regulation, and transmission. Not open to students who have had Biology 134.

The Staff

134. Human Genetics.

Either three hours of lecture and two hours of discussion or four hours of lecture and one hour of discussion. Prerequisite: completion of all courses listed under Preparation for the Major. A basic course in genetics using human examples. Not open to students who have had Bacteriology or Biology M132.

The Staff

135. Population Genetics.

Lecture, three hours; discussion, one hour. Prerequisite: course M132. Basic principles of genetics of populations, dealing with the genetic structure of natural populations and the mechanisms of evolution. The course will cover equilibrium conditions and the forces altering gene frequencies, polygenic inheritance, and the methods of quantitative genetics.

Ms. Gill

136A-136B-136C. Seminar in Genetics. (½ course each)

Discussion, two hours. Prerequisite: course M132 or 134, and consent of the instructor. Undergraduate seminar in genetics; reading and group discussion of current research in genetics.

The Staff

137. Morphogenesis.

Lecture, three hours; discussion, one hour. Prerequisite: completion of Prebiology Major. Study of embryonic development. Emphasis will be on the morphogenetic events in insect, avian, amphibian and mammalian species.

Mr. O'Connor, Mr. Tobin

138. Developmental Biology.

Lecture, three hours; discussion, one hour. Prerequisite: completion of all courses listed under Preparation for the Major and course M132 or 134, which may be taken concurrently. Synopsis of fundamental concepts in embryology and a survey of current topics in developmental biology.

Ms. Lengyel, Mr. O'Connor, Mr. Tobin

139. Introductory Laboratory in Developmental Biology.

Lecture, two hours; laboratory, six hours. Prerequisites: course 138 and consent of the instructor. Introductory course in developmental biology including cell and organ culture and biochemical analysis of developing systems.

Mr. Clark, Mr. O'Connor, Mr. Tobin

140. Plant Development and Differentiation.

Lecture, two hours; laboratory, four hours. Prerequisite: courses 101 and 102. A study of the ontogeny of the vascular plant body and comparisons of that development among the major plant taxa; discussion of the concepts of plant development.

Mr. Phinney, Mr. Schroeder

142A-142B-142C. Seminar on Topics in Developmental Biology. (½ course each)

Discussion, two hours. Prerequisite: course 138 and consent of the instructor. Undergraduate seminar on topics in developmental biology. Reading and group discussions of current research. Will be offered each quarter; emphasizing organ differentiation and tissue culture (Fall), gametogenesis and fertilization (Winter), and chemical regulations (Spring).

Ms. Lengyel, Mr. O'Connor, Mr. Tobin

144. Introduction to Molecular Biology.

Lecture, three hours; discussion, one hour. Prerequisite: completion of all courses listed under Preparation for the Major. Course M132 is strongly recommended. A course in molecular biology emphasizing the synthesis, structure, function and interactions of biological macromolecules.

The Staff

145A-145B-145C. Molecular Biology Laboratory.

Laboratory, twelve hours. Prerequisite: consent of the instructor. It is highly desirable that the student have already taken course 144. A course in experimental molecular biology in which the student carries out original research under supervision. Space available is limited, and arrangements must be made in advance with the instructor.

The Staff

146. Physicochemical Biology.

Lecture, four hours. Prerequisite: completion of all courses listed under Preparation for the Major. A physiochemical analysis of the physiology of cells and organelles with emphasis on membranes, thermodynamics of solute and water movement, light absorption, and subcellular energy transduction.

Mr. Nobel

148. Topics in Physical Chemistry for Molecular Biology. (½ course)

Lecture, two hours. Prerequisite: consent of the instructor. The course is planned to complement Chemistry 113B or equivalent. The application of physical chemistry to specific problems on molecular biology.

Mr. Fessler

149A-149B. Plant Biochemistry and Photosynthesis.

Lecture-discussion, four hours. Prerequisites: completion of all courses listed under Preparation for the Major and Biology 146 or 162 or Chemistry 153. 149A. In depth description of the photosynthetic process in plants and bacteria, chemistry of the photosynthetic pigments, nitrogen fixation. 149B. Plant-specific metabolic pathways, nitrogen and sulfate metabolism, biochemistry and biosynthesis of cell wall constituents, control mechanisms and methodology in biosynthesis chloroplast development. It is recommended that 149A-149B be taken in sequence.

Mr. Chapman, Mr. Thornber, Mr. Wildman

150. Experimental Micro-Organisms.

Discussion, one hour; laboratory, eight hours. Prerequisite: Course 101 or equivalent taken previously or concurrently or consent of instructor. Experimental study of algae and fungi and their use and handling as experimental organisms.

Mr. Chapman

153. Histology.

Lecture, three hours; laboratory, four hours. Prerequisite: completion of all courses listed under Preparation for the Major. An introduction to descriptive and functional histology, using light and electron microscope information. Discussion of histological research methods.

The Staff

154. Functional Ultrastructure of Cells.

Lecture, three hours; discussion, two hours. Prerequisite: course 1A, 1B, Chemistry 21, 22, 24 or equivalent. The structure and ultra-structure of cells and tissues emphasizing the relationship between structure and function at the tissue and cellular levels.

Mr. Sjostrand

155. Analytical Microscopy and Cytology. (½ course)

Lecture, two hours; demonstration, two hours. Prerequisite: Physics 6A-6B-6C or consent of the instructor. A course designed for students in the biological sciences to acquaint them with quantitative cytology with emphasis on bright field, dark field, phase contrast, interference, and polarization analysis.

Mr. James

158. General and Cell Physiology. (1½ courses)

Lecture, three hours; laboratory, six hours. Prerequisite: completion of all courses listed under Preparation for the Major. The general physiology of cells and tissues with special emphasis on the physical and chemical nature of specialized activities.

The Staff

161. General Physiology.

Lecture, three hours. Prerequisite: a course in organic chemistry. Discussion of certain fundamental principles of living matter, including origin of life, properties of viruses, organization of living matter, nature and properties of cell membranes, cellular mechanisms of secretion and molecular transfer. This is not an elementary or introductory course in physiology; neither is it a course in human physiology. It is intended for students whose primary interest is biological science.

The Staff

162. Plant Physiology.

Lecture, three hours; discussion/demonstration, one hour. Prerequisite: completion of all courses listed under Preparation for the Major. Water movement within the plant body and between the plant and its environment. Soil genesis, characteristics and plant-soil interrelations. Salt movement across membranes and through tissues. Hormonal control of growth and development. Photomorphogenesis. Photoperiodism and flowering. Photochemical and physiological aspects of photosynthesis.

Mr. Laties, Mr. Thornber

163. Plant Physiology Laboratory.

Lecture, one hour; discussion, one hour; laboratory, eight hours. Prerequisite: course 162. Students will be introduced to the instrumentation used in Plant Physiology research by performing experiments based on the lecture material in 162. Subsequently, students, working singly or in groups will undertake a research project of their own design. Limited enrollment.

The Staff

164. Photoperiodism and Related Phenomena. (½ course)

Lecture, two hours. Prerequisites: Chemistry 21, 22, 24 or the equivalent. Flowering process, photoperiodism, endogenous rhythms, the biological clock and related subjects.

The Staff

165. Organismic Physiology.

Lecture, three hours; discussion, two hours. Prerequisite: completion of all courses listed under Preparation for the Major. An introduction to the principles of both animal and plant physiology with emphasis on organ systems and intact organisms. Course 165 is not open to students who have already taken course 166.

Mr. Gordon

166. Animal Physiology. (1½ courses)

Lecture, three hours; laboratory, five hours. Prerequisite: completion of all courses listed under Preparation for the Major. Normally to be taken after course 158. An introduction to physiological principles with emphasis on organ systems and intact organisms. Course 166 is not open to students who have already taken course 165.

The Staff

168. Insect Physiology.

Lecture, two hours; laboratory, six hours. Prerequisite: course 158 or 166 or the equivalent. Survey of the physiology of insects with emphasis on functional adaptations.

Mr. Engelmann

169. Comparative Physiology.

Lecture, three hours; laboratory, four hours. Prerequisite: courses 158 and 166. A detailed analysis of selected aspects of invertebrate and vertebrate physiology.

Mr. Gordon

170. Physiological Ecology of Arthropods.

Lecture, three hours; discussion, one hour. Prerequisite: course 166 or equivalent. The physiology of terrestrial arthropods in relation to their distribution and function in natural environments.

Mr. Edney

171. Introduction to the Nervous System.

Lecture, three hours; discussion, one hour. Prerequisite: course 166 or consent of the instructor. Structural and functional principles of the nervous system as a general biological phenomenon. Consideration of nervous elements and processes and of organized systems as communication and control systems. Survey of principal types of organization in invertebrates and vertebrates.

Mr. Eckert, Mr. Grinnell, Mr. O'Lague

172A-172B. Introductory Laboratory in Neurophysiology.

Laboratory, eight hours each. Prerequisite: course 171 or consent or the instructor. Limited enrollment. Laboratory investigation of the function of central and peripheral nervous systems in invertebrates and vertebrates. Emphasis will be on electrophysiological

approaches to basic neurophysiological problems. To be taken concurrently.

Mr. Eckert, Mr. Grinnell, Mr. O'Lague

173. Anatomy and Physiology of Sense Organs.

Lecture, three hours; discussion, one hour. Prerequisite: course 171 or the equivalent. The anatomy and physiology of the sense organs. Comparative aspects will be emphasized.

Mr. Eckert, Mr. Grinnell, Mr. O'Lague

177. Introductory General Endocrinology.

Lecture, three hours, discussion, one hour; annotated bibliography on selected topic required. Prerequisite: Biochemistry; course 158 or 166 or the equivalent. Principles of chemical integration in biological systems.

Ms. Szego

179. Invertebrate Endocrinology.

Lecture, three hours. Prerequisite: course 158 or 166 or consent of the instructor. A comprehensive treatment of invertebrate endocrinology.

Mr. Engelmann

180. Advanced Topics in General Endocrinology.

Lecture, three hours; discussion, one hour; Term paper. Prerequisite: course 177. Detailed consideration of selected mechanisms in endocrine control of growth and differentiation.

Ms. Szego

181. Parasitology and Symbiosis. (1½ courses)

Lecture, three hours; laboratory, six hours. An introduction to the principles, biology, and evolution of infectiousness, symbiosis, and parasitism, emphasizing protozoan and helminth parasites, including those of man. Two different laboratory approaches will be used in this course. Certain laboratories will be for pre-medical, dental, veterinary and other majors; whereas others are designed specifically for pre-medical technology candidates.

Mr. MacInnis

182. Experimental Parasitology.

Laboratory, eight hours. Prerequisite: consent of the instructor. Introduction to the use of parasites in experiments concerning basic biological problems and to problems concerning parasitism.

Mr. MacInnis

184. Mathematical Ideas in Biology.

Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 12A or 13A or consent of the instructor. Use of elementary mathematics to illustrate the application of mathematical reasoning to topics in genetics, physiology, morphogenesis and evolution. System kinetics and diffusion processes are also considered.

The Staff

M185. Immunology.

(Same as Bacteriology M185 and Microbiology and Immunology M185.) Lecture, three hours, discussion, one hour. Prerequisites: Chemistry 22 and 24; course M132. Concurrent enrollment in Chemistry 153 is recommended. Introduction to immunobiology and immunochemistry. Cellular and molecular aspects of humoral and cellular immune reactions.

Mr. Clark

M186. Immunology Laboratory. (½ course)

(Same as Bacteriology M186.) Laboratory, four hours. Prerequisite: course M185 (which may be taken concurrently) and consent of the instructor. This course will focus on a limited number of situations designed to train the student in organizing and evaluating immunological laboratory experiments.

The Staff

M187. Immunology Seminar. (½ course)

(Same as Bacteriology M187 and Microbiology and Immunology M187.) Discussion, two hours. Prerequisite: course M185 (which may be taken concurrently); consent of the instructor. Student presentation of selected papers from the immunology literature, correlated with the lectures in Biology M185, and designed to serve as a forum for the critical analysis of research papers.

The Staff

188. Seminar on Biology and Society. (½ course)

Prerequisite: consent of the instructor. Investigations and discussions of current socially important issues involving substantial biological considerations, either or both as background for policy and as consequences of policy.

Mr. Gordon

189A-189B. Biology for Majors in Physical Sciences and Engineering.

Lecture, three hours; demonstration or discussion, one hour. Prerequisite: upper division standing with a major in physical sciences or engineering. This course may be taken in place of Biology 2 in fulfillment of two quarters of the life sciences requirement for nonmajors in the biological sciences. Principles of biology for students with an advanced background in physical sciences. Not open to students who have had Biology 1A-1B.

Mr. Kavanau

190A-190D. Honors Research in Biology. (½ to 1 course each)

Prerequisite: senior standing and permission of the Undergraduate Advisor. Individual research designed to broaden and deepen the student's knowledge of some phase of Biology. Must be taken for at least two quarters and for a total of at least two courses. Grade will only be given upon completion of 190B. Students may elect to enroll in additional research under 190C-D for a letter grade. A report on progress must be presented to the Undergraduate Advisor each quarter a 190 course is taken. A maximum of eight units of 190 may be used to fulfill the requirements for the Biology major.

The Staff

199. Special Studies. (½ to 4 courses)

Prerequisite: consent of the instructor and the Undergraduate Adviser. This consent is based on a written proposal outlining the study or research to be undertaken. The proposal should be worked out in consultation with the instructor and submitted for approval to the Biology Undergraduate Adviser before the day instruction begins in that quarter. At the end of the quarter a report describing the progress of the study or research and signed by the student and the instructor must be presented to the Biology Undergraduate Adviser. No limit on credit, but students who wish to carry more than 8 units of 199 in any one quarter must obtain authorization from the departmental chairman and the appropriate dean. Only one 199 course may be used to fulfill the requirements for the Biology major.

The Staff

Graduate Courses

The consent of the instructor is required for admission to all graduate courses. Any additional prerequisites are stated in the course descriptions.

201. Advanced Plant Taxonomy.

Lecture, two hours; laboratory, four hours; field trips. The principles, concepts, and methods of plant taxonomy.

Mr. Lewis, Mr. Thompson

202. Principles of Animal Taxonomy.

Lecture, three hours. Taxonomic concepts, principles, and methods.

Mr. Belkin

203. Marine Botany and Physiology. (2 courses)

Prerequisite: consent of instructor. *This course is given at the Santa Catalina Marine Biological Laboratory.* Structure, reproduction, life histories, systematics and biology of marine algae; techniques in culture and cytological investigation of algal material. Lecture and laboratory.

The Staff

204A-204B-204C. Advanced Plant Biology.

Lecture, three hours; laboratory, six hours. Prerequsites: course 101 (for 204A), 102 (for 204B-204C), or equivalent and consent of instructor. 204A: An advanced course in the biology of marine and freshwater algae, emphasizing current developments and research trends. All areas of algal biology will be considered but the emphasis will be on the experimental approach to study of algae. 204B: An advanced course in the biology of Angiosperms. The emphasis will be on the experimental approach to structure-function relationships in reproduction. 204C: An advanced course in the biology of Gymnosperms and Bryophytes.

The Staff

205. Marine Invertebrate Biology. (2 courses)

This course is given at the Santa Catalina Marine Biological Laboratory. Functional morphology, life histories, and systematics of marine invertebrates of all major and most minor taxa; emphasis on the living animal and its habitat.

The Staff

206. Advanced Ichthyology.

Lecture, three hours; laboratory, three hours. Prerequisite: course 112 or consent of the instructor. The higher classification and functional morphology of fishes from an evolutionary point of view.

The Staff

209. Field Study of Vertebrate Fossils.

Field laboratory: 6 weeks. The field occurrence and sedimentological and stratigraphic relationships of fossils of vertebrates. Sampling techniques and interpretations of associations and paleoecology.

Mr. Olson

211. Mechanisms of Evolution.

Lecture, two hours; individual study. Prerequisites: courses 120 and M132. Genetic mechanisms of evolutionary change.

Mr. Lewis

212. Conceptual Models in Ecology.

Prerequisites: course 122 or equivalent, one year of calculus. Classical and current models of spatial distribution, birth and death processes, regulation of numbers, predator-prey and host-parasite relationships, interspecific competition and community structures with emphasis on stochastic processes in ecological systems.

The Staff

213. Community Ecology.

Lecture, three hours. Prerequisites: course 122 or equivalent, one year of calculus. Investigation of the structure and function of animal communities, in theory and in practice; includes the concepts of coexistence, competition, niche and diversity.

Mr. Cody

214. Physiological Ecology. (½ course)

Lecture. Prerequisite: course 111. A detailed consideration of the role of physiology and behavior in the autecology of organisms in natural environments.

Mr. Bartholomew, Mr. Nagy

215. Theoretical Ecology.

Lecture, three hours. Prerequisites: course 122, one year of calculus and consent of instructor. The use of mathematical models in studying ecological systems. A wide range of autecological and synecological models will be treated; relevant mathematical techniques, which include parts of basic calculus, differential equa-

tions, linear algebra and probability, will be reviewed as necessary.

Mr. Vance

216. Advanced Plant Ecology.

Lecture, two hours; laboratory, field study, and special problems, six hours. The origin and development of ecological concepts. Principles and techniques of the quantitative analysis of plant-environmental relationships.

Mr. Thompson

217. Marine Ecology. (2 courses)

This course is given at the Santa Catalina Marine Biological Laboratory. Structure, diversity and energetics of marine communities; behavior, population dynamics, and biogeography of component species; associated oceanography and geology.

The Staff

218. Oceanology. (2 courses)

This course is given at the Santa Catalina Marine Biological Laboratory. Ecology and dynamics of pelagic and benthic associations; physio-chemical properties of seawater and marine substrates and their biological significance; qualitative and quantitative methods of oceanology.

The Staff

219. Animal Behavior in Laboratory and Field.

Discussion, two hours; laboratory, six to eight hours. Prerequisite: course 129 and consent of the instructor. Limited Enrollment. Laboratory and field studies of selected problems in animal behavior.

Mr. Collias

221. Genetic Analysis.

Lecture and discussion, three hours. Prerequisite: course M132 or equivalent. Examples of genetic analysis in eukaryotic organisms by means of mutation and chromosome changes. Readings in the literature will be provided. Topics to be presented include *Drosophila* chromosome behavior, techniques of gene localization, the one gene-one chromomere hypothesis, meiotic mutants, mosaic animals and cell lineage, behavior, and X-chromosome inactivation.

Mr. Merriam

222A-222F. Topics in Genetics.

Lecture. Prerequisite: course M132. Intensive study of selected topics.

The Staff

223A-223D. Advanced Genetics Laboratories.

Laboratory, nine hours. Prerequisite: course M132 or equivalent and consent of the instructor. Open to qualified undergraduates. Each course will be offered independently of the others as student demand warrants. 223A: Drosophila behavior genetics; isolation and genetic analysis of mutants defective in visual behavior phototaxis/countercurrent distribution (Merriam). 223B: Neurospora developmental genetics; identification and characterization of genes that modify behavior, metabolism and morphogenesis (Siegel). 223C: Chlamydomonas genetics; general techniques (Ebersold). 223D: Gibberella physiological genetics; isolation and identification of mutants that block steps in the biosynthesis of the plant hormones, the gibberellins (Phinney).

The Staff

224. Developmental Biology of Marine Organisms. (2 courses)

This course is given at the Santa Catalina Marine Biological Laboratory. Descriptive and experimental studies of developmental stages of marine plants and animals; patterns of reproductive biology; larval biology; metamorphosis.

The Staff

M226 Chromosome Structure and Regulation.

(Same as Biological Chemistry M226, Chemistry M226, Microbiology and Immunology M226, and Microbiology M226.) Prerequisite: consent of instructor. Lectures and panel discussions on the structural and functional organization of eukaryotic chromosomes.

The Staff

227. Chromosome Structure and Replication.

Prerequisites: course M132 and Chemistry 153 or consent of the instructor. A survey of biochemical and biophysical investigations of the structure and replication of chromosomes. The comprehensive molecular biology of selected structural proteins and polysaccharides, including cellular synthesis, structure and physical properties, and integrated biological functions.

Mr. Brunk, Mr. Ray

229. Structural Macromolecules.

Lecture three hours, discussion one hour. The comprehensive molecular biology of selected structural proteins and polysaccharids, including cellular synthesis, structure and physical properties, and integrated biological functions.

Mr. Fessler

231. Advanced Topics in Molecular Biology.

Lecture, three hours; discussion, one hour. Prerequisite: consent of the instructor. Each offering of the course will treat a different topic of current interest in molecular biology. The topic will be covered in depth at a level appropriate to advanced graduate students. The course will include presentations by students.

Mr. Brunk

233A-233B. Electron Microscopy of Cells.

Lecture, two hours; discussion, one hour; laboratory, fifteen hours. Prerequisite: consent of instructor. Corequisite: concurrent enrollment in related studies in course 596. Electron microscopy applied to structure of cells and to molecular structure of cellular components. The course involves pursuing a research project.

Mr. Sjostrand

234. Ultrastructural Aspects of Disease. (½ course)

Lecture, two hours. Prerequisites: course 153 and consent of the instructor. Structural changes occurring in disease processes at the light and electron microscopic level. Emphasis on ultrastructure and mechanisms in human disease and animal models.

The Staff

235. Advanced General Physiology.

Lecture, three hours. Prerequisite: course 158 or 161. Discussion of specific topics such as excitation, conduction, physiology of blood, muscle contraction, etc. Students will participate in giving reports.

The Staff

236. Experimental Cell Biology.

Lecture, two hours; discussion, one hour; laboratory, four hours. Prerequisite: course 158 and consent of the instructor. Theoretical and experimental analysis of systems utilized in the study of cellular metabolism and physiology: cell organelles, cell populations and organized tissues.

Mr. Cascarano, Mr. James

237. Molecular Structure of Cellular Components.

Lecture, three hours; discussion, two hours. Prerequisites: course 154, Chemistry 153 and Bacteriology 213. The molecular structure of cellular components is discussed in relation to function. Special emphasis on the molecular structure and function of membranes as involved in basic life phenomena.

Mr. Sjostrand

238. Structure, Function and Biogenesis of the Mitochondrion.

Lecture, three hours. Prerequisites: courses 154 and 158, Chemistry 153 or consent of the instructor. Origin, maintenance and function of highly organized subcellular entities such as mitochondria, chloroplasts, centrioles and flagella.

Mr. Simpson

240. Physiology of Marine Animals. (2 courses)

This course is given at the Santa Catalina Marine Biological Laboratory. Lecture and laboratory studies on cellular, tissue, organ, and animal physiology; regulatory biology; metabolic characteristics of cells; energy transformations.

The Staff

241. Laboratory in Advanced Electrophysiology. (2 courses)

Laboratory, twelve hours. Prerequisite: course 172 or equivalent and consent of the instructor. In-depth involvement in individual research projects under staff guidance. Approximately two projects each quarter. Course may be repeated twice.

Mr. Eckert, Mr. Grinnell

242. Topics in Neurobiology.

Lecture, three hours. Prerequisite: course 171 or the equivalent and consent of the instructor. Selected current problems in neurobiology will be discussed in depth with emphasis on analysis of original papers. May be repeated for credit.

Mr. Eckert, Mr. Grinnell

243. The Vertebrate Eye.

Lecture, three hours. Prerequisite: course 1A-1B or the equivalent. The gross structure, fine structure, physiology, and biochemistry of the vertebrate eye, with emphasis on the retina and its role in vision.

The Staff

244. Advanced Insect Physiology.

Lecture, two hours; laboratory, five hours. Prerequisite: course 168 or consent of the instructor. A detailed discussion of current problems in insect physiology. Advanced laboratory.

Mr. Engelmann

246. Principles of Lipid Metabolism.

Lecture, three hours; laboratory, six hours. Prerequisite: Chemistry 153 or consent of the instructor. Extensive investigation into the synthesis and catabolism of selected lipid moieties.

Mr. O'Connor

247A-247F. Advanced Plant Biochemistry and Physiology. (½ course each)

Lecture, two hours; discussion, one hour. Prerequisites: course 146 or 162 or Chemistry 153 and consent of instructor. Up to two of the 247A-F courses may be offered in any one quarter. When two courses are offered students must enroll in both. 247A. Control of plant growth and development. 247B. Mechanism of action and biosynthesis of plant growth hormones. 247C. Structure, function and biogenesis of plant organelles. 247D. Plant metabolisn with emphasis on reactions to the mitochondrion. 247E. Biochemistry of photosynthesis and plant pigments. 247F. Photobiology.

The Staff

248. Laboratory Techniques in Plant Biochemistry. (½ course)

Laboratory, six hours. Prerequisites: Biology 247 (taken concurrently) and Chemistry 153 or equivalent and consent of instructor. A laboratory course aimed at introducing graduate students to techniques used in plant biochemistry research. Limited enrollment.

Mr. Chapman, Mr. Thornber

249. Biochemistry of Parasitism.

Lecture, two hours; laboratory, six hours. Biochemical and physiological aspects of parasite-host relationships. Laboratory emphasis on individual research projects. Offered in alternate years.

Mr. MacInnis

251. Seminar in Plant Systematics. (½ course)

Mr. Lewis

253. Seminar in Plant Structure. (½ course)

Mr. Phinney

255. Seminar in Invertebrate Zoology. (½ course)
Mr. Muscatine

256. Seminar in Entomology. (½ course)
Mr. Belkin

258. Seminar in Ichthyology. (½ course)
Mr. Walker

259. Seminar in Herpetology. (½ course)
Discussion, three hours. Prerequisites: course 113 or consent of instructor. Seminar in current approaches to herpetology. Main theme will vary from year to year in areas such as biogeography, ecology, behavior, environmental physiology.
Mr. Gorman

260. Seminar in Biology of Terrestrial Vertebrates. (½ course)
Mr. Bartholomew, Mr. Howell

262. Seminar in Vertebrate Paleontology. (½ course)
Mr. Vaughn

264. Evolutionary Concepts. (½ course)
Lecture: three hours. Exploration in depth of evolutionary concepts, their diversity, biological interpretations and impact on social and humanistic patterns of today and the past.
Mr. Olson

265. Seminar in Biophysical Plant Ecology. (½ course)
Mr. Nobel

266. Seminar in Plant Ecology. (½ course)
Mr. Thompson

268. Seminar in Population Biology. (½ course)
Mr. Cody

269. Seminar in Animal Ecology. (½ course)
Discussion, three hours. Prerequisite: consent of instructor. A seminar to discuss specific topics in animal ecology and related fields; designed for advanced graduate students.
The Staff

270. Seminar in Environmental Physiology. (½ course)
Mr. Bartholomew, Mr. Nagy

271. Seminar in Phycology and Mycology. (½ course)
Lecture, two hours. Prerequisites: course 101 or equivalent and consent of instructor. Advanced study in biology of algae and fungi. Topics in physiological ecology, physiology and biochemistry of algae and fungi, and their industrial uses. Algae and fungi as experimental organisms. Phylogeny and origin of eucaryote organisms. Evolutionary origin of chloroplasts.
Mr. Chapman

272. Seminar in Marine Biology. (½ course)
Mr. Gordon, Mr. Muscatine

274. Seminar on Animal Behavior. (½ course)
Mr. Collias

275. Seminar on Behavior Research Problems.
Lecture, three hours; laboratory, two hours. Prerequisite: course 130.
Mr. Kavanau

276. Seminar in Molecular Genetics. (½ course)
Graduate seminar will concentrate on a specific topic each quarter.
Mr. Salser

277. Seminar in Genetics. (½ course)
Mr. Ebersold, Mr. Merriam, Mr. Siegel

278. Information Processing in Eukaryote Cells. (Seminar) (½ course)
Discussion, three hours. Prerequisites: Chemistry 153, Biology 132, or equivalents; consent of instructor. Structure and organization of eukaryote DNA; nuclear RNA species; definition and properties of eukaryote mRNA; translation of mRNA; current related topics.
Mr. Clark

279. Seminar in Developmental Biology. (½ course)
Mr. Tobin

280. Seminar on Chromosome Structure and Replication. (½ course)
Prerequisite: course 227. Current topics in the field of control and mechanism of DNA replication.
Mr. Ray.

281. Graduate Seminar in Molecular Biology. (½ course)
Mr. Brunk, Mr. Fessler, Mr. Ray

282. Seminar in Molecular Biology. (½ course)
The Staff

283. Seminar on Topics in Cell Biology. (½ course)
A discussion of various topics on the biology of eukaryotic cells. A different topic will be emphasized each year. The topics will include bioenergetics, motility, organelle DNA, membrane structure and function, oncogenic transformation, nuclear organization and function.
Mr. Simpson

286. Seminar in Plant Development. (½ course)
Lecture, one hour; discussion, two hours. Prerequisites: a course in plant physiology and at least one advanced undergraduate or graduate course in plant development or biochemistry, Chemistry 153 or equivalent. A graduate seminar that will concentrate on a specific topic in Plant Development each quarter.
Mr. Phinney, Ms. Tobin

287. Seminar in Comparative Cell Physiology. (½ course)
Mr. Barber, Mr. Cascarano, Mr. James

288. Seminar on Plant Cell Biology. (½ course)
Prerequisite: course 162 is particularly recommended.
Ms. Gonzalez

289. Seminar in Plant Physiology. (½ course)
Mr. Laties

290. Seminar in Comparative Physiology. (½ course)
Mr. Gordon

291. Seminar in Physiology and Biochemistry of Arthropods. (½ course)
Lecture, three hours. Prerequisite: Chemistry 153 or consent of the instructor. Recent contributions to the field of arthropodan physiology and biochemistry.
Mr. Engelmann

292. Seminar on Topics in Ultrastructure. (½ course)
The Staff

293. Seminar in Cardiovascular Problems. (½ course)
Mr. Cascarano

294. Seminar on Current Aspects of Photosynthesis. (½ course)
Mr. Chapman, Mr. Thornber, Mr. Wildman

295. Seminar in Neurophysiology. (½ course)
Mr. Eckert, Mr. Grinnell

297. Seminar in Molecular Endocrinology. (½ course)
Ms. Szego

M298. Seminar in Current Topics in Molecular Biology. (½ course)
(Same as Biological Chemistry M298, Chemistry M298, Microbiology and Immunology M298, Microbiology M298 and Molecular Biology M298.) Prerequisite: enrollment must be approved by the instructor and by the Graduate Adviser of the Interdepartmental Molecular Biology Ph.D. Committee. Each student enrolled conducts or participates in discussions on assigned topics. May be repeated for credit.
The Staff

299. Seminar in Parasitology. (½ course)
Mr. MacInnis

501. Cooperative Program. (½ to 2 courses)
Prerequisites: Approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in graduate courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.
The Staff

Individual Study and Research

The conduct of each of the courses isted below is supervised by a member of the faculty. He or she is identified by letter code as follows: FA, Frank Almeda; AB, Albert A. Barber; GB, George A. Bartholomew; JB, John N. Belkin; BB, Jacob B. Biale; CB, Clifford F. Brunk; DC, David J. Chapman; JC, Joseph Cascarano; MC, Martin L. Cody; NC, Nicholas E. Collias; WC, William R. Clark; WE, William T. Ebersold; RE, Roger O. Eckert; ED, Eric Edney; FE, Franz Engelmann; JF, John H. Fessler; EG, Ayesha E. Gill; LG, Elma Gonzalez; MG, Malcolm S. Gordon; GG, George C. Gorman; AG, Alan D. Grinnell; RG, Michael Grunstein; HH, Henry A. Hespenheide; TH, Thomas R. Howell; WJ, Thomas W. James; HK, Harumi Kasamatsu; LK, J. Lee Kavanau; GL, George G. Laties; JL, Judith A. Lengyel; HL, F. Harlan Lewis; RL, O. Raynal Lunt; AM, Austin J. MacInnis; JM, John R. Merriam; GM, James G. Morin; LM, Leonard Muscatine; KN, Kenneth A. Nagy; PN, Park S. Nobel; JO, John D. O'Connor; PO, Paul H. O'Lague; EO, Everett C. Olson; JP, Jane A. Peterson; BP, Bernard O. Phinney; DR, Dan S. Ray; WS, Winston A. Salser; AS, Charles A. Schroeder; RS, Richard W. Siegel; LS, Larry Simpson; FS, Fritiof S. Sjostrand; CS, Clara M. Szego; HT, Henry J. Thompson; PT, J. Philip Thornber; AT, Allan J. Tobin; ET, Elaine M. Tobin; PV, Peter P. Vaughn; RV, Richard C. Vance; BW, Boyd W. Walker; SW, Samuel G. Wildman.

596AA-596ZZ. Directed Individual (or Tutorial) Studies. (½ to 2 courses)
The Staff

596F. Directed Individual (or Tutorial) Studies. (½ to 2 courses)
Directed individual (or tutorial) studies at the Santa Catalina Island Marine Laboratory.
The Staff

597AA-597ZZ. Preparation for Comprehensive Examination for the Master's Degree or Qualifying Examination for the Ph.D. (½ to 2 courses)

Prerequisite: consent of instructor. Course 597 may not be used to fulfill any course requirements for the Master's or Doctor's degrees, and is graded S/U.

598AA-598ZZ. Master's Thesis Research and Writing. (½ to 2 courses) The Staff

599AA-599ZZ. Doctoral Dissertation Research and Writing. (½ to 2 courses) The Staff

■ BIOMATHEMATICS

(Department Office, AV-111 Center for the Health Sciences)

Abdelmonem A. Afifi, Ph.D., *Professor of Biostatistics and Biomathematics.*

Virginia A. Clark, Ph.D., *Professor of Biostatistics and Biomathematics.*

Edward C. DeLand, Ph.D., *Adjunct Professor of Surgery and Biomathematics.*

*Wilfrid J. Dixon, Ph.D., *Professor of Biomathematics (Vice Chairman of the Department) and Professor of Biostatistics and Psychiatry.*

Olive Jean Dunn, Ph.D., *Professor of Biostatistics and Biomathematics.*

Robert Eisenberg, Ph.D., *Professor of Physiology, Biomathematics and Engineering and Applied Science.*

*Donald J. Jenden, B.Sc., M.B., B.S., *Professor of Pharmacology and Biomathematics.*

Robert I. Jennrich, Ph.D., *Professor of Biomathematics and Mathematics.*

Frank J. Massey, Ph.D., *Professor of Biostatistics and Biomathematics.*

Carol M. Newton, M.D., Ph.D., *Professor of Biomathematics (Chairman of the Department) and Professor of Radiological Sciences.*

Charles J. Stone, Ph.D., *Professor of Mathematics and Biomathematics.*

V. Krishna Murthy, Ph.D., *Adjunct Associate Professor of Biomathematics.*

Mary Anne Spence, Ph.D., *Associate Professor of Biomathematics and Psychiatry in Residence.*

James W. Frane, Ph.D., *Adjunct Assistant Professor of Biomathematics.*

Harvey Frey, M.D., Ph.D., *Adjunct Assistant Professor of Biomathematics and Radiological Sciences.*

Kenneth L. Lange, Ph.D., *Assistant Professor of Biomathematics.*

Samuel Moise, Jr., Ph.D., *Adjunct Assistant Professor of Biomathematics and Assistant Research Anatomist.*

♦

Peter O. Anderson, Ph.D., *Visiting Assistant Research Statistician.*

Morton B. Brown, Ph.D., *Visiting Associate Research Statistician.*

Alan B. Forsythe, Ph.D., *Lecturer in Biomathematics and Dentistry.*

Michael A. Fox, Ph.D., *Lecturer in Biomathematics.*

James Gips, Ph.D., *Assistant Research Computer Scientist.*

Norman J. Johnson, Ph.D., *Assistant Research Statistician.*

M. Ray Mickey, Ph.D., *Research Statistician and Lecturer in Biomathematics.*

Arthur Peskoff, Ph.D., *Lecturer in Biomathematics and Associate Research Physiologist.*

Robert J. Sclabassi, Ph.D., *Lecturer in Biomathematics and Neurology and Associate Research Neurologist.*

Karen K. Yuen, Ph.D., *Assistant Research Statistician.*

Biomathematics relates to the biological domain, which comprises many and diverse sciences, much as mathematical physics relates to the physical. It also seeks to develop theoretical and computational vehicles for moving basic research findings rapidly and effectively into medicine. The Department of Biomathematics offers both methodologically-oriented and biologically subject-oriented course sequences in biomedical computation, modeling, and the relating of models to data and to experimental or treatment strategies. It is responsible for such training in the medical curriculum, and the department offers the M.S. and Ph.D. in Biomathematics.

Admission to Graduate Status

Candidates for admission to graduate status in the Department of Biomathematics must conform to the general admissions requirements set by the Graduate Division and have received the bachelor's degree in mathematics, one of the biological or physical sciences, or the premedical curriculum. Candidates also must submit results of the Aptitude and the Advanced Tests of the Graduate Record Examination. In general, at the time of admission, students must have completed two years of mathematics through second-year calculus and elementary organic chemistry and biochemistry (equivalent to Chemistry 21, 22, and 24.)

Ideal course preparation should also include the equivalent of Mathematics 150A-150B-150C, 115, and 135A-135B-135C: 16 or more quarter units of biology; 12 quarter units of physics (preferably equivalent to the Physics 7 series); physical chemistry (equivalent to Chemistry 110A-110B); and some training in statistical and computer methods. In certain cases, at the discretion of the Department, students lacking some of this preparation but with exceptionally strong backgrounds in other areas pertinent to biomathematics may be admitted to graduate status, provided that deficiencies are removed by appropriate courses within a specified time after admission.

Requirements for the Master's Degree

Students entering graduate study in the Department of Biomathematics will normally be expected to pursue the Ph.D. degree only. Exceptional cases may be considered for the Master of Science Degree and must meet the general requirements set by the Graduate Division for this degree, (see Master's Degree). Students for this degree will be encouraged to follow the Comprehensive Examination Plan. Those permitted to undertake the Thesis Plan will conform to University regulations described under Thesis or Comprehensive Examination. Required courses include: Biomathematics 201, 202A and 203, and two other graduate-level courses in Biomathematics. No foreign language is required.

Requirement for the Doctor's Degree

Candidates for the doctorate in biomathematics must conform to the general requirements set by the Graduate Division for this degree (see candidate in Philosophy Degree). A reading knowledge of French, German or Russian is to be documented by an ETS score of over 500. It is highly recommended this requirement be fulfilled prior to admission to graduate study.

Individually designed curricula will ensure that each student has a strong background in both biology and mathematics. Required courses include Biomathematics 201, 202A, and 203, any courses required for the minor field, and two preceptorships, one of which is in teaching. Yearly comprehensive examinations will evaluate each student's background in mathematics and biology, and especially his biomathematical skill in relating these. Advancement to candidacy follows successful completion of the Biomathematics, Minor Field, and Specialty Qualifying examinations. A Final Oral Qualifying Examination precedes work in the dissertation, and on Oral Final Defense of Dissertation culminating in acceptance of the dissertation completes the candidate's examination requirements. All students entering the doctoral program are expected to have carefully read its more detailed description in Excerpts from the Biomathematics Graduate Degree Proposal, which is available at the departmental office.

Admission Committee Chairman: Robert J. Sclabassi, Ph.D., Department of Biomathematics, School of Medicine, UCLA, Los Angeles, California 90024.

Graduate Adviser: Carol M. Newton, M.D., Ph.D.

Upper Division Courses

107. Introduction to Biomathematics in Genetics.

Prerequisite: introductory genetics course and consent of instructor. A presentation of mathematical modeling in biology with specific reference to analysis of family data in genetics. Topics include linkage and polygenic inheritance.

110. Elements of Biomathematics.

Prerequisite: calculus. Analysis of deterministic models including some general approaches to the study of homeostasis. Conditions under which deterministic and probabilistic descriptions of biological phenomena are appropriate. Both approaches will be applied to selected examples in epidemiology and enzyme kinetics.

Ms. Newton and the Staff

170A-170B-170C. Selected Biomathematical Topics for Researchers in Medicine and Biology.

Prerequisite: none for 170A; for 170B and 170C, elementary calculus. Basic techniques for examination of data, planning of experiments, comparison of theory and experiment. Commonly used models (e.g., compartment, transport) will be developed and used to illustrate the latter. Techniques include use of computer.

Ms. Newton

*Member of the Brain Research Institute.

171A-171B. Selected Topics for Dental Researchers. (½ course)

Prerequisites: Of particular interest to students in Dentistry. Instruction in critical and efficient reading of the dental literature, experimental designs, analysis of data using BMD programs, and some basic modeling techniques. Review of modern biomathematical techniques in craniofacial research and other areas of interest to dentistry.

The Staff

190HA-190HB. Honors Research in Biomathematics.

Prerequisites: Upper division standing, permission of instructor and chairman. Individual research in some aspect of biomathematics designed to acquaint the student in depth with mathematical models and computer applications in biology. Must be taken for at least two quarters and for a total of at least two courses. A thesis is required for completion of the final course.

The Staff

199. Special Studies in Biomathematics. (½ to 2 courses)

Prerequisites: upper division standing and consent of the instructor. Special studies in biomathematics, including either reading assignments or laboratory work or both, designed for appropriate training of each student who registers in this course.

The Staff

Graduate Courses

201. Deterministic Models in Biology.

Prerequisites: linear algebra and differential equations. The conditions under which deterministic approaches can be employed are examined, and conditions where they may be expected to fail. Topics receiving special attention include compartmental analysis, enzyme kinetics, membrane theory, and the homeostatic control of physiological systems.

Ms. Newton and the Staff

202A-202B. Time Series Analysis.

Prerequisites: calculus, linear algebra and probability. Spectral representation, linear time invariant systems, ergodic theory, and prediction theory. Estimation of spectra, coherence, frequency response and bi-spectra. Statistical stability, hypothesis testing, and design. Use of the fast Fourier transform, complex demodulation, and instrumental variables. Biomedical and physical applications.

Mr. Jennrich and the Staff

203. Stochastic Models in Biology.

Prerequisite: Mathematics 150A or equivalent experience in probability. The mathematical description of biological relationships with particular attention directed to areas where the conditions for deterministic models are inadequate. Examples of stochastic models drawn from genetics, physiology, ecology and a variety of other biological and medical disciplines.

Mr. Lange

205. Three-Dimensional Potential Problems in Electrophysiology.

Prerequisites: Differential equations and electrostatics or consent of instructor. Subthreshold electrical properties of cells, microelectrode measurements of intracellular potentials, boundary conditions for current flow across membranes, eigenfunction expansions and singular perturbation analysis of intracellular and extracellular potential distribution in spherical and cylindrical cells.

Mr. Peskoff

206. Modeling of Cellular Systems. (½ course)

Study of recently reported characterizations of differentiating systems, labeling, etc. Deterministic, stochastic, and computer simulation models are developed from simple dividing cellular systems. Biological assumptions, indications for various approaches, and relationships to laboratory research methods are emphasized.

Ms. Newton

M207. Modeling in Genetic Analysis.

(Same as Anthropology M246C.) Prerequisite: graduate standing or consent of instructor. Basic concepts of human genetics with emphasis on methods of computer-oriented genetic analysis. Topics include segregation analysis, genetic linkage, polygenic (quantitative) models, and population stucture.

Ms. Spence

208. Modeling and Analysis of Neuroelectric Data.

For biologists (esp, neuroscientists), but open to other science majors. Mathematical and computer approaches for modeling and developing neural theory are applied to basic neurophysiological phenomena and neural models. Appropriate simulation and statistical techniques are also presented.

The Staff

209. Models of Steady-State Biochemistry. (½ course)

Prerequisite: undergraduate chemistry or biochemistry, mathematics through calculus, FORTRAN. This course will employ computer methods for study and simulation of detailed biochemical subsystems from physiology. Primary emphasis is upon steady-state distributions of fluid and electrolytes across active membranes of systems chosen for their clinical or research interest.

Mr. DeLand

210. Introduction to Biomedical Computation.

Prerequisite: graduate standing. Basic concepts of data acquisition and machine computation, with special reference to biomedical applications.

The Staff

213. Biomedical Laboratory Computation.

Prerequisite: none, however, course 210 is highly recommended. Computational problems encountered in the direct processing of physiological data and in controlling laboratory experiments are analyzed. Experience will be acquired in implementing approaches to these problems on a small laboratory computer widely used in the biological sciences.

Mr. Sclabassi and the Staff

215. Advanced Biomedical Computation.

Prerequisite: course 210 or equivalent programming experience. Biomedical computation enabling those having elementary FORTRAN programming to acquire skills applicable to biomedical research. Use of random-number generators, stochastic modeling, models with differential equations, package programs, specialized applications, interactive modeling on IBM-2250 graphics system. Individual term projects.

Ms. Newton and the Staff

M216. Computer and Biomathematical Applications in Radiological Sciences.

(Same as Radiological Sciences M216.) Prerequisites: Biomathematics 210 and elementary calculus are recommended. Computer and biomathematical methods will be presented that relate to dosimetry, treatment strategies, biological effects of radiation, and laboratory research in radiotherapy and radiobiology.

Mr. Frey, Ms. Newton

220. Topics in Biological Control Theory.

Prerequisite: Calculus, up to differential equations. Biochemical, physiological and neurological phenomena are treated theoretically using the methodology of cybernetics. An approach towards understanding the nervous system is presented with a discussion of neurons, neural nets, perception, and various topics in cybernetics.

Mr. Fox and the Staff

M246B. Probability Models and Statistical Methods in Genetics.

(Same as Anthropology M246B.) Prerequisite: graduate standing, two quarters of statistics, Mathematics 3A, Anthropology 246A. An introduction to probability models and statistical methods in genetics. Maximum likelihood methods for estimating genetics parameters will be introduced and discussed in detail. This course is a prerequisite for Anthropology M246C.

M280. Computational Statistics. (¾ course)

(Same as Mathematics M280 and Public Health M244C.) Prerequisite: Mathematics 150A-150B-150C and 115 or the equivalent. An introduction to the theory and design of statistical programs; pivoting and other technologies used in stepwise regression, nonlinear regression algorithms, algorithms for balanced and unbalanced analysis of variance including the mixed model, iterative rescaling and other methods for log-linear models.

371A-371B. Selected Topics for Dental Researchers. (½ course)

Lectures are the same as for Biomathematics 171. In lieu of examinations and some of the homework, a term project may be completed.

The Staff

401. Biomathematics. (½ course)

Fundamentals of statistical estimation and inference. Emphasis on critical appraisal of current research literature.

The Staff

410. Biomedical Computing: Introduction.

Same lectures as Biomathematics 210. A term project is required in lieu of homework and examinations. To be graded S/U only.

The Staff

470A-470B-470C. Selected Biomathematical Topics for Researchers in Medicine and Biology.

Prerequisite: none for 470A; for 470B and 470C, either elementary calculus or attendance of special sessions before Winter Quarter. Basic techniques for examination of data, planning of experiments, comparison of theory and experiment. Commonly used models (e.g., compartment, transport) will be developed and used to illustrate the latter. Techniques include use of computer.

Miss Newton

Individual Study and Research

596. Directed Individual Study or Research in Biomathematics. (1 to 3 courses)

This course will serve for individual study on topics not yet covered by the offerings of the department. This course can be taken several times for credit when different topics are covered. A letter grade will be used.

The Staff

■ CHEMISTRY

(Department Office, 3010 W. G. Young Hall)

Frank A. L. Anet, Ph.D., *Professor of Chemistry.*

Daniel E. Atkinson, Ph.D., *Professor of Chemistry.*

Kyle D. Bayes, Ph.D., *Professor of Chemistry.*

Paul D. Boyer, Ph.D., *Professor of Chemistry.*

Orville L. Chapman, Ph.D., *Professor of Chemistry.*

Donald J. Cram, Ph.D., *Professor of Chemistry.*

David S. Eisenberg, Ph.D., *Professor of Molecular Biology in Chemistry.*
Mostafa A. El-Sayed, Ph.D., *Professor of Chemistry.*
Paul S. Farrington, Ph.D., *Professor of Chemistry.*
Christopher S. Foote, Ph.D., *Professor of Chemistry.*
E. Russell Hardwick, Ph.D., *Professor of Chemistry.*
M. Frederick Hawthorne, Ph.D., *Professor of Chemistry.*
Thomas L. Jacobs, Ph.D., *Professor of Chemistry.*
Herbert D. Kaesz, Ph.D., *Professor of Chemistry.*
Daniel Kivelson, Ph.D., *Professor of Chemistry. (Chairman of the Department.)*
Charles M. Knobler, Ph.D., *Professor of Chemistry (Vice Chairman of the Department).*
William G. McMillan, Jr., Ph.D., *Professor of Chemistry.*
John P. McTague, Ph.D., *Professor of Chemistry.*
Malcolm F. Nicol, Ph.D., *Professor of Chemistry.*
Howard Reiss, Ph.D., *Professor of Chemistry.*
Verne N. Schumaker, Ph.D., *Professor of Molecular Biology in Chemistry.*
Robert L. Scott, Ph.D., *Professor of Chemistry.*
Roberts A. Smith, Ph.D., *Professor of Chemistry.*
*Kenneth N. Trueblood, Ph.D., *Professor of Chemistry.*
John T. Wasson, Ph.D., *Professor of Geochemistry and Chemistry.*
*Charles A. West, Ph.D., *Professor of Chemistry.*
Francis E. Blacet, Ph.D., D.Sc., *Emeritus Professor of Chemistry.*
Max S. Dunn, Ph.D., LL.D., *Emeritus Professor of Chemistry and Biological Chemistry.*
Clifford S. Garner, Ph.D., *Emeritus Professor of Chemistry.*
Theodore A. Geissman, Ph.D., *Emeritus Professor of Chemistry.*
Thomas L. Jacobs, Ph.D., *Emeritus Professor of Chemistry.*
Willard F. Libby, Ph.D., *Emeritus Professor of Chemistry.*
James D. McCullough, Ph.D., *Emeritus Professor of Chemistry.*
William G. Young, Ph.D., D.Sc., *Emeritus Professor of Chemistry.*
Mario E. Baur, Ph.D., *Associate Professor of Chemistry.*
William M. Gelbart, Ph.D., *Associate Professor of Chemistry.*
Jerome V. V. Kasper, Ph.D., *Associate Professor of Chemistry.*
Jeffery I. Zink, Ph.D., *Associate Professor of Chemisty.*

*Absent on leave, 1976—1977.

John A. Gladysz, Ph.D., *Assistant Professor of Chemistry.*
Jay D. Gralla, Ph.D., *Assistant Professor of Chemistry.*
Eric J. Heller, Ph.D., *Assistant Professor of Chemistry.*
John M. Jordan, Ph.D., *Assistant Professor of Molecular Biology in Chemistry.*
Michael E. Jung, Ph.D., *Assistant Professor of Chemistry.*
Thomas B. Kornberg, Ph.D., *Assistant Professor of Chemistry.*
Harold G. Martinson, Ph.D., *Assistant Professor of Chemistry.*
Julius Rebek, Jr., Ph.D., *Assistant Professor of Chemistry.*
Emil Reisler, Ph.D., *Assistant Professor of Chemistry.*
Lawrence T. Scott, Ph.D., *Assistant Professor of Chemistry.*
Charles E. Strouse, Ph.D., *Assistant Professor of Chemistry.*
Robert M. Sweet, Ph.D., *Assistant Professor of Chemistry in Residence.*
Richard L. Weiss, Ph.D., *Assistant Professor of Chemistry.*

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Arlene A. Russell, M.A., *Lecturer in Chemistry.*
George C. Kennedy, Ph.D., *Professor of Geochemistry and Geology.*

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.

A student may not repeat a chemistry course if he has credit for a more advanced course which has the first course as a prerequisite.

Preliminary Examination in Chemistry

Students who wish to enroll in course 11A or in course 13A must take the Preliminary Examination in Chemistry during the enrollment period for the quarter in which they intend to enroll in these courses. Enrollment usually will be limited to students who have passed the examination. During 1976-1977, the Preliminary Examination in Chemistry is scheduled on September 20, 1976, for the Fall Quarter; January 5, 1977, for the Winter Quarter; and March 30, 1977, for the Spring Quarter. These dates may be changed. The time and location of the examination will be posted on the First Year Chemistry Bulletin Board located near Room 1054 in W. G. Young Hall (Chemistry Building) about two weeks before the announced date of the examination.

The Majors in Chemistry

There are three majors available to the student interested in Chemistry: the regular Chemistry major, the Biochemistry major, and the General Chemistry major. Each of these programs is outlined below. Students are urged to seek help and advice in the Chemistry Undergraduate Office, Room 4016 W. G. Young Hall.

Courses taken to fulfill any of the requirements for any of the Chemistry Department's majors must be taken for a letter grade and not Pass/Not Pass.

CHEMISTRY MAJOR

For students who intend to pursue a career in Chemistry. Designed to provide a strong background in physical and organic chemistry, with at least one elective from another area of chemistry.

Preparation for the Major

Required: Chemistry 11A, 11B, 11BL, 11C, 11CL, (or 13A-13B), 21, 22, 24; Physics 8A, 8B, 8C (8D, strongly recommended); Mathematics 31A, 31B, 31C, 32A, 32C. Another course, directly related to a student's career objectives, may be substituted for the fifth mathematics course upon approval of the Undergraduate Adviser. No specific foreign language is required; however, a reading knowledge of German (at least at the level of German 3) is strongly recommended for students planning to pursue graduate work in Chemistry.

The Major

The minimum requirement for the major in chemistry consists of courses 110A, 110B, 113, 114, 133A, 133B, 133C, 173, and two other upper division or graduate courses in chemistry including at least one laboratory course selected from 136, 144, 154, 174, and 184. Courses 199AA-ZZ may be used on a two-for-one basis to satisfy the upper division elective requirement for the major. Consent of the Undergraduate Adviser is required for each substitution. Research in theoretical chemistry may not be substituted for laboratory work.

BIOCHEMISTRY MAJOR

The major in Biochemistry is intended for students preparing for careers in biochemistry or in other fields requiring extensive preparation in both chemistry and biology.

Preparation for the Major

Chemistry 11A, 11B, 11BL, 11C, 11CL, (or 13A-13B), 21, 22, 24; Mathematics 31A, 31B, 31C, and either 32A or 32C; three courses from Physics 6A*, 6B, 6C, 8A, 8B, 8C, 8D; Biology 1A, 1B.

Major

Chemistry 133A, 133B, 133C, 110A, 156 (or 110L), 157AB (or 153), and 154; plus five upper division life science courses from the following categories: 1) Bacteriology/Biology M132 (or Biology 134); 2) Bacteriology 101; 3) One Course from Biology 137, 138, 140, 153, 154, 158, 161, 162, 165, 166, Bacteriology 111, or 113; 4) One upper division or graduate level course in Biology, Bacteriology, or Biological Chemistry; 5) One upper division or graduate level course in Biology, Bacteriology, Chemistry, Biological Chemistry, Mathematics, or Physics.

*If physics courses from both the 6 and 8 series are taken, undue duplication must be avoided.

GENERAL CHEMISTRY MAJOR

The major in General Chemistry is intended for students who wish to acquire considerable chemical background in preparation for careers outside chemistry. The requirements are accordingly quite flexible. It may be appropriate for some students who plan to enter professional schools, such as those of medicine, dentistry, or public health.

Preparation for the Major

Chemistry 11A, 11B, 11BL, 11C, 11CL, (or 13A-13B), 21, 22, 24; Mathematics 31A, 31B, 31C, and either 32A or 32C; three courses from Physics 6A*, 6B, 6C, 8A, 8B, 8C, 8D.

Major

Six upper division courses in chemistry, including at least one in physical chemistry and at least two with laboratory work; six additional upper division courses. A 2.0 average is required in all upper division chemistry courses. The program should be coherent in terms of the student's interests and objectives, and must be approved by the Chemistry Undergraduate Adviser.

Transfer Students

Transfer students with more than 84 quarter units will be accepted into the Chemistry Department majors only if they have completed the equivalent of Chemistry 11A, 11B, 11BL, 11C, 11CL and Mathematics 31A-31B-31C.

An entering transfer student who has satisfactorily completed a year course in general college chemistry should enter course 21. An entering transfer student who has satisfactorily completed two years of chemistry courses including an introductory course in organic chemistry should take course 22. Transfer students should consult the Chemistry Undergraduate Adviser for assistance in planning their programs.

Graduate Study

The Department of Chemistry offers programs of study and research leading to the M.S. and Ph.D. degrees in chemistry and in biochemistry. Prospective candidates for advanced degrees in chemistry may specialize in any of the following fields: biochemistry, inorganic, organic, or physical chemistry.

A number of Chemistry Department faculty also serve as advisers for interdepartmental graduate programs in Environmental Science and Engineering, Geochemistry, and Molecular Biology.

The general University requirements for the M.S. and Ph.D. degrees are described in the Graduate Section. The M.S. in Chemistry makes use of the Thesis plan. The M.S. in Biochemistry may be obtained by the Thesis Plan or a Comprehensive Examination Plan. A 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 obtained by writing to the Graduate Adviser, Department of Chemistry, University of California, Los Angeles, California 90024.

*If physics courses from both the 6 and 8 series are taken, undue duplication must be avoided.

Course Offerings

Most courses in the Department of Chemistry nominally involve four hours of lecture each week. However, one of the hours may be used for discussion, quiz, individual conference or individual study.

Lower Division Courses

***1C. General Chemistry.**

Lecture, four hours; laboratory, four hours. Prerequisite: course 1B or 3A with grade C or higher, or consent of the instructor. Lecture: electronic structure of atoms, ionic and covalent chemical bonding, molecular structure, oxidation, reduction, Nernst equation, redox equilibria, descriptive inorganic and organic chemistry. Laboratory: redox analysis, preparation of complex ions, introduction to qualitative inorganic and organic analysis.

The Staff in Freshman Chemistry (F,W,Sp)

1N. General Chemistry for the Prenursing Curriculum.

Lecture, four hours; laboratory, four hours. Prerequisite: course 11A (or 1A and 1B) with a grade of C or higher. Recommended for students in the prenursing, prephysical therapy, and predental hygiene curricula. The course emphasizes the principles of chemistry including rates of chemical reactions, and an introduction to organic chemistry and the role and transformations of carbon compounds in living systems. Emphasis is placed on quantitative solution techniques and the preparation, isolation, and characterization of compounds of carbon. Does not meet premedical or predental curricula requirements.

Mr. Jordan (W)

2. Introductory Chemistry.

Lecture and discussion, four hours. This course is designed to meet part of the College of Letters and Science requirements for non-science majors and similar requirements in other colleges. It also serves as a prerequisite to Chemistry 11A for those who have had a course in high school chemistry or are not otherwise adequately prepared. The course deals with the concept of the submicroscopic world of Chemistry, and ranges from protons to proteins in subject matter. This course is not open to students who have received credit for Chemistry 11A.

Mr. Farrington, Mr. Hardwick (F, Sp)

***11A. General Chemistry.**

Lecture, four hours; discussion, one hour. Prerequisites: High school chemistry or Chemistry 2; and three years of high school mathematics. High school physics recommended. (Students lacking the prerequisites may qualify for admission by exceptional performance on the Preliminary Examination for Chemistry.) All Students who intend to take this course must take the Preliminary Examination for Chemistry that is normally given within 10 days before instruction begins. Enrollment is usually limited to students who have passed that examination. Students appearing for the examination must be prepared to identify themselves. This course as well as some of the succeeding first-year courses (11B, 11BL, 11C, 11CL), or courses 13A and 13B, are required of all majors in chemistry and biochemistry and many other fields of science and technology. Atomic theory and stoichiometry; states of matter and phase equilibrium; gases; liquids and solutions; acids, bases, and salts; equilibria in gases and solutions; solubility and solubility equilibria; oxidation and reduction.

The Staff in Freshman Chemistry (F,W,Sp)

***11B. General Chemistry.**

Lecture, three hours; discussion, one hour. Prerequisite: course 11A with grade C or higher or consent of instructor. Thermochemistry and thermodynamics; electrochemistry; chemical kinetics; quantum theory and electronic structure of atoms; periodicity of chemical properties.

The Staff in Freshman Chemistry (F,W,Sp)

***11BL. General Chemistry Laboratory. (¼ course)**

Laboratory, four hours. Prerequisites: course 11A with grade C or higher, or consent of instructor. Course 11B must be taken concurrently or must already have been passed with a grade of C or higher. Enrollment priority, if needed, will be given to those taking 11B concurrently. Use of the balance; gravimetric and volumetric technique; equilibria, thermochemistry and rates of reaction.

The Staff in Freshman Chemistry (F,W,Sp)

***11C. General Chemistry. (¾ course)**

Lecture, two hours. Prerequisite: course 11B with grade C or higher or consent of instructor. Bonding and molecular structure; descriptive inorganic chemistry, presented in terms of the principles discussed in courses 11A and 11B.

The Staff in Freshman Chemistry (F,W,Sp)

***11CL. General Chemistry Laboratory. (½ course)**

Laboratory, eight hours. Prerequisites: course 11BL with grade C or higher. Course 11C must be taken concurrently or must already have been passed with grade C or higher. Enrollment priority, if needed, will be given to those taking 11C concurrently. Redox titrations; precise volumetric analysis; electrochemistry; qualitative inorganic analysis; inorganic synthesis.

The Staff in Freshman Chemistry (F,W,Sp)

13A-13B. General Chemistry, Accelerated Sequence. (1¼ course each)

Lecture and discussion, four hours; laboratory, four hours. Prerequisites: An outstanding high school record in at least three years of mathematics and one year of chemistry. High school physics strongly recommended. All students who intend to take this course must take the Preliminary Examination for Chemistry which will normally be given within 10 days before instruction begins. Enrollment is usually limited to students whose preliminary exam scores are superior in both the mathematics and chemistry sections of the preliminary exam. Mathematics 31A (or 3A) should be taken concurrently with 13A. Chem 13A with grade C or higher is prerequisite for 13B. Lecture: Brief review of topics covered in Chemistry 11A followed by material similar to that in Chemistry 11B and 11C, only at a more intensive level. Laboratory: Use of the balance, molecular weights, use of volumetric equipment, equilibrium constants, electrochemistry, kinetics, qualitative inorganic analysis, inorganic synthesis. Chemistry 13A and 13B cover in two quarters approximately the same material as that in three quarters of Chemistry 11A, 11B, 11BL, 11C, 11CL.

The Staff in Freshman Chemistry (F)

21. Introduction to Organic Chemistry.

Lecture four hours; discussion, one hour. Prerequisite: courses 11C and 11CL (11CL may be taken concurrently) or 13B (or 1C or 3B) with grades of C or higher, or consent of instructor. Functional groups, chemical bonds, molecular structure and stereochemistry of organic compounds; organic reactions of biochemical interest; the classes of compounds most important to biological functions.

Mr. Cram, Mr. Gladysz, Mr. Jung (F,W,Sp)

22. Elementary Biochemistry.

Lecture and discussion, five hours. Prerequisite: course 21 with grade C or higher, or consent of the instructor. Metabolism; enzymes; cell constituents; properties and biosynthesis of nucleic acids and proteins.

Mr. Gralla, Mr. Schumaker, Mr. Weiss (F,W,Sp)

*Chemistry 1C will be given for the final time, Fall '76. Chemistry 1ABC will be replaced by Chemistry 11ABC, 11BCL.

24. Laboratory Methods of Organic and Biochemistry.

Lecture and quiz, two hours; laboratory, eight hours. Prerequisite: courses 11CL (or 1C) and 22, both with grades of C or higher, or consent of the instructor. Methods of separation, purification and analysis of organic compounds: extraction, crystallization, distillation, and chromatography. Purification and characterization of biological macromolecules: spectrophotometry; catalysis; enzyme kinetics; gel filtration and paper chromatography; viscosity; utilization of radioisotopes.

Mr. Kornberg, Mr. Martinson, Mr. Sweet (F,W,Sp)

96. Special Courses in Chemistry. (½ to 1 course)

To be arranged. Prerequisite: consent of the Chemistry Undergraduate Adviser.

The Staff (F,W, Sp)

Upper Division Courses

103. Environmental Chemistry.

Lecture, four hours. Prerequisites: courses 21, 22, 24, and consent of the instructor. Chemical aspects of air and water pollution, solid waste disposal, energy resources, and pesticide effects. Chemical reactions in the environment, and the effect of chemical processes on the environment.

Mr. Baur (Sp)

110A. Physical Chemistry: Chemical Thermodynamics.

Lecture and quiz, four hours. Prerequisites: courses 11C (or 1C), Physics 6C or 8B, Mathematics 31C or, for life science majors, Mathematics 3C. Properties of gases; laws of thermodynamics; free energy; entropy; chemical potential and chemical equilibrium; thermodynamics of solutions.

The Staff in Physical Chemistry (F,W,Sp)

110AG. Physical Chemistry: Chemical Thermodynamics.

Lecture and quiz, four hours. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 110A in this institution.

The Staff in Physical Chemistry (F,W,Sp)

110B. Physical Chemistry: Chemical Equilibrium, Electrochemistry, and Kinetics.

Lecture and quiz, four hours. Prerequisites: course 110A, Physics 8C. Introduction to statistical thermodynamics, kinetic theory of gases, chemical kinetics, phase equilibria, chemical equilibria in solutions, electrochemistry.

The Staff in Physical Chemistry (F,W,)

110BG. Physical Chemistry: Chemical Equilibrium, Electrochemistry, and Kinetics.

Lecture and quiz; four hours. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 110B in this institution.

The Staff in Physical Chemistry (F,W,)

113. Physical Chemistry: Introduction to Quantum Chemistry.

Lecture and quiz, four hours. Prerequisite: courses 11C (or 1C), Physics 6C or 8C, Mathematics 32C. An introduction to the principles and applications of quantum chemistry; atomic structure and spectra; harmonic oscillator; rigid rotor, molecular spectra.

Mr. El-Sayed, Mr. Kasper (F,Sp)

113G. Physical Chemistry: Introduction to Quantum Chemistry.

Lecture and quiz, four hours. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 113 at this institution.

Mr. El-Sayed, Mr. Kasper (F,Sp)

114. Physical Chemistry Laboratory.

Lecture, two hours; laboratory, eight hours. Prerequisites: courses 11C, 11CL (or 1C), 110A, 110B, and 113 or consent of the instructor. Lecture: techniques of physical measurement, error analysis and statistics, special topics. Laboratory: spectroscopy, thermodynamic measurements, and chemical dynamics.

The Staff in Physical Chemistry (F,W,Sp)

115A-115B. Quantum Chemistry.

Lecture, four hours. Prerequisites: course 113, Mathematics 32C. Recommended: Knowledge of differential equations equivalent to Mathematics 130B or Physics 131 and of analytic mechanics equivalent to Physics 105A. Course 115A or Physics 115B is prerequisite for course 115B. Postulates and systematic development of nonrelativistic quantum mechanics; expansion theorems; wells; oscillators; angular momentum; hydrogen atom; matrix techniques; approximation methods; time dependent problems; atoms; spectroscopy; magnetic resonance; chemical bonding. Students entering course 115A will normally be expected to take course 115B the following quarter. These two courses are designed for chemistry students, primarily physical chemistry students, with a serious interest in quantum chemistry.

Mr. McMillan (115A-W; 115B-Sp)

116. Quantum Theory of Chemical Structure.

Lecture, four hours. Prerequisite: course 113. Brief review of fundamental postulates. Expansions and approximation techniques; atoms; molecular orbital and valence bond approaches; ligand field theory, molecular spectroscopy. A terminal course which emphasizes principles, limitations, and chemical applications without a detailed discussion of mathematical and quantum mechanical techniques. Not open to students who have received credit for course 115B.

Mr. Bayes, Mr. Kasper, Mr. Reiss (W)

123A-123B. Classical and Statistical Thermodynamics.

Prerequisite: course 110B. Rigorous presentation of the fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability ensembles, partition functions, independent molecules and the perfect gas. Applications of classical and statistical thermodynamics selected from diatomic polyatomic gases, the solid and fluid states, phase equilibria, electric and magnetic effects, ortho-para hydrogen, chemical equilibria, reaction rates, the imperfect gas, non-electrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation.

Mr. Knobler, Mr. R. Scott (F,W)

125. Computers in Chemistry.

Lecture: three hours. Prerequisites: courses 110A, 110B, 113, and a working knowledge of FORTRAN IV or PL/1. Discussion of computer techniques, including matrix manipulation, solution of differential equations, data acquisition and instrumental control, and their applications to chemical problems in quantum mechanics, thermodynamics, and kinetics.

Mr. Kasper, Mr. Levine (F)

133A. Intermediate Organic Chemistry.

Lecture and quiz, three hours; laboratory, four hours. Prerequisite: course 24. Lecture: Structure, reactivity and spectroscopic properties of organic compounds. Laboratory: Methods of organic reactions, synthesis, isolation and characterization.

Mr. Anet, Mr. Chapman (F,W)

133AG. Intermediate Organic Chemistry. (½ course)

Lecture and quiz, three hours. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 133A in this Institution.

Mr. Anet, Mr. Chapman (F,W)

133B. Intermediate Organic Chemistry.

Lecture and quiz, three hours; laboratory, four hours. Prerequisite: course 133A. Lecture: Reactions, mechanisms and synthesis in organic chemistry; common classes of compounds and reactions. Laboratory: Methods of organic reactions, synthesis, isolation and characterization.

Mr. Anet, Mr. Chapman (W,Sp)

133BG. Intermediate Organic Chemistry. (½ course)

Lecture and quiz, three hours. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 133B in this institution.

Mr. Anet, Mr. Chapman (W,Sp)

133C. Intermediate Organic Chemistry.

Lecture and quiz, three hours; laboratory, four hours. Prerequisite: course 133B. Lecture: Reactions, mechanisms and synthesis in organic chemistry; complex molecules and natural products; polymers. Laboratory: Methods of organic reactions, synthesis, isolation and characterization.

Mr. Anet, Mr. Chapman (F,Sp)

133CG. Intermediate Organic Chemistry. (½ course)

Lecture and quiz, three hours. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 133C in this institution.

Mr. Anet, Mr. Chapman (F,Sp)

136. Organic Structural Methods.

Lecture, two hours; laboratory eight hours. Prerequisites: courses 133A, 133B, 133C, or equivalent, with grades of C or higher, or consent of instructor. A laboratory course in organic structure determination by chemical and spectroscopic methods; microtechniques.

Mr. Chapman, Mr. Gladysz (F)

143. Structure and Mechanism in Organic Chemistry.

Lecture and discussion, three hours. Prerequisites: courses 133A, 133B, 133C (may be taken concurrently), 110A, 110B, 113, or equivalent, with grades of C or higher, or consent of instructor. Simple molecular orbital theory, aromaticity, orbital symmetry effects in thermal and photochemical pericyclic reactions, substituent effects, linear free energy relationships, nucleophilic and electrophilic character in solvolysis, medium effects, mechanisms of organic reactions involving carbonium ions, carbanions, carbenes and free radicals.

Mr. Chapman (F)

144. Laboratory Methods in Organic Synthesis.

Lecture, two hours; laboratory, eight hours. Prerequisite: course 133C, or equivalent instruction including spectroscopic methods of organic chemistry, with grade of C or higher or consent of instructor. Laboratory methods of synthetic organic chemistry including reactions under inert atmosphere, semimicro-scale reaction techniques, synthesis of natural products and molecules of theoretical interest.

Mr. Jung (W)

144G. Laboratory Methods in Organic Synthesis (½ course)

Lecture, two hours. Consists of the lecture portion *only* of course 144. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 144 in this institution and who do not wish to take the laboratory of course 144.

*153. Biochemistry.

Lecture, four hours. Prerequisite: course 22. Survey of biochemistry, with emphasis on chemical properties associated with biological function.

Mr. Smith (F)

*Chemistry 153 will be given for the final time, Fall 1976. Course to be replaced by Chemistry 157A-157B.

154. Biochemical Methods.

Lecture and quiz, two hours; laboratory, eight hours. Prerequisite: courses 24, 156 or 110L, 157A-157B (157B may be taken concurrently) or 153, or consent of the instructor. Applications of biochemical procedures to metabolic reactions; properties of living systems; enzymes; proteins; nucleic acids and other tissue constituents.

Mr. Jordan, Mr. Schumaker, Mr. Weiss (F,W,Sp)

156. Physical Biochemistry

Lecture, four hours. Prerequisite: course 110A. Solution thermodynamics and electrochemistry of biochemical systems; enzyme kinetics; physical biochemistry of proteins and membranes.

The Staff in Biophysical Chemistry (F, Sp)

157A. Biochemistry.

Lecture, four hours; discussion, one hour. Prerequisites: course 156, course 133B prerequisite or concurrent. Enzymes; metabolic pathways and their integration and regulation; biological energetics.

The Staff in Biochemistry (F, W)

157B. Biochemistry.

Lecture, four hours; discussion, one hour. Prerequisite: course 157A. Biosynthetic metabolism; synthesis of nucleic acids and proteins, and control of these processes.

The Staff in Biochemistry (W, Sp)

158. Seminar in Biochemistry. (¼ course)

Discussion, one hour. Prerequisite: course 22. Small-scale discussions. Topics will vary between sections, and may include, for example, the historical and conceptual foundations of Biochemistry, relations of Biochemistry to medical and social problems, and surveys of areas of current research interest. Pass/Not Pass grades are used for this course. May be repeated for credit.

173. Structural Inorganic Chemistry.

Lecture, three hours. Prerequisites: courses 113, 110A (may be taken concurrently); 133B recommended. Introductory survey of structure and bonding in inorganic compounds; molecular stereochemistry; donor-acceptor interactions; coordination compounds of the transition metals; elements of crystal field and ligand field theory.

Mr. Kaesz (F,Sp)

174. Inorganic and Metalorganic Laboratory Methods.

Lecture, two hours; laboratory, eight hours. Prerequisites: courses 24, 173 (may be taken concurrently) or consent of the instructor. Synthesis of inorganic compounds including air-sensitive materials; dry-box, vacuum line and high-pressure techniques; Schlenck methods; chromatographic and ion exchange separations.

Mr. Hawthorne, Mr. Kaesz (W)

175. Inorganic Reaction Mechanisms.

Lecture and quiz, three hours. Prerequisites: courses 110A, 110B and 113 or consent of the instructor. Survey of inorganic reactions; mechanistic principles; electronic structure of metal ions; transition-metal coordination chemistry; inner- and outer-sphere and chelate complexes; substitution, isomerization and racemization reactions; stereochemistry; oxidation - reduction, free - radical, polymerization and photochemical reactions of inorganic species.

Mr. Hawthorne (Sp)

176A. Structure and Bonding of Inorganic Compounds.

Lecture, three hours. Prerequisites: courses 113, 173. Group theoretical methods; molecular orbital and ligand field theories; electronic and magnetic properties of transition metal complexes; metal-metal bonding and metal cluster compounds.

Mr. Strouse, Mr. Zink (F)

176B. Physical Methods for the Characterization of Inorganic Compounds.

Lecture, three hours. Prerequisite: course 176A or consent of instructor. Applications of spectroscopic techniques including IR, Raman, visible, UV, NMR, ESR, and NQR to the elucidation of structure and bonding in inorganic and organometallic compounds.

Mr. Strouse, Mr. Zink (W)

184. Chemical Instrumentation.

Lecture and quiz, two hours; laboratory eight hours. Prerequisite: course 110A. Theory and practice of instrumental techniques of chemical and structural analysis including atomic absorption spectroscopy, gas chromatography, mass spectrometry, nuclear magnetic resonance, polarography, x-ray fluorescence and other modern methods.

Mr. Strouse, Mr. Wasson (F,Sp)

190A-190ZZ. Undergraduate Thesis Research.

Prerequisite: two quarters of chemistry 199A-ZZ on related material and approval of the Undergraduate Adviser and Research Director. Final quarter of an integrated one-year research project. Can consist of experimental and/or theoretical research or, in some cases, a comprehensive review of a given area. A thesis embodying the totality of the year's work is to be submitted, and an oral presentation will be made. This course is suggested, but not required, for those seeking departmental honors at graduation.

The Staff (F,W,Sp)

196. Special Courses in Chemistry. (½ to 1 course)

To be arranged. Prerequisite: consent of the Chemistry Undergraduate Adviser.

The Staff (F,W,Sp)

199A-ZZ. Directed Individual Study or Research for Undergraduate Students. (½ to 2 courses)

To be arranged with individual faculty members involved. Each faculty member has a unique letter designation, which is the same for the 199 and 599 series. Prerequisite: junior standing and consent of the Chairman of the Department of Chemistry. This consent must be based upon a written proposal outlining the study or research to be undertaken. The proposal should be worked out in consultation with the faculty member involved and submitted at the Chemistry Undergraduate Adviser's Office before the first day of the quarter. At the close of each quarter, a report describing the student's program of study or research and signed by the student and supervising faculty member must be submitted to the Chemistry Undergraduate Adviser, who should be consulted concerning the format of the report and deadlines for submission. A maximum of three 199 courses may be taken, only one of which may be for a letter grade. With the consent of the Chemistry Undergraduate Adviser, two 199 courses may be used to fulfill one of the two upper division chemistry elective course requirements for the chemistry major. Approval of other than four units per quarter is allowed only under unusual circumstances.

The Staff (F,W,Sp)

Graduate Courses

207. Organometallic Chemistry.

Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. Survey of synthesis, structure and reactivity (emphasizing a mechanistic approach) of compounds containing carbon bonded to elements selected from the main group metals, the metalloids and the transition metals; olefin π-complexes and metal carbonyls; applications in catalysis and organic synthesis.

213. Advanced Quantum Chemistry.

Lecture: four hours. Prerequisites: course 115B, Physics 131. Topics in quantum chemistry selected from molecular structure, collision processes, theory of solids, symmetry and its applications, and theory of electromagnetic radiation.

Mr. McMillan (W)

215. Molecular Spectra, Diffraction and Structure.

Lecture and quiz, four hours. Prerequisites: course 115B, Physics 131. Selected topics from electronic spectra of atoms and molecules; vibrational, rotational and Raman spectra; magnetic resonance spectra; x-ray, neutron and electron diffraction; coherence effects.

Mr. El-Sayed (F)

218. Physical Chemistry Student Seminar. (½ course)

Seminars are presented by staff, outside speakers, postdoctoral fellows and graduate students. Each student doing research in physical chemistry is required to give a seminar on a timely and significant topic outside his immediate research specialty, ordinarily during the second year of graduate study. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.

The Staff in Physical Chemistry (F,W,Sp)

221A-221Z. Advanced Topics in Physical Chemistry. (½ course each)

Lecture, two hours. Prerequisite: consent of the instructor. Each course will encompass a recognized specialty in physical chemistry, and will be taught by a staff member whose research interests embrace that specialty.

The Staff in Physical Chemistry

223. Statistical Mechanics.

Lecture and quiz, four hours. Prerequisites: courses 115B, 123B, Physics 131. Fundamentals of statistical mechanics; classical equations of state; coulomb systems; phase transitions; quantum statistical mechanics; quantum corrections to the equation of state; density matrix; second quantization.

Mr. Baur (Sp)

225. Chemical Kinetics.

Lecture and quiz, four hours. Prerequisites: courses 115A, 123A, 123B. Theories of chemical reactions and their applications to experimental systems; general kinetic postulates; theories of elementary reactions; energy transfer processes; experimental studies.

Mr. Kasper (Sp)

M226. Chromosome Structure and Regulation.

(Same as Micribiology M226, Biology M226, Biological Chemistry M226 and Microbiology and Immunology M226.) Prerequisite: consent of instructor. Lectures and panel discussions on the structural and functional organization of eukaryotic chromosomes.

228. Chemical Physics Seminar. (½ course)

Seminars will be presented by staff, outside speakers, postdoctoral fellows and graduate students. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.

The Staff in Chemical Physics (F,W,Sp)

232. Stereochemistry and Conformational Analysis.

Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. Molecular symmetry, chirality, prochirality, stereochemistry in vinyl polymers, atropisomerism, diastereomeric interactions in solution, conformations of acyclic and cyclic molecules.

234. Reactive Intermediates in Organic Chemistry.

Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. Structure and chemistry of reactive interme-

diates in organic chemistry: carbonium ions, carbanions, free radicals, carbenes, nitrenes, arynes, and other high energy molecules. Emphasis on mechanism and structure reactivity correlation.

(W)

236. Spectroscopic Methods of Organic Chemistry.

Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. Proton and carbon-13 nuclear magnetic resonance; photoelectron, ultraviolet, infrared, and Raman spectroscopy; optical rotatory dispersion and circular dichroism; mass spectrometry.

241A-241Z. Special Topics in Organic Chemistry.

Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently), or equivalent, or consent of instructor. Each course will encompass a recognized specialty in organic chemistry, generally taught by a staff member whose research interests embrace that specialty.

242. Organic Photochemistry.

Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. Interactions of light with organic molecules, mechanistic and preparative photochemistry.

244. Strategy and Design in Organic Synthesis.

Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. The theory behind the planning of syntheses of complex molecules from simpler ones. Organic reactions and their use in the synthetic process. The reasoning and art involved in organic synthesis.

245. Applications of Electronic Theory in Organic Chemistry.

Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. A review of molecular orbital theory; introduction to alternative theoretical methods; aromaticity and homoaromaticity; Hückel and Möbius conjugation; Woodward-Hoffmann theory of concerted pericyclic reactions; the estimation of through-bond and through-space interactions; an introduction to photoelectron spectroscopy; related special topics.

246. Bio-Organic Chemistry.

Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. Organic chemical models for biological processes; synthetic models for enzymic complexation, catalysis and inhibition; models for transport; solid support chemistry; mechanisms for differential complexation.

247. Mechanistic and Synthetic Chemistry Seminar. (½ course)

Seminars will be presented by staff, outside speakers, postdoctoral fellows and graduate students. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.

Mr. Anet, Mr. Cram, Mr. Hawthorne (F,W,Sp)

248. Organic Chemistry Student Seminar. (½ course).

Seminars are presented by staff, outside speakers, postdoctoral fellows and graduate students. Each student doing research in organic chemistry is required to give a seminar on a timely and significant topic outside his immediate research specialty, ordinarily during the second year of graduate study. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.

The Staff in Organic Chemistry

249. Advanced Organic Problems Seminar. (½ course)

Problems in synthesis, stereochemistry and organic reaction mechanisms are discussed. Intended primarily for first and second year graduate students as preparation for cumulative exams. Satisfactory/Unsatisfactory grades are used for this course. May be repeated for credit.

251A-251Z. Advanced Topics in Biochemistry. (½ course)

(Formerly numbered 261A-261F) Lecture, two hours. Prerequisite: consent of the instructor. Each course will encompass a recognized specialty in biochemistry, and will be taught by a staff member whose research interests embrace that specialty.

The Staff in Biochemistry

M253. Proteins and Nucleic Acids.

(Same as Biological Chemistry M253.) Lecture and quiz, four hours. Prerequisite: courses 156, Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B, or equivalent. Chemical and physical properties of proteins, amino acids, nucleotides and nucleic acids; structure and sequence determination; correlation of structure and biological properties; synthesis and properties of biological properties; syntheses and properties of polypeptides and polynucleotides.

The Staff in Biochemistry and Biological Chemistry (F)

254. Advanced Biochemical Methods.

Lecture and quiz, two hours; laboratory, eight hours. Prerequisite: course 156, Chemistry 157A, Chemistry 157B recommended (may be taken concurrently), or consent of the instructor. Theoretical and practical basis of metabolic, chromatographic, kinetic, electrophoretic, ultracentrifugal, isotopic and other techniques as applied to biochemical systems.

Mr. Eisenberg, Mr. Schumaker (W)

M255. Biological Catalysis.

(Same as Biological Chemistry M255.) Lecture and quiz, four hours. Prerequisites: courses 156, Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B, or equivalent. Discussion of approaches to the understanding of enzymes and enzymic catalysis; characteristics of different enzymes and enzymic reactions of special biological processes.

Mr. Boyer (Sp)

M257. Physical Chemistry of Biological Macromolecules. (½ course)

(Same as Biological Chemistry M257.) Lecture, two hours. Prerequisite: Chemistry 22 and Chemistry 110A. Theory of hydrodynamic, thermodynamic, optical and x-ray techniques used to study the structure and function of biological macromolecules.

Mr. Schumaker (F)

258. Biochemistry Student Seminar. (½ course).

Seminars are presented by graduate students on topics of current biochemical interest. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.

The Staff in Biochemistry (F,W,Sp)

M261. Advanced Chemistry and Biochemistry of Lipids. (½ course)

(Formerly numbered Biological Chemistry 261 and same as Biological Chemistry M261.) Lecture, two hours. Prerequisites: Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B, or equivalent. Knowledge of elementary chemistry and biochemistry of lipids essential. The biochemistry of lipids including chemical and physical characteristics of lipids and their metabolism.

Mr. Howton, Mr. Mead, Mr. Popjak

262. Biological Energy Transductions.

Prerequisite: course M253. Molecular basis of energy-transducing processes, including oxidative and photosynthetic phosphorylation, other energy-linked oxidative functions, membrane active transport, muscle contraction, and special sensory functions.

M263. Cellular Metabolism. (½ course)

(Same as Biological Chemistry M263.) Lecture, two hours. Prerequisites: Chemistry 156, Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B, or equivalent. Patterns of biological degradation and synthesis; metabolic interrelationships and control; energetics of metabolism.

Mr. Atkinson, Mr. West and the Staff in Biological Chemistry (W)

M267. Nucleic Acid and Protein Metabolism. (½ course)

(Same as Biological Chemistry M267.) Lecture, two hours. Prerequisite: Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B, or equivalent. Mechanisms of nucleic acid and protein biosynthesis and degradation and their interrelationships with molecular genetics and control.

Mr. Zabin

268. Biochemistry Research Seminar. (½ course)

Seminars are presented by staff, outside speakers, postdoctoral fellows and graduate students on topics of current biochemical research interest. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.

The Staff in Biochemistry (F,W,Sp)

M269. Developmental Biochemistry. (½ course)

(Same as Biological Chemistry M269.) Prerequisite: Chemistry M267 or consent of instructor. This course will deal with the biochemical aspects of development, specific tissue and cell function, and differential gene expression. The biochemistry of cell division, macromolecular synthesis, chromatin function in gene expression, cell-cell interactions, membrane organization, and growth will be studied as they contribute to such topics as hormone induction, morphogenesis and viral transformation. Emphasis will be placed on the use of differentiating in vivo systems and cell culture as models.

271A-271Z. Advanced Topics in Inorganic Chemistry. (½ course each)

Lecture, two hours. Prerequisite: consent of the instructor. Each course will encompass a recognized specialty in inorganic chemistry, and will be taught by a staff member whose research interests embrace that specialty.

The Staff in Inorganic Chemistry

273. Nuclear Chemistry.

Lecture and quiz, four hours. Prerequisite: consent of the instructor. Radioactivity; nuclear reactions; interactions of nuclear radiation with matter; nuclear detection methods; preparation, isolation and identification of radionuclides; chemical effects of nuclear transformations; isotope effects; application of isotopes in chemistry.

(Sp)

278. Inorganic Chemistry Student Seminar. (½ course)

Seminars are presented by staff, outside speakers, postdoctoral fellows and graduate students. Each student doing research in inorganic chemistry is required to give a seminar on a timely and significant topic outside his immediate research specialty, ordinarily during the second year of graduate study. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.

(F,W,Sp)

282. Trace Analysis.

Lecture, three hours. Prerequisite: course 184. Theory, instrumentation, and current practice of techniques for the analysis of elements and substances at trace (100ppm) concentrations. Techniques discussed include

neutron activation, x-ray fluorescence, emission spectroscopy, mass spectroscopy, atomic absorption spectroscopy and current techniques used for monitoring air pollutants.

Mr. Wasson (W)

Individual Study and Research

596A-596ZZ. Directed Individual Study or Research. (½ to 4 courses)

To be arranged with the member of the faculty who will direct the study or research. The member of the faculty directing the study or research will be identified by the same two-letter code used to identify his 599 research course. Prerequisite: consent of the Chemistry Graduate Adviser. With the consent of the Chemistry Graduate Adviser, courses of directed individual study, but not research courses, may be used to fulfill the departmental requirement for the Master's degree of three courses selected from courses 115A, 115B, 123A, 123B, 143, or any graduate level course. Graded on a satisfactory/unsatisfactory basis.

The Staff (F,W,Sp)

Courses in Related Fields

597. Preparation for the Doctoral Qualifying Examination or the Master's Comprehensive Examination. (½ to 2 courses)

Prerequisite: consent of the Chemistry Graduate Adviser. Course 597 may not be used to fulfill any of the course requirements for the Master's or Doctor's degrees. Graded on a satisfactory/unsatisfactory basis.

The Chemistry Graduate Adviser (F,W,Sp)

598A-598ZZ. Research for and Preparation of the Master's Thesis. (½ to 4 courses)

Each member of the faculty supervises research of master's students and holds research group meetings, seminars, and discussions with the students that take his master's research course which is identified by the same two-letter code used to identify his 599 research course. Research courses in the 596A-ZZ, 598A-ZZ, and 599A-ZZ series may be used to fulfill not more than six of the nine quarter courses required for the M.S. Degree.

The Staff (F,W,Sp)

599A-599ZZ. Research for and Preparation of the Doctoral Dissertation. (½ to 4 courses)

Each member of the faculty supervises research of doctoral students and holds research group meetings, seminars, and discussion with the students that take his doctoral research course. Each faculty member has his own doctoral research course identified by a two letter code as follows:

F. A. L. Anet, 599FA; D. E. Atkinson, 599DA; M. E. Baur, 599MB; K. D. Bayes, 599KB; P. D. Boyer, 599PB; D. J. Cram, 599DC; D. S. Eisenberg, 599SE; M. A. El Sayed, 599ME; P. S. Farrington, 599PF; C. S. Foote, 599CF; W. M. Gelbart, 599WG; J. A. Gladysa 599JG; J. D. Gralla, 599DG; E. R. Hardwick, 599RH; M. F. Hawthorne, 599FH; E. J. Heller, 599TK; J. M. Jordan, 599JJ; H. D. Kaesz, 599HK; J. V. V. Kasper, 599JK; D. Kivelson, 599DK; C. M. Knobler, 599CK; T. B. Kornberg, 599TK; H. G. Martinson, 599HM; W. G. McMillan, 599WM; J. P. McTague, 599PM; M. F. Nicol, 599MN; J. Rebek, 599JR; E. Reisler, 599ER; H. Reiss, 599HR; V. N. Schumaker, 599VS; L. T. Scott, 599LS; R. L. Scott, 599RS; R. A. Smith, 599AS; C. E. Strouse, 599CS; K. N. Trueblood, 599KT; J. T. Wasson, 599JW; C. A. West, 599CW; J. I. Zink, 599JZ.

(F,W,Sp)

Many courses of interest to Chemistry and Biochemistry majors are listed under Physics, Biology, and Bacteriology. Outside the College of Letters and Science, the attention of students is directed to Engineering 238D, Atomic and Molecular Collisions and Engineering 232D, Molecular Dynamics.

■ CLASSICS

(Department Office, 7349 Bunche Hall)

Milton V. Anastos, Ph.D., *Professor of Byzantine Greek and History.*

Philip Levine, Ph.D., *Professor of Classics.*

Bengt T. M. Lofstedt, Ph.D., *Professor of Mediaeval Latin.*

Jaan Puhvel, Ph.D., *Professor of Classics and Indo-European Studies.*

Albert H. Travis, Ph.D., *Professor of Classics.*

Frederick M. Carey, Ph.D., *Emeritus Professor of Classics.*

Paul A. Clement, Ph.D., *Emeritus Professor of Classics and Classical Archaeology.*

Herbert B. Hoffleit, Ph.D., *Emeritus Professor of Classics.*

J. Norman H. Austin, Ph.D., *Associate Professor of Classics and Comparative Literature.*

Steven Lattimore, Ph.D., *Associate Professor of Classics and Classical Archaeology.*

Eva Inoue, Ph.D., *Assistant Professor of Classics.*

Frank A. Lewis, Ph.D., *Assistant Professor of Classics.*

_____, *Assistant Professor.*

_____, *Assistant Professor.*

♦

Helen F. Caldwell, M.A., *Senior Lecturer in Classics, Retired.*

Barbara E. Killian, M.A., *Lecturer in Classics.*

Evelyn V. Mohr, M.A., *Lecturer in Classics.*

Major Fields in the Department

The student may take the major in Greek, in Latin, or in the Classics (i.e., Greek and Latin). 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

Required: Greek 1, 2, 3 and Latin 1, 2, 3, or the equivalent.

The Major

Greek. Required: (1) nine upper division courses in Greek, including Greek 110; (2) one upper division course in Latin; (3) Classics 142 and either Classics 141 or 143. (4) two courses in Greek or Roman history (History 112A-112B, 113A-113B, 111B, 111C); (5) two additional courses in one or two of the related areas, classical archaeology (Classics 151A-151B-151C), classical mythology (Classics 161, 162), Greek and Roman religion (Classics 166A-166B), ancient philosophy (Philosophy 101, 102, Greek 121, 122, 123, 124), Byzantine civilization (Classics M70, M170A, M170B, History 123A-123B-123C), medieval Latin literature (Latin 131, 133), medieval history (History 121A-121B). Total required: 16 courses.

Latin. Required: (1) nine upper division courses in Latin, including Latin 110; (2) one upper division course in Greek; (3) Classics 143 and either Classics 141 or 142. (4) two courses in Greek or Roman history (History 112A-112B, 113A-113B, 111B-111C); (5) two additional courses in one or two of the related areas, classical archaeology (Classics 151A-151B-151C), classical mythology (Classics 161, 162), Greek and Roman religion (Classics 166A-166B), ancient philosophy (Philosophy 101, 102, Greek 121, 122, 123, 124), Byzantine civilization (Classics M70, M170A, M170B, History 123A-123B-123C), medieval Latin literature (Latin 131, 133), medieval history (History 121A-121B). Total required: 16 courses.

Classics (Greek and Latin). Required: (1) fourteen upper division courses, seven in Greek and seven in Latin, including Greek 110 and Latin 110; (2) two courses in the history of Graeco-Roman literature in English translation (Classics 141, 142, 143); (3) two courses in Greek or Roman history (History 112A-112B, 113A-113B, 111B, 111C). Total required: 18 courses. Additional courses in related areas are recommended (see under Requirement 5 of the Greek or Latin major).

Note: Students in any of the three majors are permitted to take Greek 200A-200B-200C and Latin 200A-200B-200C. *Two* of these courses may be counted as replacing *one* course in Requirement 3 of the Greek and Latin majors and Requirement 2 of the Classics major, as well as two courses in Requirement 1 of all three majors, thereby reducing the total number of required courses by one.

JOINT MAJOR FIELDS WITH OTHER DEPARTMENTS

English-Greek
Preparation for the Major

English 2, 10A, 10B, 10C; Greek 1, 2, 3.

The Major

(1) Seven courses selected from English 140-190 in consultation with an adviser in the Department of English; (2) seven upper division or graduate courses in Greek, including 100 and either 101A or 101B, chosen in consultation with an adviser in the Department of Classics: of these seven courses at least two will be in poetry and two in prose. Total required: 14 courses.

English-Latin
Preparation for the Major

English 2, 10A, 10B, 10C; Latin 1, 2, 3.

The Major

(1) Seven courses selected from English 140-190 in consultation with an adviser in the Department of English; (2) seven upper division or graduate courses in Latin, including 105A and 113, chosen in consultation with an adviser in the Department of Classics; of these seven courses, at least two will be in poetry and two in prose. Total required: 14 courses.

Admission to Graduate Status

A candidate for admission to graduate status in the Depatment must meet, in addition to general University requirements, the minimum requirement of a Bachelor of Arts degree from this University, or its equivalent, with a major in

the Classics (Greek and Latin) or in Greek or in Latin (for the M.A. in Greek or in Latin only). Candidates deficient in formal preparation may in exceptional cases be granted provisional admission.

Special Requirements for the Secondary Teaching Credential in Latin

Students preparing for this credential are required to take Latin 110 and Latin 370. Latin 370 may not be counted as part of the minimum course requirements for the M.A. degree.

Requirements for the Master's Degree in Classics

General University Requirements. The Department follows the comprehensive examination plan.

Foreign Language. During the first year of study, the student must pass the standard reading examination set by the Graduate Division in French or German. Completion of French 5 or German 5 in this University with a minimum grade of C, or the equivalent, is acceptable in lieu of such examination.

Program of Study. Nine courses, including Greek 210 and Latin 210, at least one course from Greek 200A-200B-200C and one from Latin 200A-200B-200C, and one further 200-series course in each literature (chosen from 201-229). The remaining three courses are selected in consultation with the Graduate Adviser from the upper division and graduate offerings of the department, or exceptionally from other departments or programs in related fields such as archaeology, Indo-European studies, linguistics, ancient history, and ancient philosophy. In addition, the student must complete the Reading Lists in Greek and Latin authors established for the M.A. degree in Classics.

Comprehensive Examinations. Three written two-hour examinations in (1) sight translation from Greek and Latin, (2) translation of passages from works on the Reading Lists, and (3) the history of Greek and Latin literature.

Requirements for The Master's Degree in Greek or in Latin

The General University and Foreign Language requirements are identical with those for the M.A. in Classics.

Program of Study. Seven upper division or graduate courses in Greek (Latin), including Greek (Latin) 210, at least two courses from Greek (Latin) 200A-200B-200C, and one further 200-series course in Greek (Latin) literature (chosen from 201-229). Two further upper division or graduate courses are chosen in consultation with the Graduate Adviser. Total: 9 courses.

Comprehensive Examinations. Three written two-hour examinations in (1) sight translation from Greek (Latin), (2) translation of Greek (Latin) passages from the Greek (Latin) part of the Reading Lists for the Master's degree in Classics, and (3) the history of Greek (Latin) literature.

Requirements for the Doctor's Degree

Admission to the Doctoral Program. Prerequisite for admission is an M.A. degree in Classics, with distinction, from this University, or its equivalent. In cases of doubtful equivalency the Department may allow provisional admission and require the candidate the pass with distinction during the first year of residence a set of tests identical with the M.A. comprehensive examination.

General Requirements

Foreign Language. French or German, in addition to and in the same manner as the language studied for the M.A. degree in Classics (see above).

Program of Study. At least one year of full-time graduate study (normally 8-9 courses) is required in preparation for the qualifying examinations. The student may elect to specialize in Classical Literature and Philology or in one of the following areas: Classical Linguistics, Ancient History, Ancient Philosophy, Classical Archaeology, Patristic or Byzantine Studies, Mediaeval Latin Studies. The choice of formal courses and seminars is determined in consultation with the Graduate Adviser and the individual Guidance Counsellor so as to balance general competency and area specialization: e.g., if all of the M.A. courses were in Classical Literature and Philology, specializers in other areas may concentrate entirely on those areas; if courses in the area of specialization were included in the M.A. electives, further graduate courses in the literatures are indicated. In addition, all students must complete the Doctoral Reading Lists in Greek and Latin authors which are additional to the M.A. lists and differ somewhat depending on area specialization.

Qualifying Examinations for Advancement to Doctoral Candidacy and Conferral of the C.Phil. Degree. Three written three-hour examinations, supervised by the student's departmental guidance committee, in translation and interpretation of (1) Greek and (2) Latin texts, partly from the Reading Lists and partly at sight, and (3) on the area of specialization. The oral examination, conducted by the Doctoral Committee, covers both the area of specialization and the general field of Classical studies.

Dissertation. A dissertation must be submitted, on a subject approved by the candidate's doctoral committee and normally relating to his Special Field. The dissertation must be the result of original research and constitute a significant contribution to knowledge.

Final Examination. This oral examination, administered by the doctoral committee, covers primarily the dissertation and its relation to the field in which the subject lies.

Courses Which Do Not Require a Knowledge of Greek or Latin

Classics 10, 20, M70, 141, 142, 143, 151A, 151B, 151C, 161, 162, 166A, 166B, M170A, M170B, 251A, 251B, 251C, 251D, 252, 253, 254, 255, 260; Greek 40; Latin 40.

Classics

Lower Division Course

10. Survey of Classical Greek Culture.
Lectures, many illustrated, on Greek life and culture from the age of Homer to the Roman conquest. Discussion of art, literature, philosophy, and mythology. Readings in the Greek authors are suggested, but not required. A knowledge of Greek is not required.
Mr. Lattimore

20. Survey of Roman Civilization.
A study of life and culture of Rome from the time of its foundation to the end of antiquity. A survey of art, literature, and political thought of the Romans. Selections from Latin authors are read in translation. A knowledge of Latin is not required.
The Staff

M70. Survey of Mediaeval Greek Culture.
(Formerly numbered 145A. Same as History M70.) Classical roots and mediaeval manifestation of Byzantine civilization; political theory, Roman law, pagan critique of Christianity, literature, theology, and contribution to the Renaissance (including the discovery of America).
Mr. Anastos

Upper Division Courses

141. A Survey of Greek Literature in English.
A study of classical Greek literature, exclusive of the drama, with readings in English.
Mr. Lewis

142. Ancient Drama.
A study of the major Greek and Latin dramas in translation.
Ms. Ivoue

143. A Survey of Latin Literature in English.
A study of classical Latin literature, exclusive of the drama, with readings in English.
The Staff

151A. Classical Archaeology: Graeco-Roman Architecture.
A general introduction to the study of Aegean, Greek, and Roman architecture.
Mr. Lattimore

151B. Classical Archaeology: Graeco-Roman Sculpture.
A general introduction to the study of Aegean, Greek, and Roman sculpture.
Mr. Lattimore

151C. Classical Archaeology: Graeco-Roman Painting.
A general introduction to the study of Aegean, Greek, and Roman painting.
Mr. Lattimore

161. Introduction to Classical Mythology.
The origins of classical myth; the substance of divine myth and heroic saga; the place of myth in religion; a survey of the study of classical mythology.
Mr. Lattimore, Mr. Puhvel

162. Classical Myth in Literature.
The use of myth in the principal authors and genres of Greek and Roman literature with examples of its influence in later literatures.
Mr. Austin, Mr. Lattimore

M165A. Plato-Earlier Dialogues.
(Same as Philosophy M101A.) Lecture, three hours; discussion section, one hour. Prerequisite: Philosophy 1 or consent of the instructor. A study of selected topics in the early and middle dialogues of Plato.
Mr. Furth, Mr. Lewis

M165B. Plato-Later Dialogues.
(Same as Philosophy M101B.) Lecture, three hours; discussion section, one hour. Prerequisite: course M165A or Philosophy M101A. A study of selected topics in the middle and later dialogues of Plato.
Mr. Furth, Mr. Lewis

166A. Greek Religion.
A study of the religion of the ancient Greeks.
Mr. Lattimore

166B. Roman Religion.
A study of the religion of the ancient Romans.
The Staff

M170A. Byzantine Civilization.
(Formerly numbered 145B.) (Same as History M122A.) Emphasis is laid on Byzantine theology.
Mr. Anastos

M170B. Byzantine Civilization.
(Formerly numbered 145C.) (Same as History M122B.) Literature, relations with Rome, and the Renaissance.
Mr. Anastos

180. Introduction to Classical Linguistics.
Prerequisites: Greek 3 and Latin 3. Basics of the comparative grammar of Greek and Latin in relation to one another and in the frame of Indo-European linguistics.
Mr. Puhvel

199. Special Studies in Classics. (½ to 2 courses)
Prerequisites: senior standing and consent of the instructor.

Graduate Courses

200. History of Classical Scholarship.
The Staff

251A. Seminar in Classical Archaeology.
The Aegean Bronze Age.
Mr. Lattimore

251B. Seminar in Classical Archaeology.
Graeco-Roman architecture.
Mr. Lattimore

251C. Seminar in Classical Archaeology.
Graeco-Roman sculpture.
Mr. Lattimore

251D. Seminar in Classical Archaeology.
Graeco-Roman painting.
Mr. Lattimore

252. Topography and Monuments of Athens.
Detailed studies in the topography and monuments of Athens combining the evidence of literature, inscriptions, and actual remains.
Mr. Lattimore

253. Topography and Monuments of Rome.
Detailed studies in the topography and monuments of ancient Rome combining the evidence of literature, inscriptions, and actual remains.
Mr. Lattimore

260. Seminar in Roman Religion.
Prerequisite: consent of the instructor.
The Staff

271. Computer Techniques in Classical Studies.
Survey of computer techniques in the study of the ancient world with emphasis on Greek and Latin literary texts. Students will learn enough computer programming to work on a project of their own during the course.
The Staff

287. Graduate Colloquium in Classical Literature.
Reading, research and discussion of selected topics from Greek and Roman Literature. May be repeated for credit.
The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses)
The Staff

597. Study for the M.A. Comprehensive Examination or the Ph.D. Qualifying Examination. (½ to 2 courses)
The Staff

599. Research for the Doctoral Dissertation. (½ to 2 courses)
The Staff

Greek

Lower Division Courses

1. Elementary Greek.
Lecture, five hours per week.
The Staff

2. Elementary Greek.
Lecture, five hours per week. Prerequisite: course 1.
The Staff

3. Elementary Greek.
Lecture, five hours per week. Prerequisite: course 2.
The Staff

10. Elementary Modern Greek.
An introduction designed to teach the student to pronounce correctly, understand, speak, and write with some facility the language of everyday life. Comparisons with Ancient Greek are made. Not intended for native or near-native speakers of Modern Greek.
The Staff

11. Intermediate Modern Greek.
Prerequisite: course 10 or consent of the instructor. Drill in pronunciation and grammatical patterns. Building-up of vocabulary. Easy readings in literature.
The Staff

12. Advanced Modern Greek.
Prerequisite: course 11 or consent of the instructor. Conversation and composition. A survey of the structure of the language.
The Staff

40. The Greek Element in English.
A knowledge of Greek is not required. A study of the derivation and usage of English words of Greek origin: analysis into their component elements directed toward understanding of form and meaning.
Mrs. Killian, Mrs. Mohr

Upper Division Courses

Note: Greek 3 is prerequisite to 100. Greek 100 is prerequisite to 101-107 and 111-124, and prerequisite or corequisite to 110.

100. Readings in Greek Prose
Prerequisite: course 3. Plato's *Apology* or a text of comparable difficulty is read.
The Staff

101A. Homer: *Odyssey*.
Mr. Austin, Mrs. Mohr

101B. Homer: *Iliad*.
Mr. Austin, Mrs. Mohr

102. Lyric Poets.
Selections from Archilochus to Bacchylides.
Mr. Lewis, Mrs. Mohr

103. Aeschylus.
Ms. Inoue

104. Sophocles.
Ms. Inoue, Mr. Lattimore

105. Euripides.
Ms. Inoue, Mrs. Mohr

106. Aristophanes.
The Staff

107. Theocritus.
Mr. Austin, Mr. Lattimore

110. The Study of Greek Prose.
Work in sight reading and grammatical analysis of Attic prose texts; writing the Attic prose.
Mr. Lewis

111. Herodotus.
The Staff

112. Thucydides.
Mr. Austin, Mr. Lattimore

113. Attic Orators.
Mr. Lattimore

121. Plato.
Mr. Austin, Mr. Lewis

122. Plato: *Republic*.
Mr. Lewis

123. Aristotle: *Poetics and Rhetoric*.
Mr. Lewis

124. Aristotle: *Ethics*.
Mr. Lewis

130. Readings in the New Testament.
Prerequisite: Greek 3. Mr. Anastos

150. Readings in Modern Greek.
Prerequisites: course 3 or course 12 or consent of the instructor. Study of Modern Greek literature and its development since the Middle Ages through analysis of texts in the original.
The Staff

151. Advanced Readings in Modern Greek.
Prerequisites: course 150 or consent of the instructor.
The Staff

160. Greek Drama: Study and Performance.
Prerequisite: consent of the instructor. Intensive critical study of a dramatic work in Greek, culminating in its performance in the original language and manner of presentation. May be repeated for credit whenever a different play is studied and performed.
Mrs. Mohr

199. Special Studies in Greek. (½ to 2 courses)
Prerequisite: senior standing and consent of the instructor.
The Staff

Graduate Courses

The 200-series courses which are designated A and B (e.g., 201A-201B) are double courses. Course A is a preseminar and is normally prerequisite to course B, a seminar.

200A-200B-200C. History of Greek Literature.
Prerequisite: consent of the instructor. Lectures on the history of Greek literature, supplemented on the part of the student by the independent reading of Greek texts in the original.
Ms. Inoue, Mr. Lewis

201A-201B. Homer: *The Iliad*.
Mr. Austin

202A-202B. Homer: *The Odyssey and the Epic Cycle*.
Mr. Austin

203. Hesiod.
Mr. Austin

204. Homeric Hymns.

205. Seminar in Aeschylus.
Ms. Inoue

206A-206B. Sophocles.
Ms. Inoue

207A-207B. Euripides.
Ms. Inoue

208A-208B. Aristophanes.
The Staff

209. Seminar in Hellenistic Poetry.
Mr. Austin

210. Advanced Greek Prose Composition.
Prerequisite: course 110 or the equivalent.
Mr. Lewis

211A-211B. Herodotus.
The Staff

212A-212B. Thucydides.
Mr. Lattimore

213. Seminar in Greek Historiography.
The Staff

214. Demosthenes.
The Staff

215. Early Greek Orators.
Studies in the works of Antiphon, Andocides, and Lysias.
The Staff

221. Seminar in the Presocratic Philosophers.
Mr. Lewis

222A-222B. Plato.
Mr. Lewis

223A-223B. Aristotle.
Mr. Lewis

224. Seminar in Post-Aristotelian Philosophy.
The Staff

230. New Testament Greek.
The Greek New Testament, as a work of Greek literature, with special emphasis on the information it gives about the culture on the whole, and the language in particular, of the society for which it was produced.
The Staff

231A-231B-231C. Seminar in Patristic and Byzantine Literature.
Prerequisite: consent of the instructor. Course does not need to be taken in the A-B-C sequence.
Mr. Anastos

233. Byzantine Poetry.
A study of the main representatives of both religious and secular poetry.
The Staff

240A-240B. History of the Greek Language.
Prerequisite: consent of the instructor. 240A covers the linguistic history of Classical Greek. In 240B Post-Classical, Mediaeval, and Modern Greek are discussed.
The Staff

241. Greek Epigraphy.
A survey of Greek historical inscriptions, chiefly Attic.
The Staff

242A-242B. Greek Dialects and Historical Grammar. (½ course each)
Prerequisite: consent of the instructor. Credit is given only upon completion of both quarters. The linguistic situation in early Greece; readings in Classical Greek dialectal texts (Ionic, Achaean, Aeolic, Doric); Greek grammar in the context of Common Greek and Indo-European linguistics.
Mr. Puhvel

243. Mycenaean Greek.
Prerequisite: consent of the instructor. Script, language, and grammar of the Linear B inscriptions; their relevance to Ancient Greek linguistic and cultural history.
Mr. Puhvel

245. Greek Palaeography.
Studies in the development of the book hand in Greek manuscripts earlier than the invention of printing.

Individual Study and Research

596. Directed Idividual Study or Research. (½ to 2 courses)
The Staff

597. Study for the M.A. Comprehensive Examination or the Ph.D. Qualifying Examination. (½ to 2 courses)
The Staff

599. Research for the Doctoral Dissertation. (½ to 2 courses)
The Staff

Latin

Lower Division Courses

1. Elementary Latin.
Lecture, five hours per week.
The Staff

1G. Elementary Latin for Graduate Students. (No Credit)
Offered concurrently with Latin 14, being identical in scheduling and content.

2. Elementary Latin.
Lecture, five hours per week. Prerequisite: course 1.
The Staff

2G. Intermediate Latin (Intensive). (No Credit)
Prerequisite: Latin 14 or Latin 2 with grade B or better, or consent of instructor. Review of grammar; reading of selected portions of Latin Prose ranging from Classical to Medieval, with emphasis on historical texts.

3. Elementary Latin.
Lecture, five hours per week. Prerequisite: course 2.
The Staff

14. Elementary Latin (Intensive). (2 courses)
The intensive course in Latin will cover all the declensions of nouns and adjectives, all conjugations in the indicative mood and the primary uses of the subjunctive mood. Emphasis will be given to the development of the ability to read easy selections of classical prose.
Mrs. Killian

15. Intermediate Latin (Intensive). (2 courses)
Prerequisites: Latin 14 or Latin 2 with grade B or better, or consent of instructor. Review of grammar; reading of selected portions of Latin prose ranging from Classical to Medieval, with emphasis on historical texts.

40. The Latin Element in English.
A knowledge of Latin is not required. A study of the derivation and usage of English words of Latin origin: analysis into their component elements directed toward understanding of form and meaning.
Mrs. Killian, Mrs. Mohr

Upper Division Courses

Note: Latin 3 is prerequisite to Latin 104, 105A, 107, 111, 113. One of the latter is normally prerequisite to all other 100-series courses in Classical Latin authors.

101. Plautus. Mrs. Mohr

102. Terence. Mr. Löfstedt

103. Lucretius. Mr. Austin

104. Ovid. Mrs. Killian, Mrs. Mohr

105A. Vergil: Selections from Aeneid I-VI.
Mr. Levine, Mrs. Mohr

105B. Vergil: Advanced Course. Mrs. Mohr

106. Catullus. Mr. Levine

107. Horace: Odes and Epodes. Mr. Levine

108. Roman Elegy.
Selections from Catullus, Tibullus, and Propertius.
Mr. Levine

109. Roman Satire.
Selections from the *Epistles* of Horace, the *Satires* of Juvenal, and the *Epigrams* of Martial.
Mrs. Killian, Mr. Levine

110. The Study of Latin Prose.
Work in sight reading and grammatical analysis of classical prose texts; writing of classical prose.
The Staff

111. Livy. Mrs. Mohr

112. Tacitus. The Staff

113. Cicero: The Orations. Mrs. Mohr

114. Roman Epistolography: Cicero and Pliny. The Staff

115. Caesar. Mr. Austin

116. Petronius. Mr. Löfstedt, Mrs. Mohr

117. Sallust. Mrs. Killian

118. Seneca.
A selection of Seneca's works will be read in Latin, supplemented by further readings in translation.
Mr. Löfstedt

130. Introduction to Mediaeval Latin.
Prerequisite: course 3, or course 15, or consent of the instructor. Reading of easy prose texts, with interest centered on basic language training.
Mr. Löfstedt

131. Mediaeval Latin Prose.
Prerequisite: course 130 or consent of the instructor. Extensive reading of selected texts in prose; interest is centered on the idiosyncrasies of Mediaeval Latin.
Mr. Löfstedt

133. Mediaeval Latin Poetry.
Prerequisite: one upper division language course in Latin or consent of the instructor. Emphasis varies from year to year between Christian and secular poetry.
Mr. Löfstedt

150. Roman Drama: Study and Performance.
Prerequisite: consent of the instructor. Intensive critical study of a dramatical work in Latin, culminating in its performance in the original language and manner of presentation. May be repeated for credit whenever a different play is studied and performed.
Mrs. Mohr

199. Special Studies in Latin. (½ to 2 courses)
Prerequisite: senior standing and consent of the instructor.
The Staff

Graduate Courses

The 200-series courses which are designated A and B (e.g., 203A and 203B) are double courses. Course A is a preseminar and is normally prerequisite to course B, a seminar.

200A-200B-200C. History of Latin Literature.
Prerequisite: consent of the instructor. Lectures on the history of Latin literature, supplemented on the part of the student by the independent reading of Latin texts in the original.
Mr. Levine

201. Seminar in the Roman Epic: Ennius to Silius Italicus.
The fragments of Ennius and selected readings from the minor epic poets (Lucan, Valerius Flaccus, Statius, Silius Italicus).
The Staff

202. Seminar in Catullus.
A detailed consideration of the entire Catullan corpus.
Mr. Levine

203A. Elegiac Poetry. Mr. Levine

203B. Propertius. Mr. Levine

204A. Vergil's Aeneid. Mr. Austin

204B. The Aeneid Mr. Austin

205. Seminar in Vergil's Bucolics. Mr. Austin

206. Horace. Mr. Austin

207. Roman Comedy.
Prerequisite: consent of the instructor. Survey of the history of Roman Comedy. Reading of one comedy by Plautus or Terence with interest centered on language and meter.
Mr. Löfstedt

210. Advanced Latin Prose Composition.
Prerequisite: course 110 or the equivalent.
Mr. Levine

211A-211B-211C. Seminar in the Roman Historians.
A study of considerable portions of the writings of:
211A. Sallust.
211B. Livy.
211C. Tacitus.
The Staff

220A. Cicero's Rhetorical Works.

220B. Cicero's Orations.

221A. Cicero's Philosophical Works.
Mr. Levine

221B. Cicero: De Natura Deorum.
Mr. Levine

222. Seminar in Roman Stoicism.
Prerequisite: a reading knowledge of Greek and Latin.

223. Lucretius. The Staff

224. Seminar in the Roman Novel.
Petronius' *Satyricon* and Apuleius' *Metamorphoses:* a study of the literary problems.

231A-231B. Seminar in Mediaeval Latin.
Prerequisite: at least one upper division course in Latin or consent of the instructor. Studies in various areas of the language and literature of Mediaeval Latin. With instructor's permission, may be repeated for credit.
Mr. Löfstedt

232. Vulgar Latin.
Prerequisite: consent of the instructor. History and characteristics of popular Latin; its development into the early forms of the Romance languages.
Mr. Löfstedt

240. History of the Latin Language.
Prerequisite: consent of the instructor. The development of Latin from the earliest monuments until its emergence in the Romance languages.
Mr. Löfstedt

242A-242B. Italic Dialects and Latin Historical Grammar. (½ course each)
Prerequisite: consent of the instructor. Credit is given only upon completion of both quarters. The linguistic situation in early Italy; readings in Oscan, Umbrian, and early Latin texts; Latin grammar in the context of Italic and Indo-European linguistics.
Mr. Puhvel

243. Seminar in Latin Palaeography.
Studies in the development of the book hand in Latin manuscripts earlier than the invention of printing.
Mr. Levine

244. Seminar in Textual Criticism.
Studies in the preparation of a critical edition of a Latin author.

Professional Courses in Method

370. The Teaching of Latin.
Prerequisite: graduate standing or consent of the instructor. Techniques for teaching; organization of courses; review of the content of the curriculum offered in junior and senior high schools.
Mrs. Killian

495. College Teaching of Latin. (½ course)
Prerequisite: current service as a teaching assistant and consent of the instructor. Methodology of instruction, in conjunction with classroom practice.
Mrs. Killian

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses) The Staff

597. Study for the M.A. Comprehensive Examination or the Ph.D. Qualifying Examination. (½ to 2 courses)
The Staff

599. Research for the Doctoral Dissertation. (½ to 2 courses)
The Staff

Related Courses in Other Departments

Ancient Near East (Near Eastern Languages)
170. Introduction to Biblical Studies.
171. Old Testament: Hebrew and Septuagint Texts
172. Semitic Background of the New Testament.

Art 103A. Greek Art.
103B. Hellenistic Art.
103C. Roman Art.
222A-222B. Greco-Roman Art.

History 111A-111B-111C. History of the Ancient Mediterranean World.
112A-112B. History of Ancient Greece.
113A-113B. History of Rome.
121A. The Early Middle Ages.
121B. The Later Middle Ages.
123A-123B-123C. Byzantine History.
222A-222B. Studies in Medieval Latin. Literary History.
250A-250B. Seminar in Ancient History.
252A-252B-252C. Seminar in Byzantine History.

Indo-European Studies M132. European Archaeology: The Bronze Age.
140. Introduction to Indo-European Mythology.
M150. Introduction to Indo-European Linguistics.
210. Indo-European Linguistics: Advanced Course.
220A-220B. Hittite.
280A-280B. Seminar in Indo-European Linguistics.

Philosophy 102. Aristotle.

■COMMUNICATION STUDIES (INTERDEPARTMENTAL)

Donald E. Hargis, Ph.D., *Professor of Communication Studies.*
Paul I. Rosenthal, Ph.D., *Associate Professor of Communication Studies.*
Patrice French, Ph.D., *Assistant Professor of Communication Studies and Psychology.*

♦

L. Geoffrey Cowan, LL.B., *Lecturer in Communication Studies.*

UNDERGRADUATE CURRICULUM

The major in Communication Studies is an interdisciplinary program leading to the degree of Bachelor of Arts. For details of the curriculum see College of Letters and Science.

Lower Division Course

10. Introduction to Communication Studies.
An introduction to the fields of mass communication and interpersonal communication. Study of modes, media, and effects of mass communication, interpersonal processes, and communication theory.
The Staff

Upper Division Courses

100. Communication Theory.
Prerequisites: course 10, Linguistics 1, Sociology 1, Psychology 10. Analysis of the fundamental nature of human communication; its physical, linguistic, psychological and sociological bases. Study of theoretical models explicating the process and constituents of the communicative act.
Ms. French

101. Freedom of Communication.
Analysis of legal, political and philosophical issues entailed in the rights of free expression, access to an audience, and access to information. Study of court decisions governing freedom of communication in the United States.
Mr. Cowan, Mr. Rosenthal

120. Principles and Types of Group Communication.
Prerequisite: course 100. Analysis of the purposes, principles, and types of small group communication. Particular emphasis upon the organization of and participation in problem-solving discussion.
The Staff

130. Cultural Factors in Interpersonal Communication.
Prerequisite: course 100. Study of cultural factors as they affect the quality and processes of interpersonal communication; exercises in the participation, analysis, and criticism of inter-ethnic and interracial communications in the small-group configuration.
The Staff

140. Theory of Persuasive Communication.
Prerequisite: course 100. The dynamics of communication designed to influence human conduct; analysis of the structure of persuasive discourse; integration of theoretical materials drawn from relevant disciplines of the humanities and social sciences.
Mr. Rosenthal

142. Rhetorical Theory.
Prerequisite: course 100. Survey of the major classical and neoclassical treatises on rhetoric. Analysis of the theories of Plato, Aristotle, Cicero, Quintilian, St. Augustine, Blair, Whately, Campbell, and other leading works in the theory of rhetoric.
Mr. Hargis

150. Analysis of Communication Content.
Prerequisite: course 100. Study of methodologies for the qualitative and quantitative analysis of the content of communications.
Ms. French

152. Analysis of Communication Effects.
Prerequisite: course 100. Survey of experimental and field research on the effects of communications. Study of source, message, and environmental factors affecting audience response.
Ms. French

160. Political Communication.
Prerequisite: courses 100 and 101. Study of the nature and function of communication in the political sphere; analysis of contemporary and historical communications within established political institutions; state papers; deliberative discourses; electoral campaigns.
The Staff

165. Agitational Communication.
Prerequisite: courses 100 and 101. Theory of agitation; agitation as a force for change in existing institutions and policies in a democratic society. Intensive study of selected agitational movements and the technique and content of their communications.
The Staff

170. Legal Communication.
Prerequisite: courses 100 and 101. Study of the trial and appellate processes as systems of communication. Analysis of the elements of the juridical process as they affect the quality of communication content. Study of the rules of evidence, jury behavior, and the structure of legal discourse.
Mr. Rosenthal

175. Criticism and the Public Arts.
Prerequisites: course 10 or consent of instructor. An introduction to methods and problems of criticism in the public arts. Several types of critical methods will be studied: formalistic, analogue, pragmatic, and aesthetic criticism. Topics include the definition of art and criticism, the aesthetic media, genre and resources of film, television, theatre and public discourse, the varieties of critical method, the problems of critical judgment.
The Staff

197. Undergraduate Honors Proseminar.
Prerequisite: senior standing; grade point average of 3.5 in Communication Studies major and 3.3 overall. Variable topic course involving specialized study of selected aspects of the field of human communication. Enrollment is limited.
The Staff

199. Special Studies.
Prerequisites: senior standing and consent of the instructor. A course of independent study for senior undergraduates who desire an intensive or specialized investigation of selected research topics. To be arranged with the member of the faculty who will direct the study.
The Staff

199H. Special Studies for Honors Candidates.
Prerequisites: admission to Honors Program and senior standing. A course of independent study for honors undergraduates who desire an intensive or specialized investigation of selected research topics. To be arranged with a member of the faculty who will direct the study.
The Staff

■COMPARATIVE LITERATURE (INTERDEPARTMENTAL)

Arnold J. Band, Ph.D., *Professor of Hebrew and Comparative Literature (Chairman).*
Pier-Maria Pasinetti, Ph.D., *Professor of Italian and Comparative Literature.*
J. Norman Austin, Ph.D., *Associate Professor of Classics and Comparative Literature.*
Ross P. Shideler, Ph.D., *Associate Professor of Scandinavian and Comparative Literature.*
E. Bond Johnson, III, Ph.D., *Assistant Professor of German and Comparative Literature.*
Robert Martin Adams, Ph.D., *Professor of English.*
Marc Bensimon, Ph.D., *Professor of French.*
Frederick L. Burwick, Ph.D., *Associate Professor of English.*
Albert D. Hutter, Ph.D., *Assistant Professor of English.*
James Kerans, Ph.D., *Associate Professor of Theatre Arts.*
George S. Rousseau, Ph.D., *Associate Professor of English.*
Robert M. Maniquis, Ph.D., *Assistant Professor of English.*

The Graduate Interdepartmental Program in Comparative Literature attempts to fulfill two criteria: competence in two or more literatures, and the ability to perceive and discuss relationships between a single literature and other literatures in general. Ideally, the student's specific and general knowledge should give him the capacity to function as a specialist in his major literature as well as a guide to the relations of art, literature, and society.

The Program draws upon the facilities, services, and faculty of UCLA's language and literature programs. With the exception of a few courses given by the Program in Comparative Literature which are essentially courses in methodology, genre, motif and period, all courses taken by Comparative Literature students are to be taken directly in the relevant language and literature departments. Members of those departments participate in the advising and examining of all degree candidates.

Admission Requirements for the M.A.

1. For entrance into the program a B.A. in literature, ancient or modern, is a prerequisite. Students not having a literature major in their B.A. program will be required to demonstrate the equivalent knowledge and comprehension of one literature before being considered a graduate student in good standing.
2. Applicants will be expected to have a 3.25 G.P.A. in upper division literature courses.

Foreign Language Requirements

Literature proficiency in one foreign language is a prerequisite to the courses in comparative literature. Before completion of the M.A. degree a reading knowledge of a second foreign language is strongly recommended. French or German is usually recommended as one of the M.A. candidate's two foreign languages.

Course Requirements for the M.A.

The following twelve courses will be the minimal course requirement. Some students will take extra courses to make up deficiencies. Modifications may be made with the consent of the chairman.

1. Four courses in Comparative Literature. A. Comparative Literature 200 — Methodology: theory of literature, bibliography, etc. B. Comparative Literature 201 — Contemporary theories of criticism. C. The comparative study of one genre, e.g., the novel, the epic, the lyric. D. The comparative study of one period or movement, e.g., Baroque, Romanticism.
2. Five courses (a minimum of three must be graduate courses, the other two upper division) in the student's major literature. The departmental course in the history of the language of that particular literature may be included.
3. Three courses, either graduate or upper division, in the student's minor literature. The student should be directed to study periods, genres, or problems in his minor literature which lend themselves to comparison with similar elements in his major literature.

Qualifying Examination

The examination for the M.A. will be written and oral, testing both historical knowledge and comprehension of methodology. The results of this examination will determine the student's ability to continue towards the Ph.D. degree in Comparative Literature. There are three possible results of the examination. A student may be

allowed to progress toward his Ph.D., or he may be granted a terminal M.A., or he may fail the examinations altogether.

The written examinations will test the student's skill in literary analysis and his detailed knowledge of specified works in the student's major and minor literatures. The examinations will be based upon reading lists from the works of approximately ten to fifteen authors in the major literature and the works of five authors in the minor literature.

The oral examination will be a general discussion of the student's major literature and his period of emphasis within the minor literature. This examination goes beyond the student's reading list and allows a greater degree of probing into the student's capacity to analyze, synthesize, and discuss relations between works of literature. The student will be allowed to proceed towards the Ph.D. in Comparative Literature only after he has passed this oral examination.

Ph.D. Admission Requirements

Basic requirements are the same as for the M.A. Normally the student will be expected to qualify for his M.A. before proceeding towards the Ph.D. A student coming with an M.A. may be required to pass a Permission to Proceed examination before being allowed to proceed towards the Ph.D.

Foreign Language Requirements

The candidate must have literature proficiency in at least two foreign languages before taking the qualifying examination. If the student intends to offer three literatures written in foreign languages for his Ph.D. degree, he will be expected to have literature proficiency in the three pertinent foreign languages. Normally, the student will be tested in his first foreign language during his first year of residence and in his second foreign language during his second year of residence. The committee recommends a reading knowledge of a third language. A classical language is usually necessary for anyone majoring in a period prior to the 19th century.

Course Requirements

The plan for the first year will be similar to that for the M.A. in Comparative Literature. There are no course requirements beyond the twelve outlined in the M.A. requirements, but a number of courses are usually necessary to give the student sufficient depth in his major and two minor literatures. All students will be required to pass the written and oral M.A. examinations before proceeding towards the Ph.D. The student's second year program will be determined in consultation with his advisory committee.

The Ph.D. Qualifying Examination

The candidate will be examined in his major literature and in two minor literatures. (Two of these three literatures must be from different language groups, i.e. Romance and Germanic, English and Slavic, etc.) The examinations may be taken as soon as the student has received permission to proceed and has satisfied all foreign language requirements. The candidate will normally be examined on:

1. One literature from its earliest texts to the end, with heavy emphasis on one period, and the remainder on the basis of a reading list.

2. Two additional literatures in only one relevant period each. A student may petition to be examined on only two literatures if both have been studied from the earliest texts to the end.

3. The methodology of Comparative Literature in relation to the period or periods of emphasis.

Written Examinations

Five written examinations are required for the Ph.D. Qualifying Examination. They may be taken together or spaced over five quarters. In the major literature assuming it is a European literature there will be three examinations covering the early, the middle, and the modern period of that literature. There will, in addition, be one examination in each of the two minor literatures within the student's period of specialization.

The Oral Examination

The oral examination emphasizes the student's ability to deal with the theory and problems of Comparative Literature as they specifically relate to his particular fields of interest.

Dissertation

When a candidate has passed his qualifying examinations he is officially advanced to candidacy and may proceed with the writing of his dissertation on a topic approved by his committee.

Final Examination

The final examination for the degree is a defense of the dissertation before a University committee.

Graduate Courses

200. The Methodology of Comparative Literature.
Prerequisite: consent of the instructor. A study of both the methodology of comparative literature and the theory of literature.
Mr. Shideler

201. Contemporary Theories of Criticism.
Prerequisite: course 200 or its equivalent. An advanced course in the theory of literature focusing upon structuralist, psychoanalytic, and Marxist approaches.
The Staff

202. Problems in the Theory of Literature.
Prerequisite: A reading knowledge of French or German; Comparative Literature 201 or its equivalent. A study of specific topics in the theory of literature for advanced students in criticism and literary theory.
The Staff

M203. Renaissance Drama.
(Same as Humanities M103.) Prerequisites: upper division standing and literature major; consent of instructor. (Reading knowledge of one appropriate foreign language for graduate students.) The course offers a broad introduction to the subject matter and types of plays in the Renaissance. Historical and literary influences on the plays will be considered. Readings will include works of such dramatists as: Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. This course is cross-listed with Humanities M103. Students seeking U/G credit will be allowed to read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original language and will meet as a group one additional hour each week.

M205. The Comic Spirit.
(Same as Humanities M105.) Prerequisites: upper division standing and literature major. (Reading knowledge of one appropriate foreign language for graduates.) Literary masterpieces, both dramatic and non-dramatic, selected to demonstrate the varieties of comic expression. This course is cross-listed with Humanities M105. Students seeking U/G credit will be allowed to read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original language. These students will meet as a group an additional hour each week.
Mr. Band

M209. The Crisis of Consciousness in Modern Literature.
(Same as Humanities M109.) Prerequisite: upper division standing and literature major. (Reading knowledge of one appropriate foreign language for graduate students.) Study of modern European and American works which are concerned both in subject matter and artistic methods with the growing self-consciousness of the artist and his society, focusing on works of Flaubert, Joyce, Gide, Mann and Nabokov. This course will be cross-listed with Humanities M109. Students seeking U/G credit will be allowed to read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original language. These students will meet as a group an additional hour each week.

220. From Epic to Novel.
Seminar, three hours. Prerequisite: literature proficiency in one language, ancient or modern. A comparative study of the themes and techniques germane to each genre.
Mr. Austin

221. The Lyric: Classical to Modern.
Prerequisite: some knowledge of either Latin or Greek. An examination of the genres and conventions of Greek and Roman lyric poetry and their influence on subsequent European poetry.
Mr. Austin

222. Ovid's Influence on European Letters.
Prerequisite: elements of Latin or consent of the instructor. Readings in Latin and in translation from Ovid's works, particularly *Amores* and *Metamorphoses*. Analysis of Ovid's place in Latin letters and his influence on subsequent European literature.
Mr. Austin

M229. Archetypal Heroes in Literature.
(Same as Humanities M129.) Prerequisite: upper division standing. (Reading knowledge of one appropriate foreign language for graduate students.) Survey and analysis of the function and appearance of such archetypal heroes as Osiris, Ulysses, Prometheus and Oedipus in literature from antiquity to the modern period. This course will be cross-listed with Humanities M129. Students seeking U/G credit will be allowed to read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original language, and will meet as a group an additional hour per week.
Mr. Awad

250. The Classical Tradition in Eighteenth Century English Literature.
Seminar, three hours. Prerequisite: a reading knowledge of Greek or Latin. A study of the confrontation of eighteenth century English writers with Greek and Latin literary works and traditions.
Mr. Rousseau

251. Varieties of Picaresque Fiction in the 18th Century.
Prerequisite: some knowledge of eighteenth century English literature, and a reading knowledge of two of the following languages: French, Spanish, German, Italian. A study of the metamorphoses of picaresque fiction during 1700-1800, with special attention to the novels of Defoe, Fielding, Smollett, Diderot, Rousseau, and others. The course will begin with a study of Cervantes' Don Quixote and will map out a critical theory for quixotic versus picaresque fiction.
Mr. Rousseau

252. Structural Problems in Autobiography.
Prerequisite: a reading knowledge of one European language, plus one other language. This course explores the ways in which writers of different nationalities and cultural backgrounds conceive of the form known as autobiography. Students are expected to read extensively in the autobiographical literature of two languages, one of which must be European.
Mr. Rousseau

M260. Literature and the Other Arts.
(Same as Humanities M160.) Prerequisites: upper division standing and literature major. (Reading knowledge of French, Spanish, Italian or German for graduate students.) A comparative study of literature and the other art media. This course is cross-listed with Humanities M160. Students seeking U/G credit will read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original languages, and will meet as a group an additional hour each week.
Mr. Bensimon

M268. Mozart and the Literature of Opera.
(Same as Humanities M118.) Prerequisites: Humanities 1A and 1B or English 1 and 2 or consent of instructor. (Reading knowledge of *either* German or Italian for graduates.) The course will concentrate on opera as a dramatic and poetic medium, by focussing on the literary texts and musical settings of five major Mozart operas. Major topics: theatrical use of mixed media; recitative and aria; staging of opera; Mozart's career as a dramatic composer; Da Ponte as librettis. This course is cross-listed with Humanities M118. Students seeking U/G credit will be allowed to read all works in translation. Students seeking grad credit will participate in a special discussion section and will prepare all papers based on texts read in the original languages.
Mr. Fletcher

270. The Dream in English and German Romantic Literature.
Seminar, three hours. Prerequisite: literature proficiency in German. A study of the use of the dream as a standard narrative technique in English and German Romantic Literature.
Mr. Burwick

271. Dramatic Theory and Criticism in German and English Romanticism.
Prerequisite: a reading knowledge of German. This seminar examines the generic conception of drama in the critical essays of the Schlegels, Tieck, Jean Paul, Coleridge, De Quincey, and Hazlitt. It gives particular attention to the role of the actor and the idea of dramatic action as discussed by the critics.
Mr. Burwick

274. The Search for Organic Forms.
Prerequisite: reading knowledge of French or German. A seminar devoted to theories of the "organic" in the eighteenth and nineteenth centuries, with special emphasis on Rousseau and Goethe. A large part of the course will be given to studies of the transition made between theories of nature and theories of state.
Mr. Maniquis

275. The Nineteenth Century Novel.
Seminar, three hours. Prerequisite: ability to read either French or German. A comparative study of the 19th century novel in at least England, France, and Germany. Novels will be selected so as to allow the seminar to concentrate on a particular tradition or critical problem.
Mr. Maniquis.

276. Theory of Bourgeois Drama in the Nineteenth Century.
(Formerly numbered 290.) Prerequisite: a reading knowledge of at least one appropriate foreign language. Seminar to examine the nature and determinates of this mode of drama by study of selected plays and critical texts.
Mr. Kerans

M280. The Symbolist Tradition in Poetry.
(Same as Humanities M180.) Prerequisites: upperdivision standing and literature major. (Reading knowledge of either French or German for graduate students). A study of the symbolist tradition in English, French, and German Poetry. This course is cross-listed with Humanities M180. Students seeking U/G credit will read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original languages. These students will meet as a group an additional hour each week.
Mr. Shideler

M281. Poetry and Poetics of the Post-Symbolist Period.
(Same as Humanities M181) Prerequisites: upper division standing and literature major. (Reading knowledge of either French or German for graduate students). A study of some of the dominant poetic trends and figures in American and European poetry in the first half of the 20th century including such Surrealists as G. Apollinaire and A. Breton, imagists, and major individual poets such as E. Pound, T.S. Eliot, Paul Valery, R.M. Rilke, Stefan George, and Wallace Stevens. This course is cross-listed with Humanities M181. Students seeking U/G credit will read all words in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original languages and will meet as a group an additional hour each week.
Mr. Shideler

291. The Post-Joycean Novel.
Prerequisite: a reading knowledge of at least one appropriate foreign language. A study of the post-Joycean novel in several of its best-known representatives: Nabokov, Robbe-Grillet, Queneau (or Butor or Claude Mauriac), Gadda, Borges, and Beckett. Some knowledge of Joyce will be assumed.
Mr. Adams

M292. The Psychological Novel.
(Same as Humanities M192.) Prerequisite: upper division standing and literature major. (Reading knowledge of French for graduate students). A comparative study of French and English novels which both precede and follow the development of psychoanalysis. Selected readings of Freud will be assigned in addition to the required fiction. This course is cross-listed with Humanities M192. Students seeking U/G credit will read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original languages, and will meet as a group an additional hour each week.
Mr. Hutter

293. Neoclassicism in the 1920's.
Prerequisite: reading knowledge of either French or German. A study of neoclassicism in England, France, and Germany in the 1920's with emphasis on literary texts and reference to works of fine art, architecture and music.
Mr. Adams

M297. The Mystery Novel.
(Same as Humanities M117). Prerequisite: upper division standing and literature major or consent of instructor. (Reading knowledge of French for graduate students.) A study of mystery and detective fiction in England, France, and the United States. The origin, form and historical significance will be developed through close readings of selected works. This course is cross-listed with Humanities M117. Students seeking U/G credit will be allowed to read all works in translation. Students taking this course for graduate credit will be required to participate in a special discussion section and to prepare papers based on texts read in the original languages.
Mr. Hutter

596. Directed Individual Study. (½ to 2 courses) **The Staff**

596X. Directed Individual Study. (½ to 1 course)
Preparation for Foreign Language Examination.
The Staff

597. Preparation for the Doctoral Qualifying Examination. (½ to 2 courses) **The Staff**

599. Research on Dissertation. (½ to 2 courses)
Restricted to those who have passed the qualifying examination for the doctor's degree.
The Staff

■ COMPREHENSIVE HEALTH PLANNING (INTERDEPARTMENTAL)

The interdepartmental program leading to the M.S. in Comprehensive Health Planning is sponsored jointly by the Department of Political Science, the Graduate School of Management, the School of Public Health, the School of Medicine, and the School of Architecture and Urban Planning.

The program is designed to acquaint students with policy issues and operational problems in health systems, to develop skills in the use of quantitative and computer methodologies for planning, and to enhance understanding of the social and technological environments in which health systems are embedded. The curriculum is arranged so that the student builds conceptual and methodological bases in planning and the implementation of plans, acquires substantive knowledge about health delivery systems, and finally applies this knowledge and experience to comprehensive planning for health programs.

The program occupies two academic years (six quarters) plus a summer field placement. A limited number of stipends may be available. Applicants are expected to offer preparation in mathematics through calculus and courses in microeconomics, statistics, and social sciences. One course deficiency may be removed after admission to the program.

For further information contact: Arnold I. Kisch, Director, Comprehensive Health Planning Program, School of Public Health, UCLA Center for the Health Sciences, Los Angeles, California 90024.

■ COMPUTER SCIENCES

Studies related to computer science are possible in several academic departments. Detailed information is given in the announcements of the individual departments that are listed below.

Biomathematics

Course work in mathematical modeling, simulation and other computer techniques in the health sciences, including computer graphics.

Engineering

Master of Science and Ph.D. degree programs with specialization in control systems, communication theory, computer applications, computer languages, and computer systems.

Library Service

Master of Library Science degree with specialization in Information Science (Documentation),

including consideration of computer applications to information retrieval.

Linguistics

Course work in mathematical linguistics and computational linguistics.

Management

Master's and Ph.D. degree programs with specialization in computers and information systems, computer simulation, and management science/operations management.

Mathematics

Please see Mathematics-Computer Science major under College of Letters and Sciences.

Psychology

Course work in mathematical psychology, factor analysis and multivariate analysis, and in computer techniques in the behavioral sciences.

Public Health

Master of Science and Ph.D. degree programs in Biostatistics with specializations in data processing and computer assisted statistical analysis.

■ COUNCIL ON EDUCATIONAL DEVELOPMENT

The Council on Educational Development was created by the Los Angeles Division of the Academic Senate in May of 1968. The Council's purpose is to encourage innovative and experimental courses and programs. In fulfilling this objective, the Council works closely with departments, colleges, schools and research centers on the UCLA campus. The Council is uniquely situated to offer experimental courses since it possesses modest funding which can be used for faculty release time or the employment of outside lecturers and teaching personnel.

The Council can offer an experimental course as many as three times, though in principle the Council seeks to encourage departments and schools to adopt its courses into their regular curriculum. The Council also seeks to offer courses of timely or topical importance.

For information about CED courses consult the Registration (and subsequent issues) of the Daily Bruin. Information on CED course offerings or other matters may be obtained from the CED office, 3121 Murphy Hall.

■ DANCE

(Department Office, 205 Women's Gym)

Pia Gilbert, *Professor of Dance.*
Carol Scothorn, M.A., *Professor of Dance.*
Alma M. Hawkins, Ed.D, *Emeritus Professor of Dance.*
Elsie Dunin, M.A., *Associate Professor of Dance.*
Marion Scott, *Associate Professor of Dance.*
Allegra Snyder, M.A., *Associate Professor of Dance. (Chairperson of the Department).*
Emma Lewis Thomas, Ph.D. *Associate Professor of Dance.*
Kathe Copperman, M.A., *Assistant Professor of Dance.*
Doris Siegel, *Assistant Professor of Dance.*

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Gary Bates, M.A., *Lecturer in Dance.*
Charles Berliner, M.F.A., *Lecturer in Dance.*
Gloria Bowen, *Lecturer in Dance.*
Sharron Deny, Ph.D., *Lecturer in Dance.*
Sally Fitt, Ph.D., *Lecturer in Dance.*
Alfred Ladzekpo, *Lecturer in Dance.*
Susan Lovell, M.A., *Lecturer in Dance.*
Margalit Oved Marshall, *Lecturer in Dance.*
Stella Matsuda, *Lecturer in Dance.*
Barbara Mattingly, *Lecturer in Dance.*
Emilio Pulido-Huizar, *Lecturer in Dance.*
Madeleine Scott, M.A., *Lecturer in Dance.*
Melinda Sharp,M.A., *Lecturer in Dance.*
Mia Slavenska, *Lecturer in Dance.*
Judy Susilo, M.A., *Lecturer in Dance and Ethnic Arts.*
Suenobu Togi, *Lecturer in Dance.*
Martin Tracy, M.A., *Lecturer in Dance.*
Carol Warner, *Lecturer in Dance.*

The dance major offered in the College of Fine Arts leads to the Bachelor of Arts degree. For requirements, see College of Fine Arts.

Preparation for the Major

Dance 30A-30B, 35, 36A-36B-36C, 37A-37B-37C, 38A-38B, and 70A.

The Major

A total of 14 courses including courses 111A-111B, 150A-150B-150C, 151A-151B, 152A-152B, 153A-153B-153C, 154, 158A-158B; two courses (8 units) chosen from upper division dance electives.

With department approval, in the senior year, students who give evidence of commitment and special preparation for graduate study may be permitted to substitute certain courses, as follows: students with a dance ethnology focus may substitute a year of ethnic dance for 153A-153B-153C; and course 140A or 140B or 140C for 152A-152B. Students with a dance therapy focus may substitute 165A-165B-165C for 153A-153B-153C; and Psychology 127 for Dance 152A-152B. The department adviser should be consulted about other special preparatory courses needed for graduate study in dance ethnology and dance therapy.

Admission to the Major

Readiness for admission to the upper division major is determined by a screening and evaluation conducted during Spring Quarter of the sophomore year.

All entering transfer students are auditioned for placement in technique and choreography classes.

Admission to Graduate Status

In addition to meeting the requirements of the Graduate Division as stated in the announcement of the Graduate Division, the student must have an undergraduate major in dance or equivalent preparation with a minimum of upper division courses in the dance concentration. Students whose preparation is deficient, as determined by Graduate Admissions, will be required to make up such deficiencies in addition to the degree program. New students will be admitted for graduate study to the Department of Dance only once a year, at the beginning of Fall term. For more detailed information, write to the Chairman of the Department of Dance for a form which describes academic requirements and helps identify deficiencies.

Requirements for the Master's Degree

Graduate students may follow the thesis plan or the comprehensive examination plan. The candidate's course of study will be planned under the guidance of the graduate adviser. Emphasis may be placed on choreography, dance therapy, dance ethnology, dance education or dance history and criticism.

Thesis Plan. A minimum of nine courses and a thesis. A major choreography is acceptable as partial completion of a thesis. The nine courses include 4 courses elected from the graduate courses in the dance department; 4 courses from either the dance department or outside the department selected from upper division and graduate courses, and; one course, Dance 202, Research Methods and Bibliography in Dance.

Comprehensive Examination Plan. A minimum of 10 courses as listed above, including an independent study project and a final comprehensive examination.

Lower Division Courses

10A-10B-10C. Fundamentals of Creative Dance. (½ course each)

For non-dance majors. Courses 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.

The Staff

11A-11B-11C. Creative Dance. (½ course each)

Prerequisite: course 10C or consent of the instructor. For non-dance majors. A continuing study of dance with emphasis on movement principles and composition.

The Staff

30A-30B. Fundamentals of Ballet. (½ course each)

Open only to dance majors. Courses must be taken in sequence, 30A taken concurrently with 36C, and 30B concurrently with 37C. Study of ballet techniques and principles including dance terminology.

Ms. Bowen

35. Music Analysis for Dance. (½ course)

Study of the elements of music, music structures, and their relationship to dance, with emphasis on rhythmic analysis, dance accompaniment and teacher-accompanist roles.

Mrs. Gilbert

36A-36B-36C. Fundamentals of Creative Dance. (½ course each)

Open only to dance majors. Courses 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.

Ms. Copperman

37A-37B-37C. Creative Dance. (½ course each)

Prerequisite: course 36C. A continuing study of dance with emphasis on movement principles and choreography.

Mr. Bates

38A-38B. Dance Notation. (½ course each)

Prerequisite: courses 35 and 36C. Study of Labanotation with experience in recording and interpreting dance scores with emphasis on reading skills.

Mr. Tracy

46A-46B-46C. Fundamentals of Movement. (½ course each)

Prerequisite: consent of instructor. Study of the fundamentals of movement with emphasis on experiencing body awareness, exploring movement potential, and structuring of dance forms. Consideration of cultural influences on expressive forms.

Ms. Susilo

47A-47B-47C. Dance Forms. (½ course each)

Prerequisite: course 46C. A continuing study of dance forms with consideration of social factors and environmental influences. Includes observation and analysis of movement and the development of basic skills in Labanotation.

Mrs. Dunin

52. Introduction to Dance Theater. (½ course)

Prerequisite: course 36A. Study of the interaction of the aesthetic components of dance theater.

Mrs. Siegel

70A-70B. Introduction to Performance in Ethnic Dance. (½ course each)

Study of basic movement in ethnic dance forms.

Mrs. Dunin

71A-71Q. Performance Courses in Ethnic Dance. (½ course each)

May not be repeated for credit. (A) Dance of Bali; (B) Dance of Africa; (E) Dance of India; (F) Dance of Israel; (G) Dance of Japan; (H) Dance of Java; (J) Dance of Mexico; (L) Dance of Scotland; (M) Dance of Spain; (P) Dance of Yugoslavia; (Q) Dance of Korea.

The Staff

Upper Division Courses

111A-111B. Analysis of Human Movement.

Prerequisites: course 37; 111A must be completed before enrollment in 111B. A study of the biological and physical principles of movement and the effects of movement upon the structure of and function of the human body.

Mrs. Fitt

111C. Analysis of Human Movement.

Prerequisite: course 111A and 111B. In depth study of selected topics introduced in 111A and 111B.

Mrs. Fitt

112A-112B-112C. Advanced Dance. (½ course each)

Prerequisite: course 150C. Synthesis of previous dance experience, advanced technique, and individual and group choreography.

Mr. Bates, Ms. Copperman

114A-114F. Advanced Contemporary Dance. (½ course each)

Prerequisite: course 153C or consent of the instructor. Advanced technique in contemporary dance with emphasis on performing skills.

Ms. Warner

127. Foundation of Dance Education.

Prerequisite: course 150C or consent of instructor. Analysis of theoretical aspects of movement and choreography with special reference to teaching in junior colleges and higher education.

Mrs. Matsuda

128. Dance as Culture in Education.

Prerequisite: course 70A or consent of instructor. Analysis of theoretical and practical aspects of ethnic dance forms with special reference to teaching in higher education.

Mrs. Dunin

131A-131B-131C. Intermediate Ballet. (½ course each)

Prerequisite: course 30B or consent of instructor. Open only to dance majors. Courses must be taken in sequence. Study of advanced techniques and principles of classical ballet including phrasing, combinations, and repertory works.

Miss Slavenska

132A-132F. Advanced Ballet. (½ course each)

Prerequisite: course 131C. Advanced technique in classical ballet with emphasis on performing skills.

Miss Slavenska

140A-140B-140C. Dance Cultures of the World.

A survey of dance in selected cultures, the role of dance in society; consideration of style, rhythmic structure, historical background and related folklore. Lectures illustrated with demonstrations, film, slides and recordings: (A) Africa (folk and tribal traditions); (B) Asia (art, tribal and folk traditions); (C) North American Indians (tribal and folk traditions).

Mrs. Snyder

142. Dance in the Balkans.

Prerequisite: course 71P. An introduction to the dance of the Balkans, factors influencing its development and social functions, consideration of relationship of dance to other art forms.

Mrs. Dunin

143. Dance in India.

Prerequisite: course 71E. An introduction to the dance of India, factors influencing its development and social functions, consideration of relationship of dance to other art forms.

The Staff

144. Dance in Indonesia.

Prerequisite: course 71A or 71H. An introduction to the dance of Indonesia, factors influencing its development and social functions, consideration of relationship of dance to other art forms.

The Staff

145. Dance in Japan.

Prerequisite: course 71G. An introduction to the dance of Japan, factors influencing its development and social functions, consideration of relationship of dance to other art forms.

The Staff

146. Dance in Latin America.

Prerequisite: course 71J. An introduction to the dance of Latin America, factors influencing its development and social functions, consideration of the relationship of dance to other art forms.

Mr. Pulido-Huizar

150A-150B-150C. Advanced Dance.

Prerequisite: course 37C. Choreography with emphasis on the use of composed music, the group composition, and the theatrical environment; synthesis of previous dance experience, theories and technique of outstanding dance artists; principles of human movement related to dance.

Mrs. Scothorn

151A. History of Dance Primitive to Renaissance.

The evolvement of the dance as an art form and its cultural implications from the primitive through the Renaissance periods.

Mrs. Thomas

151B. History of Dance Baroque to 20th Century.

A study of changing concepts in the styles and forms of dance from the Baroque to the 20th Century.

Mrs. Thomas

152A. Lighting Design for Dance Theater. (½ course)

Prerequisite: course 37C. Study of aesthetics, principles and technical elements of lighting for dance.

Mrs. Siegel

152B. Costume and Scenic Design for Dance Theater. (½ course)

Prerequisite: course 37C. Study of the history and aesthetics of costuming for dance. Emphasis on the designer-choreographer relationship.

Mr. Berliner

152C. Advanced Studies in Dance Theatre Lighting. (½ course)

Prerequisites: course 152A. Analysis of diverse dance theatre lighting problems at an advanced level and individual development of creative solutions.

Mrs. Siegel

153A-153B-153C. Choreography and Repertory. (½ course each)

Prerequisite: course 150C. Independent work in solo and group choreography. Exploration of various styles and forms. Performance in repertory works.

Mrs. Scott

154. Music as Dance Accompaniment.

Prerequisite: course 35 or consent of the instructor. Piano and percussion improvisation for dance. Choreographer-composer relationships. History of music for the dance with emphasis on contemporary trends. Music for the dance performance.

Mrs. Gilbert

155. Form and Structure in Choreography.

Prerequisite: course 36C. A study of the craft of choreography as taught by selected artists including Louis Horst, Doris Humphrey and Helen Tamaris. Attention will be given to their concepts of form and structure as well as philosophic bases on which these approaches were formed.

Miss Scott

158A-158B. Philosophical Bases and Trends in Dance. (1, ½ course)

Prerequisite: course 150C. Critical analysis of dance as a creative experience and the role of professional and educational dance in our society. Study of selected approaches to current development in dance.

Ms. Deny

159. Advanced Dance Notation.

Prerequisite: courses 37C and 38A-38B. Intermediate and advanced Labanotation. Reconstruction and score preparation in ballet, modern, and ethnic dance.

Mr. Tracy

160. Creative Dance for Children.

Prerequisite: course 150C or consent of the instructor. Study of dance as an expressive medium for children with emphasis on concepts and principles.

Ms. Sharp

165A-165B-165C. Introduction to Movement Dynamics and Personality Growth. (½ course each)

Prerequisite: course 150C or consent of instructor. Courses must be taken in sequence. Study of movement experience as a means of increasing awareness, spontaneity, and self-directed non-verbal response to inner and outer stimuli. Emphasis on the dynamic (energy and spatial) aspects of movement with special attention to the felt-dimension associated with the experiencing.

Mrs. Lovell

171A-171P. Performance Courses in Ethnic Dance. (½ course each)

Each course may be repeated, with the consent of the instructor, for a maximum of four units. Prerequisite: corresponding course in 71A-71P series (i.e., 71A is prerequisite to 171A, 71B is prerequisite to 171B, etc.). (A) Dance of Bali; (B) Dance of Ghana; (E) Dance of

India; (F) Dance of Israel; (G) Dance of Japan; (H) Dance of Java; (J) Dance of Mexico; (L) Dance of Scotland; (M) Dance of Spain; (P) Dance of Yugoslavia.

The Staff

190A-190B-190C. Advanced Dance Performance. (½ course each)

Prerequisite: consent of the instructor. The study of performance of major choreography.

Mrs. Scothorn, Miss Scott

197A-197B. Proseminar: Dance Perspectives. (½ course each)

Prerequisite: upper division standing or consent of the instructor. Consideration of the aesthetic evolving from the work of the great artists of our time.

The Staff

199. Special Studies in Dance. (½, 1, or 2 courses)

Prerequisite: senior standing and consent of the instructor.

The Staff

Graduate Courses

Not open to undergraduate students. See College of Fine Arts, Unit Requirements.

200. Dance Notation. (½ course)

Prerequisite: course 159. Advanced study of dance notation.

Mr. Tracy

202. Research Methods and Bibliography in Dance.

Mrs. Thomas

204A-204B-204C. Advanced Choreography. (½ course, 1 course, ½ course)

Prerequisite: course 153C or the equivalent. Theoretical and creative aspects of advanced choreography.

Mrs. Scothorn, Miss Scott

204D-204E-204F. Advanced Choreography.

Prerequisites: courses 204A-204B-204C and consent of instructor. Theoretical aspects of advanced choreography for the student who has reached the level of self-initiation of substantial creative works. The course will focus on refinement, realistic self-evaluation as well as critical counsel by acknowledged choreographers.

The Staff

206. Music for Dance.

Prerequisite: course 154. Theory of the aesthetic and functional relationship of music to dance.

Mrs. Gilbert

206. Principles of Dance Theater.

Prerequisites: course 152A-152B. Principles which serve the presentation of dance.

Mrs. Scothorn

210. Aesthetics of Dance.

Prerequisite: course 158B. A critical analysis of aesthetic concepts related to dance.

Mrs. Thomas

220. Dance in the 20th Century.

Prerequisite: course 151A-151B. Concepts, styles and forms of dance in the 20th century.

Mrs. Thomas

221. The History of Ballet.

Prerequisite: courses 151A, 151B. The development of ballet in its various stages: Renaissance, Baroque, Romantic Period; stylistic differences in Italy, France, Spain, and England; influence of the other arts; and problems of ballet as an art form.

Mrs. Thomas

223. Renaissance Dance.

The evolution of the dance suite will be traced from its earliest records to codification in works of Arbeau, Caroso, Negri (ca. 1400-1610). Style will be studied through reconstruction of steps, costumes, music and presentational form.

Mrs. Thomas

226A-226B-226C. Dance Expressions in Selected Cultures.

Prerequisite: course 140 or consent of instructor. Dance as an aspect of culture and human behavior. A survey of writings on dance ethnology and literature from related disciplines particularly anthropology and the behavioral sciences as well as techniques for research.

Mrs. Snyder

227A-227B. Advanced Studies in Dance Education.

Prerequisite: consent of instructor and 227A is prerequisite for 227B. Concepts in the area of movement, creativity, and learning applied to the art of dance. Development of dance in higher education with consideration of the body of knowledge, curriculum development and administrative problems.

The Staff

251A-251B-251C. Dance in Rehabilitation.

Prerequisite: consent of the instructor. Dance in the therapeutic setting. A year course including a study of related research and literature, theoretical foundations for movement therapy, and individual research projects.

Miss Hawkins

252A-252B-252C. Seminar in Movement Therapy.

Prerequisites: courses 251A-251B-251C and course 596R. Selected topics explored in depth; theoretical concepts related to clinical experience.

Mrs. Hawkins

Professional Courses

327A-327B. Principles of Teaching Dance. (½ course each)

Prerequisite: senior standing or consent of the instructor. A study of methods, curricular materials, and evaluation procedures as related to the teaching of dance in the secondary schools.

Mrs. Dunin

495. Preparation for the Teaching of Dance in Higher Education. (½ course)

Prerequisites: graduate standing and consent of instructor. Study of problems and methodologies in teaching Dance which includes seminars, workshops and apprentice teaching. May be repeated once for credit. Graded S/U.

Mrs. Thomas

Individual Study and Research

596A. Directed Individual Study or Research. (½ to 2 courses)

596R. Directed Study or Research in a Hospital or Clinic. (½ to 2 courses)

Miss Hawkins

597. Preparation for the Comprehensive Examination for the Master's Degree. (No credit)

598. Research for and Preparation of the Master's Thesis. (½ to 2 courses)

Related Courses in Other Departments

Anthropology 144. Aesthetic Anthropology.
Art 10A-10B. Drawing.
25. Sculpture.
30A. Introduction to Design and Technology.
50. Ancient Art.
51. Medieval Art.
52. Renaissance Art.
53. Baroque Art.
54. Modern Art.
110A-110B-110C. European Art.
110D. Contemporary Art.
122. History of Style and Ornament.
161J. Video Imagery.

English 102. Major American Authors.
103. Shakespeare.
104. The American Novel.
110B. Introduction to Drama.
110C. Introduction to Poetry.
112. Children's Literature.
116A. Recent American Fiction.
133A-133B-133C. Creative Writing: Poetry.
134A-134B-134C. Creative Writing: Short Story.
135A-135B-135C. Creative Writing: Drama.

Humanities 1A-1B. World Literature.

Music 2A-2B. Introduction to the Literature of Music.
132A-132B. Development of Jazz.
135A-135B-135C. History of the Opera.
140A-140B-140C. Musical Cultures of the World.

Theater Arts 5A-5B. History of the Theater.
20. Acting Fundamentals.
101. Introduction to the Theater Arts.
102A-102B. Selected Topics in the History of the European Theater.
105. Main Currents in Theater.
118A-118B. Creative Dramatics.
122. Make-up for the Stage.
188. The Aesthetics of Visual Communication.

■ DENTISTRY (ORAL BIOLOGY)

(Department Office, 63-050 Health Sciences Center)

Thomas K. Barber, D.D.S., M.S., *Professor of Pediatric Dentistry and Pediatrics.*

Angelo A. Caputo, M.S., Ph.D., *Professor of Biomaterials Science.*

Fermin A. Carranza, Jr., D.D.S., Dr. Odont., *Professor of Periodontics.*

Spiro J. Chaconas, D.D.S., M.S., *Professor of Dentistry.*

Andrew D. Dixon, D.D.S., M.D.S., Ph.D., D.Sc., *Professor of Dentistry.*

Lawrence L. Furstman, D.D.S., M.S., Ph.D., *Adjunct Professor of Dentistry.*

Fred Herzberg, D.D.S., M.S., *Professor of Oral Biology and Research Anatomist.*

E. Barrie Kenney, D.D.S., M.S., *Professor of Peridontics.*

Carol M. Newton, M.D., Ph.D., *Professor of Biomathematics.*

Bernard G. Sarnat, M.D., M.S., D.D.S., *Adjunct Professor of Oral Biology and Plastic Surgery.*

G. Douglas Silva, F.D.S., M.R.C.S., *Professor of Oral Medicine and Medicine.*

Norman S. Simmons, D.M.D., Ph.D., *Professor of Oral Medicine and Research Biochemist.*

Reidar F. Sognnaes, Ph.D., D.M.D., *Professor of Oral Biology and Anatomy.*

Robert B. Wolcott, D.D.S., M.S., *Professor of Restorative Dentistry.*
George W. Bernard, D.D.S., Ph.D., *Associate Professor of Dentistry (Oral Biology) and Anatomy.*
Henry M. Cherrick, D.D.S., M.S.D., *Associate Professor of Dentistry (Oral Pathology).*
Colin K. Franker, Ph.D., *Associate Professor of Oral Biology.*
Louis J. Goldberg, D.D.S., Ph.D., *Associate Professor of Dentistry (Oral Biology) and Anatomy (Chairman, Oral Biology Section).*
Arthur R. Johnson, D.D.S., Ph.D., *Associate Professor of Pediatric Dentistry and Pediatrics.*
Douglas Junge, Ph.D., *Associate Professor of Oral Biology and Physiology.*
William K. Solberg, D.D.S., M.S.D., *Associate Professor of Restorative Dentistry.*
Ray E. Stewart, III, D.M.D., M.S., *Associate Professor in Residence of Pediatric Dentistry and Pediatrics.*
Alfred Weinstock, D.D.S., Ph.D., *Associate Professor of Periodontics and Anatomy.*
Stuart C. White, D.D.S., Ph.D., *Associate Professor of Oral Radiology.*
John Beumer, III, D.D.S., M.S., *Assistant Professor of Restorative Dentistry.*
Gerald C. Brundo, D.D.S., M.A., *Assistant Professor of Restorative Dentistry.*
Joseph P. Cooney, B.D.S., M.S., *Assistant Professor of Restorative Dentistry.*
Donald F. Duperon, D.D.S., M.Sc., *Assistant Professor of Pediatric Dentistry and Pediatrics.*
Bruce D. McKelvy, D.D.S., M.S.D., *Assistant Professor of Oral Pathology.*
Abdel-Mottaleb H. Mohamed, D.D.S., M.S., Ph.D., *Assistant Professor of Oral Medicine and Pathology.*
Michael G. Newman, D.D.S., *Assistant Professor of Periodontics.*
George R. Riviere, D.D.S., M.S., Ph.D., *Assistant Professor of Pediatric Dentistry and Oral Biology.*

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David Benson, D.D.S., M.S., *Associate Clinical Professor of Restorative Dentistry.*
Wil Faermark, D.D.S., M.S., *Lecturer in Oral Biology.*
Larry S. Luke, D.D.S., M.S., *Assistant Clinical Professor of Dentistry and Pediatrics.*
William A. Richter, D.M.D., M.S., *Clinical Professor of Restorative Dentistry.*
Robert P. Thye, D.M.D., M.S., *Clinical Professor of Restorative Dentistry.*

M.S. (Oral Biology)

The program focuses on the biology of the oral-facial area. An understanding of all systems is obtained through courses designed to explore in depth the morphology, physiology, biochemistry, immunology, microbiology and genetic aspects of the oral-facial complex. Research in any of these fields may be undertaken on problems related to oral biology. The principles of scientific research design and evaluation and the principles of course organization and student evaluation are stressed in order to prepare the student for a more effective career in teaching and research.

Admission to Graduate Status

An applicant for the M.S. degree (Oral Biology) is expected to hold an acceptable bachelor's degree in the biological and chemical sciences; or to hold a D.D.S. or D.M.D. degree from an accredited university. Minimum requirement for graduate status is a B scholarship average in the last two years of school prior to admission. Applicants with foreign degrees will be considered individually. The graduate record examination and/or evidence of English language proficiency may be required.

Concurrent D.D.S. and M.S. Programs

The summer between the freshman and sophomore years will be spent in a dental school laboratory involved in basic research in oral biology and studying principles and methods of dental research. In the sophomore year students will study advanced oral biology. The student's progress in the M.S. program from the beginning of the junior year will be dependent on individual abilities and desires.

Requirements for the M.S. Degree

Candidates for the Master of Science degree must meet the general requirements set by the Graduate Division for this degree, (see Requirements for Graduate Degrees). The required courses are Oral Biology 201A, 201B, 202, 495, Biomathematics 170A, two Oral Biology Seminars; completion of a satisfactory thesis and oral defense based on laboratory research is required.

Related courses from any department within the Health Sciences Center may be included in a student's program with the approval of the Major Advisor and the Assistant Dean for Research.

A dental student, who qualifies for admission to the Graduate Division, may be concurrently enrolled in the Master's Program of the School of Dentistry.

Graduate Courses

201A. Advanced Oral Biology.
Three hours of lecture, one hour discussion per week in the fall and winter quarters. This course in oral biology includes the embryonic biology of specialized oral components, other aspects of orofacial prenatal physiology, predentulous biology of the neonate, deciduous dentition, mixed dentition and its relevant biology, adolescence and adulthood, senescence and the endentulous condition, and pathobiology of the oral cavity. To be graded on an In Progress basis.
Mr. Franker and the Staff

201B. Advanced Oral Biology.
Prerequisite: course 201A. Continuation of 201A. To be graded on an In Progress basis.
Mr. Franker and the Staff

202. Principles and Methods of Research.
One hour lecture and three hours of lab per week. This course is designed to familiarize the student with the experimental method and its application to basic and applied research. It will include experimental method and design and interpretation of data. The student will be exposed to research instrumentation and the advantages and limitations of various investigative tools.
Mr. Herzberg and the Staff

203. Growth, Development and Aging.
Four hours of lecture per week in the spring quarter. This course deals with the general principles of growth, development and aging with special emphasis on the structures of the head and face. Emphasis is placed on experimental findings, as well as on the origins and clinical manifestations of craniofacial anomalies.
Mr. Herzberg and the Staff

204. Fluoride Metabolism. (¼ course)
One hour seminar per week. The primary objectives of this seminar are to have the student become well-acquainted with the subject of fluoride metabolism and to learn to derive information from the primary literature.
Mr. Johnson

206. Biology of the Neoplastic Cell. (¼ course)
One hour seminar per week. Selected topics in oncology are surveyed to provide an acquaintance with current perspectives on the etiology of cancer. Recent research on tumorigenesis is evaluated with the view of possible applications to therapy and management of human neoplasms.
Mr. Franker

207. Chemistry of Enamel Caries. (¼ course)
Prerequisite: introductory courses in inorganic, organic and biological chemistry. This seminar presents chemical aspects of the etiology, mechanism and characteristics of enamel caries with strong emphasis on phenomena occurring at the enamel-saliva interface. Classical theories and current hypotheses of etiology will be reviewed. The composition and structure of teeth, *in vitro* models, and physicochemical processes will be discussed.
Mr. Johnson

208. Developmental Defects. (¼ course)
One hour seminar per week. The objective of this seminar is to increase the student's knowledge and understanding of the embryologic basis of congenital defects.
Mr. Herzberg

209. Postnatal Growth and Development of the Skull. (¼ course)
One hour seminar per week. This seminar includes the normal and abnormal growth of bones, general and cranio-facial; methods of assessing growth of bones; factors affecting growth of bones; theories of bone growth; and clinical applications of basic science knowledge.
Mr. Sarnat

210. Nervous System Control of Masticatory Muscles. (¼ course)
One hour seminar per week. This seminar includes reflex control, motor cortex-pyramidal system, corpus striatum and vestibular system, cerebellum, and discussion of current theories of mastication and jaw position.
Mr. Goldberg

211. Oral Mechanisms of Pain, Touch and Taste. (¼ course)
One hour seminar per week. This seminar includes topic areas of pain mechanisms, touch and pressure sense, and taste.
Mr. Junge

214. Biology of Bone. (¼ course)
Prerequisite: consent of instructor. Embryology of bone tissue; bone as an organ; growth and development of specific bones; biochemistry and physiology of bone; remodelling of bone; crystallography of hydroxyapatite; pathological calcifications; pathology of bone; mechanisms and lineage of calcification; clinical correlations.
Mr. Bernard

215. Genetics in Dentistry. (½ course)
Two hours lecture per week. This course includes molecular and cytologic basis of inheritance, human cytogenetics, mendelian genetics and polygenic modes of inheritance, inborn errors of metabolism, genetic diseases affecting the oral facial area, and recent advances, i.e., amniocentesis, linkage, and cell hybridization.
Mr. Stewart

216. Biological Electron Microscopy in Dental Research. (¼ course)
Prerequisite: consent of instructor. A review of the application of electron microscopy to hard and soft tissues of the oral-facial region. Emphasis given to oral health problems. Course content adapted to special interests of the participants.
Mr. Dixon

217A. Advanced Growth and Development. (½ course)
Lecture and discussion, two hours per week of lecture and discussion in the fall, winter and spring quarters. This course has been designed to analyze the many new concepts of growth and development that have been brought forth in the last decade. These controversies will be examined in depth as well as the concept of computerized growth prediction.
Mr. Furstman, Mr. Sarnat

217B. Advanced Growth and Development. (½ course)
Prerequisite: course 217A. Continuation of 217A.
Mr. Furstman, Mr. Sarnat

217C. Advanced Growth and Development. (½ course)
Prerequisite: course 217A-217B. Continuation of 217B.
Mr. Furstman, Mr. Sarnat

218A. Oral Pathology. (¾ course)
Two hours of lecture per week. This course encompasses the embryology, cell biology, histopathology, histophysiology, and symptomatology of oral pathologic conditions of local or systemic origin. The course consists of lectures, demonstrations (laboratory tests), and microscopy dealing with the developmental, inflammatory, neoplastic, metabolic, degenerative diseases and physical injuries and healing of wounds.
Mr. Cherrick

218B. Oral Pathology. (¾ course)
Prerequisite: continuation of 218A.
Mr. Cherrick

219. Oral Pathology in the Child. (½ course)
Two hours of lecture per week. This course covers the embryology, histopathology, etiology, clinical symptomatology, treatment and prognosis of the developmental, neoplastic, inflammation, degenerative and metabolic diseases. The course is a system review with emphasis placed on diseases occurring primarily in children.
Mr. Cherrick

220. Osteology. (¾ course)
Three hours of lecture and laboratory per week. Cranial osteology stressing the evolution and design of cranial components leading to an understanding ofthe stress pathways for the dissipation of forces generated by movement or function plus understanding the spatial and functional relationships of the craniofacial complex.
Mr. Furstman

221. Myology. (¾ course)
Three hours of lecture and laboratory per week. Study of the cranial balance and the interaction of all groups of musculature located above the shoulder girdle. Particular emphasis is given to the functions of deglutition, mastication, speech and various tongue habits as related to changes in the craniofacial complex.
Mr. Furstman

222. Biochemistry of Saliva. (¼ course)
Prerequisites: introductory courses in inorganic, organic and biological chemistry. Consent of instructor. This seminar presents the nature of oral secretions with respect to chemical composition, physical properties, and biological activity. Included will be water and electrolyte composition, enzyme activities, and experimental methods of study. Some aspects of the interaction of salivary components with oral tissues, and the role of saliva in oral health will be presented.
Mr. Johnson

223. Oral Immunopathology. (¼ course)
Prerequisites: consent of instructor. This seminar will evaluate the involvement of immunological phenomena in the pathogenesis of oral diseases such as dental caries, periodontal disease, oral ulceration, and hypersensitivity reactions. Aberrations of the immune system which affect the oral cavity will also be discussed.
Mr. Riviere

495. Communicating Scientific Information. (½ course)
Two hours of lecture and laboratory per week. This course is designed to enhance the preparation of the student for university teaching and to provide an opportunity to study the problems and methodologies associated with instruction in professional schools. S/U grading only.
The Staff

596. Directed Individual Study or Research. (½ to 1 course)
The Staff

598. Thesis Research and Preparation. (½ to 1 course)
The Staff

■ ECONOMICS

(Department Office, 2263 Bunche Hall)

Armen A. Alchian, Ph.D., *Professor of Economics.*
William R. Allen, Ph.D., *Professor of Economics.*
Robert W. Clower, B. Lit., *Professor of Economics.*
Harold Demsetz, Ph.D., *Professor of Economics.*
George W. Hilton, Ph.D., *Professor of Economics.*
Werner Z. Hirsch, Ph.D., *Professor of Economics.*
Jack Hirshleifer, Ph.D., *Professor of Economics.*
Michael D. Intriligator, Ph.D., *Professor of Economics.*
J. Clayburn LaForce, Jr., Ph.D., *Professor of Economics.*
Edward E. Leamer, Ph.D., *Professor of Economics.*
Axel Leijonhufvud, Ph.D., *Professor of Economics.*
John J. McCall, Ph.D., *Professor of Economics.*
Harold M. Somers, Ph.D., LL.B., *Professor of Economics.*
Thomas Sowell, Ph.D., *Professor of Economics.*
Earl A. Thompson, Ph.D., *Professor of Economics.*
Finis R. Welch, Ph.D., *Professor of Economics.*
Alice John Vandermeulen, Ph.D., *Professor-in-Residence of Economics.*
Paul A. Dodd, Ph.D., LL.D., *Emeritus Professor of Economics.*
Jacob Marschak, Ph.D., *Emeritus Professor of Economics and Business Administration.*
Earl J. Miller, Ph.D., LL.D., *Emeritus Professor of Economics.*
Dudley F. Pegrum, Ph.D., *Emeritus Professor of Economics.*
John F. Barron, Ph.D., *Associate Professor of Economics.*
Yung-Ping Chen, Ph.D., *Associate Professor of Economics.*
Michael R. Darby, Ph.D., *Associate Professor of Economics.*
Bryan C. Ellickson, Ph.D., *Associate Professor of Economics.*
Bruce Herrick, Ph.D., *Associate Professor of Economics.*
Benjamin Klein, Ph.D., *Associate Professor of Economics.*
Cotton M. Lindsay, Ph.D., *Associate Professor of Economics.*
George G. S. Murphy, Ph.D., *Associate Professor of Economics.*
Joseph M. Ostroy, Ph.D., *Associate Professor of Economics.*
Rodney L. Jacobs, Ph.D., *Assistant Professor of Economics.*
Robert Jones, Ph.D., *Assistant Professor of Economics.*
John G. Riley, Ph.D., *Assistant Professor of Economics.*

♦

David D. Haddock, B.A., *Acting Assistant Professor of Economics.*
Michael P. Ward, M.A., *Lecturer in Economics.*

Objective of the Major in Economics

The undergraduate program in economics is designed for students who wish to gain a thorough understanding of economic analysis. Emphasis is on economic principles applied to the resolution of interpersonal conflicts of interest and the coordination of productive activity in a world of scarce resources. Because students must gain a thorough theoretical and technical competence before extensive study of the applied specializations in the discipline, the analytic core of the major in economics is closely structured. Some courses are appropriate for non-majors, but the curriculum is most suitable for students who wish to make the study of economics their primary focus in their undergraduate education.

The undergraduate major in economics provides analytical training in reference to socioeconomic phenomena and develops the capaciy for general problem solving, independent thought, and research. Moreover, the major provides an excellent theoretical background for those pursuing graduate education in law, management, public administration, journalism, social welfare, architecture and urban planning, and education, as well as economics.

Preparation for the Major

Required: Economics 1, 2, 40 (or Management 115 as a substitute for Economics 40); four

lower or upper division courses in the social sciences other than economics, which may be taken pass/fail; and one course in calculus (e.g., Mathematics 3A, 4A, or 31A, which may be taken pass/fail.) The student should complete the calculus requirement before taking upper division economics courses. The honors sequence in theory (101AH, 101BH, and 102H) requires 2 courses in calculus. Upon petition, Economics 100 may be substituted for Economics 1 and 2 if the student is in upper division standing. Those who wish additional work in economics or in closely related fields while still in lower division standing may take Economics 10 and Management 1A and 1B.

The Major

Nine upper division courses in economics, which must include: Economics 101A, 101B, 102, and at least one course in each of three fields in economics listed below other than Economics 101A, 101B, and 102. It is preferable for the student to complete Economics 101A, 101B, and 102 in separate, consecutive quarters prior to taking economics field courses. Economics 100 may not be included among the nine upper division courses. One or two of the nine courses may be chosen from the following courses in the Department of Management: 120, 120M, and 130. (If Management 115 is taken in lieu of Economics 40, it will count only as preparation for the major and not as one of the nine upper division courses required on the major.) A 2.0 average is required in all economics courses and in all major courses (including any in Management). Upon consent of the instructor, students may take an upper division course for which they do not have prerequisites.

Fields for the Major

Economic Theory (courses 101A-101B, 102, 107); Economic Development (courses 110, 111, 112); Regional Economics (courses 120, 121); Public Finance (courses 130, 131, 132, 133); Statistics, Mathematical Economics, and Econometrics (courses 141, 144, 145, 146, 147); Labor Economics (courses 150, 151, 152); Money and Banking (courses 160, 161); Government and Industry (courses 170, 171, 172, 175); Economic Institutions (courses 180, 181, 182, 183); International Economics (courses 190, 191, 192).

Undergraduate Advising

There is an undergraduate advising office located in 2253 Bunche Hall. The adviser is available for consultation on matters relating to curriculum and major requirements, course evaluations, special programs, and career planning.

The Graduate Program

The Economics Department offers a broad selection of graduate courses, all of which are designed primarily for the Ph.D. program. However they are also open to candidates for the M.A. degree.

All applicants for graduate study who satisfy the University requirements for admission must submit a full record of prior university experience, three letters of recommendation and their scores in the Graduate Record Examinations. Applicants who have studied in U.S. schools are required to take both the aptitude (verbal and quantitative) and advanced economics tests. Foreign applicants must take the former.

Selection of students is based on the above information. Identical criteria apply to candidates for either the M.A. or the Ph.D. degree.

Requirements for the M.A. degree

Candidates for the degree of Master of Arts in Economics normally have completed the equivalent of an undergraduate major in economics. In addition to the general University requirements (see University Minimum Standards), the departmental requirements are nine upper division and graduate level courses in economics. These must include, if not taken previously, Economics 101A-101B, or 102 (or their equivalent) which must be taken (or retaken) with grade B or better; and Economics 107 (or its equivalent) passed with a grade of at least C. Graduate level courses in economic theory and the history of economic theory may, of course, be substituted for these undergraduate courses. At least five of the nine courses must be strictly graduate courses in economics.

For the purposes of the M.A. degree the two graduate theory sequences (Macrotheory and Microtheory) each count as two-thirds of a field and the sequence in Quantitative Methods one-third of a field. Candidates for the M.A. are required to take the qualifying examinations in at least one and two-thirds fields and achieve a Satisfactory grade (S) in at least one qualifying examination and Conditional (C) grades otherwise. For example, a student might achieve an S in the Microtheory qualifying examination and a C in a qualifying examination for one of the fields other than Theory or Quantitative Methods. As another example, a student might take Microeconomics, Macroeconomics and Quantitative Methods and achieve one S and two C's.

With the consent of the graduate adviser candidates may offer a maximum of two courses of acceptable upper division and/or graduate courses in other social sciences, history, management, mathematics, psychology, education, or philosophy in partial satisfaction of the requirements for the degree. This will not, however, relieve the student from taking five graduate courses in the Department of Economics.

Students are required to complete or have previously completed three courses in mathematics and statistics consisting of two courses in calculus and one in statistics. Economics 144 may be used as one of the "calculus" courses, and Economics 40 as the statistics course.

The Ph.D. Program

Students admitted to the graduate program are all potential candidates for the Ph.D. degree. During the first year it is customary to take the three-quarter Microtheory sequence (201ABC), the two-quarter Macrotheory sequence (202AB), the three-quarter Quantitative Methods sequence (246ABC) and one additional course. Students with a strong background in calculus and with a sound knowledge of basic econometric methods are encouraged to take the Econometrics sequence in place of Quantitative Methods.

Either in the Spring of the first year or the Fall following the first-year courses, students take the Theory Comprehensive Examination. During their second year, students select three areas of study in preparation for three field qualifying examinations. Course work is completed in the third year, at which time students begin work on their dissertation research. It is usual to enroll also in one of the graduate workshops. The latter provide an opportunity for students to participate in discussions of current research by visiting professors, the faculty and, most importantly, their own classmates. All third year students are expected to choose some forum, either a workshop or class seminar, in which to present their preliminary research progress.

While a few students finish a dissertation by the end of the third year it is normal for the main development to be completed during a fourth year.

Written and oral qualifying examinations and other requirements. All doctoral candidates are expected to take the Theory Comprehensive Examination following their first year in the Graduate Program. In addition, there is a Quantitative Methods requirement which may be satisfied EITHER by achieving a B+ average in the Quantitative Methods Sequence OR by passing the Quantitative Methods Qualifying Examination OR by achieving grades of at least B in two quarters in Econometrics or Mathematical Economics.

Doctoral candidates are also required to have taken at least a one quarter course in (a) either U.S. or European economic history and (b) history of economic theory.

To gain admission to candidacy and to become eligible for the Candidate in Philosophy (C. Phil.) degree, graduate students shall pass further written and oral examinations. The written examinations will cover three fields in economics, beyond the theory and quantitative methods fields already mentioned. A student, upon petition, may be allowed to substitute a field outside the Department of Economics for one of his three elective fields. The written examinations are offered twice a year, near the beginning of the fall quarter and near the end of the spring quarter. The three written field examinations shall be taken in no more than two examination periods.

Written examinations are graded S (satisfactory pass), C (conditional pass), and U (unsatisfactory). A student is considered to have completed his theory and elective field written examinations when he has earned either four S grades or three S grades and one C. A student who earns C or less in more than one field must retake the examinations in all the fields in which he received a grade lower than an S. Students who get less than S in any field are automatically allowed to retake that field examination once.

An oral qualifying examination, administered by the Doctoral Committee which is approved by the Dean of the Graduate Division, will be scheduled only after the successful completion of all the written examinations and other basic requirements and on the submission of a written dissertation proposal. The oral examination will focus on, but not be limited to, the dissertation proposal.

Foreign language requirement. Ph.D. candidates must offer one foreign language or a substitute program in mathematics. If the language option is chosen, the student shall be required to show a proficiency in one language — French, German, Russian, or Spanish — by passing the ETS examination with a grade of 500 or better. If the mathematics substitute is chosen, a student must show proficiency in mathematics above that ordinarily required of Ph.D. candidates. Since elementary calculus is, as noted above, considered basic for all economists, the three required language-substitute courses must be at a level "above" first-year calculus. Courses in intermediate and advanced

calculus, linear algebra, differential equations, and advanced probability and mathematical statistics courses fulfill the spirit of the requirement. Specifically, the courses in UCLA Mathematics Department numbered 32 and 110 or above fulfill the requirement.

Fields for Graduate Degrees

Economic Theory (courses 201A-201B-201C, 202A-202B, M203A-203B-203C, 204, 207, 241A-241B); Economic Development (211, 212, 213); Regional Economics (221, 222); Public Finance (231, 232, 234); Mathematical Economics (243A-243B-243C, 245A-245B-245C); Statistics and Econometrics (246A-246B-246C, 247, 248, 249); Labor Economics (251, 252, 253, 254A-254B-254C); Money and Banking (261, 262, 263A-263B-263C); Government, Industry and Natural Resources (271, 272, 273, 275, 276, 277A-277B-277C); Economic Institutions (281, 282, 283); International Economics (291, 292, 293).

Lower Division Courses

1. Principles of Economics.
Lecture, three hours; discussion, one hour. Not open to students with credit for Economics 100. An introduction to the principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on allocation of resources and distribution of income through the price system.
The Staff

2. Principles of Economics.
Lecture, three hours; discussion, one hour. Not open to students with credit for Economics 100. An introduction to the principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on aggregative economics, including national income, monetary and fiscal policy, and international trade.
The Staff

3. Lower Division Research Seminar in Micro Economics.
Prerequisite: course 1. Class enrollment limited to ten freshman or sophomore students. Seminar in which students do intensive research project under guidance of regular faculty. Student selects topic in consultation with instructor; subjects limited to materials covered in Economics 1. Student writes paper and presents to seminar.
The Staff

4. Lower Division Research Seminar in Macro Economics.
Prerequisite: course 2. Class enrollment limited to ten freshman or sophomore students. Seminar in which students do intensive research project under guidance of regular faculty. Student selects topic in consultation with instructor; subjects limited to material covered in Economics 2. Student writes paper and presents to seminar.
The Staff

10. Evolution of Economic Institutions in America.
Not open to students with credit for course 183. The historical development of the present American economic system and its performance over time, especially as revealed by the Quantitative data of modern research.
Mr. LaForce, Mr. Murphy

40. Introduction to Statistical Methods.
(Formerly numbered 140.) Not open to students with credit for Mathematics 50A-50B, 150A-150B-150C, 152A-152B, or Management 115. Elements of statistical analysis. Presentation and interpretation of data; descriptive statistics; theory of probability and basic sampling distributions; statistical inference, including principles of estimation and tests of hypotheses; introduction to regression and correlation.
The Staff

Upper Division Courses

Courses 1 and 2 or 100 are prerequisite to all upper division courses in economics.

100. Economic Principles and Problems.
Not open to students with credit for 1 or 2. Under special circumstances an economics major in upper division standing may be permitted to substitute 100 for 1 and 2 by petition. A one-quarter course presenting the principles of economics with applications to current economic problems.
The Staff

101A. Micro Economic Theory.
Prequisite: one course in calculus or consent of instructor. The laws of demand, supply, returns, and costs; price and output determination in different market situations.
Mr. Hirshleifer, Mr. Ostroy, Mr. Riley

101B. Micro Economic Theory.
Prerequisite: course 101A. Theory of factor pricing and income distribution; general equilibrium; implications of the pricing process for the optimum allocation of resources; interest and capital.
Mr. Hirshleifer, Mr. Lindsay, Mr. Ostroy

102. Macro Economic Theory.
Prerequisite: One course in calculus or consent of instructor. Theory of income, employment, and the price level. Analysis of secular growth and business fluctuations; introduction to monetary and fiscal policy.
Mr. Clower, Mr. Darby, Mr. Jones

Honors Sequence

101AH-BH. Micro Economic Theory.
101AH. Prerequisites: two courses in calculus and completion of Economics 1 and 2 or 100 or consent of instructor. The laws of demand, supply, returns, and costs; price and output determination in different market situations. Enrollment by consent of instructor.
The Staff

101BH. Prerequisites: course 101AH or consent of instructor. Theory of factory pricing and income distribution; general equilibrium implications of the pricing process for the optimum allocation of resources; interest and capital. Enrollment by consent of instructor.
The Staff

102H. Macro Economic Theory.
Prerequisites: courses 101AH and 101BH or consent of instructor. Theory of income, employment, and the price level. Analysis of secular growth and business fluctuations; introduction to monetary and fiscal policy.
The Staff

103. Upper Division Research Seminar: Applications of Economic Theory.
Prerequisites: courses 101A-101B, 102. Consent of instructor. A limited enrollment seminar in which the student writes a research paper on a topic chosen in consultation with instructor.
The Staff

107. History of Economic Theory.
A survey of economic analysis from Grecian antiquity to the early 20th century, concentrating on the 18th and 19th centuries; special attention to selected writers, including Aristotle, the Mercantilists, the Physiocrats, Hume, Smith, Malthus, Ricardo, Marx, Marginalists, and Marshall.
Mr. Allen; Mr. Sowell

110. Economic Poblems of Underdeveloped Countries.
A survey of the major issues of development economics. Economic structure of low income countries and primary causes for their limited economic growth. Economic goals and policy alternative open to their leaders. Possible roles of developed countries. Selected case studies.
Mr. Herrick

111. Theories of Economic Growth and Development.
Growth models, theory of production under constraints, relative factor prices and their impact on choice of technology, investment criteria, role of the market, economic planning in less developed areas.
Mr. Herrick

112. Policies for Economic Development.
Prerequisite: course 111 or 102. Suggested strategies for economic development: inflation, balanced growth, industry vs. agriculture, import substitution, export oriented expansion, foreign aid, and others will be considered. Selected case studies.
Mr. Herrick

120. Introduction to Urban and Regional Economics.
Prerequisite: course 101A or consent of instructor. Economic analysis as applied to significant current regional and urban problems and policy.
Mr. Ellickson, Mr. Hirsch

121. Urban Economic Analysis.
Prerequisite: courses 120, 101A-101B, or consent of instructor. Demand and supply of urban public services; transportation and location decisions and urban human resources analysis.
Mr. Ellickson, Mr. Hirsch

130. Public Finance.
Prerequisite: course 101A and 101B or consent of instructor. Contrast between organization of economic activity by government and by the private sector. Analysis of alternative norms for governmental activity. Methods of assessing benefits of alternative public expenditure projects and burdens of alternative forms of taxations. The use of fiscal policy to achieve economic targets. Techniques of debt management and their interaction with monetary policy.
Mr. Chen, Mr. Lindsay, Ms. Vandermeulen

131. Nonproprietary Organization.
Prerequisite: course 101A, 101B, completion of math requirement for the major. Use of economic techniques to study behavior of nonproprietary institutions such as government, cooperatives, unions, nonprofit firms, etc. Attention paid to behavior within these organizations as well as aggregates characterizing actions of the organization itself. Models of political behavior, and effect of decision rules and agenda on political outcomes studied.
Mr. Lindsay

132. Financing Social Security and Transfer Expenditures.
In the context of the economic behavior of the household and the performance of the economy, this course is designed to study the theories, practices, and economic effects of, and the alternatives to, such programs as OASDHI, unemployment insurance, public assistance and others.
Mr. Chen

133. State and Local Finance.
Prerequisite: course 130. The division of functions and revenues between state and local governments; the revenues, expenditures, and indebtedness of these governments. Analyses of state and local tax systems.
Mr. Hirsch, Ms. Vandermeulen

141. Principles of Statistical Decision.
Prerequisite: course 40 or equivalent. Errors of the first and second kind; economic loss functions; prior probabilities and Bayes' Theorem. Analysis of classical and Bayesian approaches. Application to inventory and production problems. The value of information, and implications for sampling design.
Mr. Ellickson, Mr. Hirshleifer, Mr. McCall

144. Introduction to Mathematical Methods in Economics.

(Formerly numbered 145) Prerequisite: course 101A, 101B and two courses in calculus. An introduction to the use of calculus in economic analysis. Topics covered include partial differentiation, optimization, integration and differential and difference equations with applications to the theory of the household and the firm, capital theory and economic dynamics.

Mr. Ellickson, Mr. Intriligator, Mr. Riley

145. Topics in Mathematical Economics.

Prerequisite: course 144 (formerly numbered 145). Detailed course description should be obtained from the instructor. Possible topics include: theory of economic growth; competitive equilibrium analysis; examination of market failure and the role for market intervention.

The Staff

146. Linear Models in Economics.

Prerequisite: a course in calculus. An introduction to matrices and matrix algebra, with applications to economics, specifically input-output, Markov chains and linear models of econometrics.

Mr. Ellickson, Mr. Intriligator, Mr. Riley

147. Introduction to Econometrics.

Prerequisite: two courses in calculus and one course in statistics. An introduction to and survey of econometrics, including model specification; data collection; estimation and hypothesis testing; and the use of econometric models for structural analysis, forecasting, and policy evaluation. An integral part of the course is an original econometric study.

Mr. Ellickson, Mr. Intriligator

150. Wage Theory.

Prerequisite: course 101A and 101B or consent of instructor. The supply and demand for labor. Analysis of government, union and other constraints on the competitive system of wage determination. Wage level and structure. Wages and human capital theory.

Mr. Herrick, Mr. Sowell

151. Labor, Wages and Income.

Prerequisite: course 150 or consent of instructor. Selected topics in labor theory; income distribution; business cycles and unemployment; investments in human capital and life cycles; migration; human fertility; marriage and divorce, etc.

Mr. Herrick, Mr. Sowell

152. Economics of Trade Unions.

Prerequisite: course 150 or consent of the instructor. Economic analysis of strikes, boycotts, lockouts, right to work, seniority, work-rules, pensions, fringe benefits. The evolution of trade unions and the legislative framework within which they operate are also considered.

Mr. Herrick, Mr. Hilton

160. Money and Banking.

Principles of money and banking in the United States; legal and institutional framework; money supply process; instruments, effects, and practice of monetary policy.

Mr. Darby, Mr. Jones

161. Monetary Theory.

Prerequisite: course 160. The nature of money and monetary exchange; level and term structure of interest rates; level and growth rate of money; transmission of monetary shocks; theory and practice of monetary policy.

Mr. Darby, Mr. Jones

170. Industrial Organization: Structure and Control.

Prerequisite: course 101A. Economic and institutional foundations of public regulation of industry; the measurement and control of competition, monopoly and collusion; economic examination of antitrust; determinants of market structure; empirical evidence of structure and performance of industries.

Mr. Demsetz, Mr. Klein

171. Industrial Organization: Theory and Tactics.

Prerequisite: course 101A. Study of pricing and output decisions of firms under conditions of less than perfect competition or monopoly; theories of oligopoly and monopolistic competition; information costs and advertising; examination of pricing practices such as price discrimination, tie-in selling, predatory pricing and resale price maintenance.

Mr. Demsetz, Mr. Klein

172. Economic Analysis of Laws and Legal Institutions.

Prerequisite: course 101A. Application of economic theory to legal rule formulation: study of the economic nature and consequences of alternative legal arrangements with special reference to property rights. Application of economic theory to analysis of effects of laws relative to property, contracts, torts, crimes, taxation and constitutional issues. Analysis of the legal process.

Mr. Demsetz, Mr. Hirsch

175. Economics of Transportation.

The economic characteristics of transport; the functions of the different agencies; pricing and resource allocation in transport; public regulation of transport; urban transport; the modern transport problem

Mr. Hilton

180. Comparative Economic Systems.

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 the economic goals, theories of economic organization, institutions, and developmental processes. Problems of economic planning are emphasized.

Mr. LaForce, Mr. Murphy

181. Development of Economic Institutions in Western Europe.

Prerequisite: upper division status. Rise of capitalism 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. May be concurrently scheduled with Economics 281 lectures.

Mr. LaForce, Mr. Leijonhufvud

182. Economic Problems of the U.S.S.R.

An introduction to the organization and policies of the economy of the U.S.S.R.

Mr. Murphy

183. Development of Economic Institutions in the United States.

Not open to students with credit for course 10. A study of the changing economic conditions in the U.S. from colonial times to the early 20th century and the effects of these changes on American society.

Mr. Murphy

190. International Economics.

Not open to students with credit for courses 191 or 192. A general introduction to international economics, based upon an examination of the theory of trade and the means and significance of balance of payments adjustments, with analysis of major issues of international commercial and monetary policy confronting national and international agencies.

Mr. Allen, Mr. Leamer

191. International Trade Theory.

Prerequisite: course 101B. Not open to students with credit for course 190. The theory of international trade: the bases, direction, terms, volume, and gains of trade. The effects of tariffs, quantitative restrictions, and international integration. The effects of free and restricted trade on economic welfare and political stability.

Mr. Leamer

192. International Finance.

Prerequisite: course 102. Not open to students with credit for course 190. Emphasis on the 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 organization.

Mr. Allen

199. Special Studies in Economics. (1/2 to 1 course)

Prerequisite: senior standing and consent of the instructor. A student may count this course only once in satisfying his major in economics; he may take it a second time to meet University graduation requirements.

Graduate Courses

M200. Policy Applications of Economic Analysis.

(Same as AUP M207A.) Prerequisites: graduate standing. Not open to students in the Department of Economics. Survey of the uses of economic theory in public policy applications. Reviews economic analysis in market and non-market systems of economic organization.

Mr. Herrick

201A. Theory of Consumption and Exchange.

Mr. Alchian, Mr. Hirshleifer

201B. Theory of Production and Distribution.

Mr. Alchian, Mr. Hirshleifer, Mr. Welch

201C. Theory of Interest and Capital.

Mr. Alchian, Mr. Hirshleifer

202A-202B. Income, Employment, and Monetary Theory.

Mr. Clower, Mr. Leijonhufvud, Mr. Thompson

M203A. Economics of Decision.

(Same as Management M203A.) Prerequisites: courses 40, 101B, 102 and calculus.

Mr. Marschak

M203B. Economics of Information.

(Same as Management M203B.) Prerequisites: courses 40, 101B, 102 and calculus.

Mr. Marschak

M203C. Economics of Organization.

(Same as Management M203C.) Prerequisite: course M203A-203B.

Mr. Marschak

204. Applications of Economic Theory.

The Staff

207. History of Economic Theory.

Mr. Allen, Mr. Sowell

211. Economic Growth: Measurement and Theory.

Mr. Herrick

212. Economic Development of Underdeveloped Areas: Theory and Policy.

Mr. Herrick

213. Selected Problems of Underdeveloped Areas.

Mr. Herrick and the Staff

221. Urban and Regional Economic Analysis I.
Mr. Ellickson, Mr. Hirsch

222. Urban and Regional Economic Analysis II
Mr. Ellickson, Mr. Hirsch

231. Public Finance.
Mr. Chen, Mr. Lindsay, Mr. Somers

232. Economics of Government Expenditures.
Mr. Chen, Mr. Lindsay

234. Economics of Federalism.
Mr. Thompson

M240. Control and Coordination in Economics.
(Same as Engineering M222G.) Prerequisite: graduate standing in Economics or Engineering, consent of instructor. Appropriate mathematics course recommended. Stabilization policies, short- and long-run dynamics and stability analysis; decentralization, coordination in teams; certainty equivalence and separation theorems; stochastic and learning models, Bayesian approach to price and output rate adjustment.

241A-241B. Probabilistic Economics.
Prerequisite: calculus and Introductory Probability. 241A will cover those concepts in probability theory and optimization that have been widely used in the economics of uncertainty. 241B will present a survey of the recent literature in probabilistic economics with special emphasis on information and the economics of search, optimal production under uncertainty and models of stock market behavior.
Mr. McCall

243A-243B-243C. Workshop in Mathematical Economic Theory.
Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Paper required of students, who enroll with instructor's permission. S/U grading.
Mr. Intriligator, Mr. Ostroy, Mr. Riley

245A-245B-245C. Mathematical Economics.
Prerequisite: course 201C or its equivalent elsewhere or consent of instructor.
Mr. Intriligator, Mr. Ostroy, Mr. Riley

246A-246B-246C. Quantitative Methods in Economics.
(Required of all Ph.D. students who do not take econometrics sequence 247-9.) The course-sequence is designed to give students basic proficiency in calculus, linear algebra, probability theory, multivariate statistics and single-equation regression techniques and, especially, in the application of these techniques to subject-matter problems in economics.
Mr. McCall, Mr. Riley

247. Econometrics I.
Mr. Intriligator, Mr. Leamer, Mr. McCall

248. Econometrics II.
Mr. Intriligator, Mr. Leamer, Mr. McCall

249. Econometrics III.
Mr. Intriligator, Mr. Leamer, Mr. McCall

251. Labor Economics I.
Mr. Herrick, Mr. Welch

252. Labor Economics II.
Mr. Herrick, Mr. Welch

253. Labor Problems.
Mr. Herrick, Mr. Welch

254A-254B-254C. Studies in Human Resource Economics.
Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Paper required of students, who enroll only with instructor's permission. S/U grading.
Mr. Welch

261. Monetary Economics I.
Mr. Clower, Mr. Darby, Mr. Thompson

262. Monetary Economics II.
Mr. Darby, Mr. Thompson

263A-263B-263C. Studies in Monetary Economics.
Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts. UCLA faculty members, advanced graduate students. Paper required of students, who enroll only with instructor's permission.
Mr. Clower, Mr. Darby, Mr. Thompson

271. Industrial Organization, Price Policies, and Regulation: Theory.
Mr. Demsetz, Mr. Klein

272. Industrial Organization, Price Policies, and Regulation: Policy.
Mr. Demsetz

273. Public Utility Regulation.
Theory, practice and consequences or regulation in electric power, gas, water, telecommunications, broadcasting and other regulated industries; experience of unregulated monopoly and public enterprises by way of contrast.
Mr. Hilton

275. National Transport Policy.
Mr. Hilton

276. Urban Transportation.
Mr. Hilton

277A-277B-277C. Workshop in Law and Economics.
Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts. UCLA faculty members, advanced graduate students. Paper required of students, who enroll only with instructor's permission.
Mr. Demsetz, Mr. Klein

281. Evolution of Economic Institutions in Western Europe.
Prerequisite: graduate status or consent of instructor. May be concurrently scheduled with Economics 181 lectures.
Mr. LaForce

282. Soviet Economic Theory and Organization.
Mr. Murphy

283. Evolution of Economic Institutions in the United States.
Mr. Murphy

291. International Trade Theory.
Mr. Leamer

292. International Finance.
Mr. Allen

293. International Economics: Selected Topics.
Mr. Allen, Mr. Leamer

299. Dissertation Research Seminar in Economics.
Prerequisite: Advancement to doctoral candidacy. Discussion of research topics and results by dissertation writers and their supervisors. May be taken more than once for credit.
The Staff

401. The Teaching of Economics 1. (½ course)
Prerequisite: enrollment will generally be limited to teaching assistants handling one or more of the quiz sections in Economics 1. Approximately 20 hours divided between meetings of instructor with all section heads to discuss problems of exposition and structuring of course material, etc., and visits of instructor to the sections of each teaching assistant. S/U grading only. The 2 units of credit will not count towards degree requirements. Student may receive credit no more than twice for the course.
The Staff

402. The Teaching of Economics 2. (½ course)
Prerequisite: enrollment will generally be limited to teaching assistants handling one or more of the quiz sections in Economics 2. Approximately 20 hours divided between meetings of instructor with all section heads to discuss problems of exposition and structuring of course materials, etc. and visits of instructor to the sections of each teaching assistant. S/U grading only. The 2 units of credit will not count towards degree requirements. Student may receive credit no more than twice for the course.
The Staff

Individual Study and Research

596. Individual Study. (½ to 2 courses)
Directed individual study or research.
The Staff

597. Individual Study: Graduate Examinations. (½ to 2 courses)
Directed individual study in preparation for the M.A. comprehensive examination or the Ph.D. qualifying examination.
The Staff

598. Individual Research: M.A. Thesis. (½ to 2 courses)
Directed individual research in preparation of M.A. thesis.
The Staff

599. Individual Research: Ph.D. Dissertation. (½ to 2 courses)
Directed individual research in preparation of Ph.D. dissertation.
The Staff

■ BUSINESS-ECONOMICS EDUCATION

Lawrence W. Erickson, Ed.D., *Professor of Education (Adviser for Major, 244 Moore Hall).*

Students wishing to prepare for teaching in the field of business-economics education should plan to complete the business-economics major shown below:

Business-Economics Major for Business Teachers

This major has been designed in accordance with the State law governing the Single Subject (Secondary) Teaching Credential with a Specialization in Secondary Teaching for business teachers. The program consists of a departmen-

tal major in economics and management. A fifth year is necessary for the completion of the credential requirements.

Lower Division Requirements. (1) Mathematics: Mathematics 1A-1B (if less than three years of high school mathematics); (2) English and speech: English 1A or 1B (or proficiency examination in addition to Subject A examination) and Speech 1; (3) American History and Institutions; (4) Breadth Requirements: Satisfy breadth requirements of College of Letters and Science.

Preparation for Major. Economics 1, 2, Management 1A, 1B; one course in Calculus (e.g., Mathematics 4A, 3A, or 31A, which may be taken pass/fail).

Upper Division Requirements. (1) Economics 101A, 101B, 102, 160; three courses from Economics 107, 130, 150, 170, 180, 190; (2) Management 108, 109, 113A, 115A or Economics 40; Management 120, 130; three courses from Management 113B, 122, 135, 160, 180 or 281B, 190.

Credential Requirements. Applicant must meet all credential requirements as specified in the Teacher Preparation and Licensing Law of 1970, including student teaching and the required professional education courses. In addition, course work may be taken toward the M.A. or M.Ed. in Education, M.A. in Economics, M.B.A. or M.S. in Management (1) Fourth or Fifth Year Courses: Education 100 or M108, 112, 312, 315; 337A, 337B or 337C; (2) Fifth Year Courses: two courses in 200 or 400 series in major; student teaching: Education 330A, 330B, 330C; or internship.

Graduate Division

Students in business-economics education may earn the following graduate degrees; Master of Business Administration or Doctor of Philosophy in the School of Management; Master of Education, Master of Arts, Doctor of Education or Doctor of Philosophy in the Graduate School Education. For further information see the ANNOUNCEMENT OF THE GRADUATE SCHOOL OF MANAGEMENT, the ANNOUNCEMENT OF THE GRADUATE SCHOOL OF EDUCATION, and the announcement of the Graduate Division, GRADUATE STUDY AT UCLA.

Requirements for Teaching Credentials

Candidates for the teaching credentials with a major or minor in business-economics education should consult the UCLA ANNOUNCEMENT OF THE GRADUATE SCHOOL OF EDUCATION.

Upper Division Course

199. Special Studies. (¼ to 1 course)
Prerequisites: senior standing and consent of the instructor.
The Staff

Professional Course

410. Case Studies in Office Management.
Mr. Erickson

Individual Study and Research

596. Independent Study in Business Education. (½ to 1 course) The Staff

Related Courses in Other Departments

Education

337A. The Curriculum in Business Education.
Mr. Erickson

337B. The Teaching of Secretarial Subjects.
Mr. Erickson

337C. The Teaching of Bookkeeping, General Business, and Economics.
Mr. Erickson

■ EDUCATION

(Department Office, 244 Moore Hall)

Marvin C. Alkin, Ed.D., *Professor of Education.*
Alexander W. Astin, Ph.D., *Professor of Education.*
Helen S. Astin, Ph.D., *Professor of Education.*
Melvin L. Barlow, Ed.D., *Professor of Education and Director of the Division of Vocational Education.*
Allan M. Cartter, Ph.D., *Professor of Education.*
Arthur M. Cohen, Ph.D., *Professor of Education.*
Lawrence W. Erickson, Ed.D., *Professor of Education.*
Claude W. Fawcett, Ph.D., *Professor of Education.*
Norma J. Feshbach, Ph.D., *Professor of Education.*
Clarence Fielstra, Ph.D., *Professor of Education.*
John I. Goodlad, Ph.D., L.H.D., LL.D., *Professor of Education and Director of the University Elementary School.*
C. Wayne Gordon, Ph.D., *Professor of Education and Sociology (Chairman of the Department).*
Frank M. Hewett, Ph.D., *Professor of Education and Psychiatry.*
Evan R. Keislar, Ph.D., *Professor of Education.*
Barbara K. Keogh, Ph.D., *Professor of Education.*
Frederick C. Kintzer, Ed.D., *Professor of Education.*
William H. Lucio, Ph.D., *Professor of Education.*
John D. McNeil, Ed.D., *Professor of Education.*
C. Robert Pace, Ph.D., *Professor of Education.*
W. James Popham, Ed.D., *Professor of Education.*
Harry F. Silberman, Ed.D., *Professor of Education.*
A. Garth Sorenson, Ph.D., *Professor of Education.*
Louise L. Tyler, Ph.D., *Professor of Education.*
Charles Z. Wilson, Ph.D., *Professor of Education.*
Merlin C. Wittrock, Ph.D., *Professor of Education.*
Jesse A. Bond, Ed.D., *Emeritus Professor of Education.*
William S. Briscoe, Ed.D., *Emeritus Professor of Education.*
Watson Dickerman, Ph.D., *Emeritus Professor of Education.*
Wilbur H. Dutton, Ed.D., *Emeritus Professor of Education.*
John A. Hockett, Ph.D., *Emeritus Professor of Education.*
David F. Jackey, Ph.D., *Emeritus Professor of Education.*
B. Lamar Johnson, Ph.D., *Emeritus Professor of Education.*
George F. Kneller, Ph.D., Litt.D., LL.D., *Emeritus Professor of Education.*
Dorothy M. Leahy, Ed.D., *Emeritus Professor of Education.*
Erick L. Lindman, Ph.D., *Emeritus Professor of Education.*
Malcolm S. MacLean, Ph.D., *Emeritus Professor of Education.*
F. Dean McClusky, Ph.D., *Emeritus Professor of Education.*
Lynne C. Monroe, Ed.D., *Emeritus Professor of Education.*
Lloyd N. Morrisett, Ph.D., *Emeritus Professor of Education.*
Frances M. Obst, Ed.D., *Emeritus Professor of Education.*
Rosemary Park, Ph.D., LL.D., Litt.D., L.H.D., *Emeritus Professor of Education.*
May V. Seagoe, Ph.D., *Emeritus Professor of Education.*
Paul H. Sheats, Ph.D., LL.D., *Emeritus Professor of Education.*
Lorraine M. Sherer, Ed.D., *Emeritus Professor of Education.*
Samuel J. Wanous, Ph.D., *Emeritus Professor of Education.*
Frederic P. Woellner, Ph.D., Litt.D., LL.D., *Emeritus Professor of Education.*
Eva L. Baker, Ed.D., *Associate Professor of Education.*
Gordon L. Berry, Ed.D., *Associate Professor of Education.*
James E. Bruno, Ph.D., *Associate Professor of Education.*
Sol Cohen, Ph.D., *Associate Professor of Education.*
Charlotte A. Crabtree, Ph.D., *Associate Professor of Education (Vice Chairman of the Department).*
Gary D. Fenstermacher, Ph.D., *Associate Professor of Education.*
Simon Gonzalez, Ed.D., *Associate Professor of Education.*
Charles C. Healy, Ph.D., *Associate Professor of Education.*
Wendell P. Jones, Ph.D., *Associate Professor of Education.*
Marilyn H. Kourilsky, Ph.D., *Associate Professor of Education.*
Thomas J. LaBelle, Ph.D., *Associate Professor of Education.*
David O'Shea, Ph.D., *Associate Professor of Education and Sociology.*
Val D. Rust, Ph.D., *Associate Professor of Education.*

Richard J. Shavelson, Ph.D., *Associate Professor of Education.*
Rodney W. Skager, Ph.D., *Associate Professor of Education.*
James W. Trent, Ph.D., *Associate Professor of Education.*
Carl Weinberg, Ed.D., *Associate Professor of Education.*
Richard C. Williams, Ph.D., *Associate Professor of Education.*
Leigh Burstein, Ph.D., *Assistant Professor of Education.*
Kenyon S. Chan, Ph.D., *Assistant Professor of Education.*
James W. Keesling, Ph.D., *Assistant Professor of Education.*
Antoinette Krupski, Ph.D., *Assistant Professor of Education.*
Janice E. Laine, Ed.D., *Assistant Professor of Education.*
Luis M. Laosa, Ph.D., *Assistant Professor of Education.*
Romeria T. McLaurin, Ph.D., *Assistant Professor of Education.*
Kathleen R. Penfield, Ph.D., *Assistant Professor of Education.*
Gary L. Riley, Ph.D., *Assistant Professor of Education.*
Ruby Takanishi, Ph.D., *Assistant Professor of Education.*
David P. Wright, Ph.D., *Assistant Professor of Education.*

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Byron H. Atkinson, Ed.D., *Lecturer in Education.*
James C. Coleman, Ph.D., *Professor of Education and Psychology.*
Marjorie S. Day, Ph.D., *Lecturer in Education.*
Carol A. Falender, Ph.D., *Assistant Professor of Education in Residence.*
John N. Hawkins, Ph.D., *Assistant Professor of Education in Residence.*
Robert B. Kindred, Ed.D., *Lecturer in Education.*
Lewis C. Solmon, Ph.D., *Associate Professor of Education in Residence.*

Area I: Social and Philosophical Studies in Education

Field of Specialization:
Comparative and International Education
Philosophy and History of Education
Sociology and Anthropology of Education

COMPARATIVE AND INTERNATIONAL EDUCATION

204A. Schooling in Comparative Perspective.
An examination of aims, structures, and administrative arrangements of formal, nonformal, and informal schooling within the context of national and cultural character. Cross-national studies in education will be used to assess the impact of socio-cultural variables on educational processes.
Mr. Jones, Mr. LaBelle, Mr. Rust

204B. Introduction to Comparative Education.
An examination of conceptual and methodological questions underlying comparative education. Particular attention is given to the development of the field and to styles of social analysis which may be applied to comparative and cross-national studies in education.
Mr. Jones, Mr. LaBelle, Mr. Rust

204C. Education and National Development.
Application of social science perspectives and methodologies to education in the international context. Emphasis on relevant research literature and development processes and strategies for international development education with concentration on so-called less developed countries.
Mr. Jones, Mr. LaBelle, Mr. Rust

204D. Minority Education in Cross-Cultural Perspective.
Historical and contemporary analyses of educational policies with regard to ethnic, religious, and linguistic minorities through selected national and international case studies. Introduction to cross-cultural education in representative countries in relation to social, political, and economic systems.
Mr. Jones, Mr. LaBelle, Mr. Rust

204E. International Efforts in Education.
Analysis of problems and concepts related to diffusion, borrowing, and adaptation across cultural and national boundaries. Activities of bilateral and multilateral agencies in promoting international education are examined, as well as conceptual and practical curricular efforts which intend to increase international understanding.
Mr. Jones, Mr. LaBelle, Mr. Rust

253A. Seminar: Current Problems in Comparative Education.
Mr. Jones, Mr. LaBelle, Mr. Rust

253B. Seminar: African Education.
Mr. Jones

253C. Seminar: Asian Education.
The Staff

253D. Seminar: Latin American Education.
Mr. LaBelle

253E. Seminar: European Education.
Mr. Rust

PHILOSOPHY AND HISTORY OF EDUCATION

200A. Historical Research and Writing.
Techniques of historical research and writing. For students who are or who will be engaged in research, and report or paper or thesis writing, regardless of their field of interest.
Mr. S. Cohen

M201A. History of Western Education.
(Same as History M215A.) The rise of the Western educational tradition; major ideas, institutions, personalities. From the world of the Greeks to that of the Twentieth Century.
Mr. S. Cohen

M201B. History of American Education to 1860.
(Same as History M215B.) Development of American education from the 17th Century to the Civil War. The emergence of the public school system in the context of social, intellectual and political change.
Mr. S. Cohen

M201C. History of American Education, 1860 to the Present.
(Same as History M215C.) Emphasis on problems of urbanization, industrialization, immigration and public school reform. Contemporary school reform movements in context of social change.
Mr. S. Cohen

206A. Philosophy of Education: Introduction.
Systematic introduction to the entire field, indicating ways in which philosophy serves to elucidate educational aims, content, methods, and values.
Mr. Fenstermacher

206B. Philosophy of Education: Existentialism.
Examination of the meaning of the existentialist and phenomenological movements for educational thought and practice.
The Staff

206C. Philosophy of Education: Logic and Language.
Conceptual analysis of recurrent and contemporary themes in the field. Emphasis is on the development of logical and linguistic skills used in the analysis of educational problems and issues.
Mr. Fenstermacher

206D. Philosophy of Education: Ethics and Values.
A study of ethics and value theory in teaching and learning, educational organization and policy, and curriculum design and validation.
The Staff

206E. Philosophy of Education: Introduction to Humanism in Education.
Examines the philosophical foundations of humanism and their relationships to educational theory and practice.
Mr. Weinberg

M250A. Seminar: History of Education.
(Same as History M287A.) Selected topics in History of Education: discussion, research, and writing.
Mr. S. Cohen

M250B. Seminar: History of Education.
(Same as History M287B.) To be given alternate years. Advanced seminar in bibliography and historiography in history of education.
Mr. S. Cohen

251A. Seminar: Philosophy of Education, Epistemology
Prerequisite: consent of the instructor.
Mr. Fenstermacher, Mr. Weinberg

251B. Seminar: Philosophy of Education, Behavioral Science Problems in Education—Humanistic Perspectives.
Prerequisite: course 206E or consent of the instructor.
Mr. Weinberg

251C. Seminar: Philosophy of Education, Behavioral Science Problems—Methodological Perspectives.
Prerequisite: course 206C or consent of the instructor.
Mr. Fenstermacher

251D. Seminar: Philosophy of Education, Problems in Ethics and Values.
Prerequisite: course 206D or consent of the instructor.
The Staff

251E. Seminar: Philosophy of Education, Selected Issues.
The Staff

SOCIOLOGY AND ANTHROPOLOGY OF EDUCATION

M108. Sociology of Education.

(Same as Sociology M143.) Prerequisite: Sociology 1A or 101. Study of social processes and interaction patterns in educational organizations; the relationship of such organizations to aspects of society, social class and power; social relations within the school, college and university; formal and informal groups, subcultures in educational systems; roles of teachers, students and administrators.

Mr. O'Shea

200B. Survey Research Methods in Education.

Prerequisite: course 210A or the equivalent. Problems of conceptualization, organization and gathering non-experimental and quasi-experimental quantitative data.

Mr. O'Shea

200C. Analysis of Survey Data in Education.

Three class hours, two hours laboratory. Prerequisite: course 200B. Introduction to techniques of processing and analyzing non-experimental and quasi-experimental quantitative data.

The Staff

203. Anthropology and Education.

Prerequisite: Anthropology 22 recommended. Study of education through the research and methods of the cultural anthropologist. Interdependence of culture and education with emphasis on cross-cultural studies of personality, enculturation, values, peer and folk culture, culture change, and normative culture.

Mr. LaBelle

208A. The Organization of Education.

Prerequisite: some background in social science. Analysis of social and political features of educational institutions. Emphasis on change in education, the distribution of power in school systems and the nation, and educational organization.

Mr. Gordon, Mr. O'Shea

208B. Sociological Paradigms in Education.

Prerequisite: course 208A or the equivalent. The adaptation of sociological paradigms to the analysis of educational systems. Models, typologies and conceptual systems on the subject of formal and informal organization, social disorganization, system functions, social change, role conflict, and the interaction of institutions are considered.

Mr. Gordon

215. Sociology of Counseling and Guidance.

The role of the counselor in a social system. The social world of education with emphasis on problems and conflicts. The counselor's function in social reconstruction and clinical sociology.

The Staff

252A. Seminar: Educational Organizations.

Mr. Gordon, Mr. O'Shea

252B. Seminar: Education and Social Change.

Prerequisite: course 208A or consent of instructor.

Mr. LaBelle, Mr. O'Shea

Area II: Psychological Studies in Education

Fields of Specialization:
Counseling
Early Childhood Development
Learning and Instruction
Research Methods and Evaluation
Special Education

COUNSELING

213A. Fundamentals of Student Personnel Work.

The formulation of objectives, analysis of ways of implementing guidance programs, and evaluation of the outcomes; emphasis on congruence between objectives, implementation, and evaluation.

Mr. Healy

213B. Legal and Ethical Bases of Student Personnel Work.

Prerequisite: course 213A. Ethical and legal codes relevant to pupil personnel services; relation of value systems and personality; case studies in the implications of personal values in counseling situations.

Mr. Berry, Mr. Sorenson

213C. Group Process in Education.

Group productivity, leadership, social perception and attitude formation, decision-making, determination of group interaction variables and the effect of behavior changes in individuals and groups.

Mr. Berry, Mr. Sorenson

214A-214B. Counseling Theory and Practice.

Prerequisite: limited to candidates for advanced degrees whose major interest is counseling, and to selected high school and college counselors. Counseling procedures, educational planning, and methods for helping students handle personal problems that interfere with school progress; critical evaluation of procedures.

Mr. Sorenson

216A-216B. Counseling in the Urban School and Community.

Prerequisite: course 213A or 214A and consent of the instructor. Research related to the psychological, educational, and sociological characteristics of urban students and the implications for counseling models. Development and evaluation of counseling procedures through practicum-type experiences dealing with school and community groups will be systematically covered.

Mr. Berry

257. Seminar: Pupil Personnel Services.

Mr. Sorenson

413A-413B-413C. Internship in School Psychology.

Prerequisite: consent of the instructor; courses 413A-413B-413C must be completed in three consecutive quarters; limited to students enrolled in the Counseling specialization. Two class hours, sixteen hours of field experience. Working in public schools or comparable setting performing duties of a school psychologist—psychodiagnosis, integrating case material, staffing cases, developing educational plans, working with teachers and parents, and establishing evaluative criteria.

Mr. Healy, Mrs. McLaurin

415A. The Appraisal of Intelligence.

Prerequisite: courses 210A and 211A. The development of cognitive functioning in relation to intelligence testing, laboratory experience in individual testing.

Mr. Healy, Mrs. McLaurin

415B. The Appraisal of Human Motivation.

Prerequisite: course 415A. The role of biological and cultural determinants in the development of personality structures; personality, interest and attitude testing; analysis of case studies.

Mr. Healy, Mrs. McLaurin, Mr. Sorenson

EARLY CHILDHOOD DEVELOPMENT

217A. Child Development and the Educational Process.

Biological and familial, school, and other influences on the child; development in the context of current research and theoretical models; consideration of theoretical and methodological research on family and school; application of developmental theory and research to educational practice.

The Staff

217B. Intellectual Development and School Performance.

Prerequisite: course 217A or equivalent. Developmental, behavioral, environmental, genetics, structural, cross-cultural, and methodological approaches to the study of intellectual functioning and educational performance in preschool and school children.

Mr. Laosa

217C. Personality Development and Motivation in Education.

Personality development and environmental conditions which form motivational patterns; self-concept, moral behavior, aggression; creativity, sex differences, research and personality theory bearing on motivational problems in school settings and curricula development.

Ms. Feshbach

217D. Language Development and Education.

Research and theory on how children develop their first language. Sociolinguistic and psycholinguistic issues in preschool and primary years. Bilingual and dialectical issues.

Mr. Laosa

217E. Developmental Problems in Early Childhood.

Prerequisite: two core courses in development and learning. Problems of atypical development during early childhood viewed from an interactional position which has significance for later learning and education. Topics include early identification; implications for school learning; impact of disability on parent-child interactions; and early intervention programs.

Ms. Keogh

258B. Seminar: Special Topics in Development

Prerequisite: consent of instructor.

Ms. Feshbach, Mr. Laosa

261A. Seminar: Early Childhood Education.

Prerequisite: courses 421A-421B.

Ms. Falender, Ms. Feshbach, Ms. Takanishi

421A. Programs, Models and Research in Early Childhood Education.

Prerequisite: one course in the development series and one quarter field placement. Introduction to programs and research in early childhood. Observation of preschool programs (cooperative nurseries, Headstart, private nurseries, Montessori preschools, day care centers). The organization and evaluation of educational research and its relation to goals of early childhood education.

Ms. Falender

421B. Cognitive Education of the Young Child.

Prerequisite: course 217A or 217B, or equivalent. Offered only in alternate years. Review of current theories of cognitive development, e.g., Piaget, Bruner, Guilford, Skinner, and their implications for the development of preschool programs (including those in child care centers).

The Staff

421C. Research and Evaluation of Early Childhood Programs.

Prerequisite: courses 421A and 421B, or equivalent. Critical review and evaluation of the various preventive and remedial programs for the young child. Analysis of relevant research findings and methodological issues; cross-cultural research on early childhood education programs.

Ms. Takanishi

421D. Parents and Community Agents in Childhood Development.

Prerequisite: two courses from the development sequence and one course from early childhood education, or equivalent. Parents and community agents as resources for childhood education. Training parents of preschoolers and elementary school children. Role of preschool programs in the community. Development of culturally significant school programs derived from examination of experiences of young children.

Ms. Feshbach

421E. Techniques for Behavior Change in the Young and Elementary Age Child.

Prerequisite: consent of the instructor. Review of learning theory principles and research relevant to behavioral development and change; application of behavior techniques to problems arising in preschool and early primary grades. Management of aggression; facilitation of cooperation, empathy, and curiosity.

The Staff

421F. Current Perspectives in Early Childhood Development for the Professional.

Prerequisite: recommended for professionals in Early Childhood Education. Critical issues and recent developments in the field and practice of Early Childhood: Organization, curricula and program evaluation; policy and legislative factors; day care; parent programs; community participation in programs; cognitive, emotional and exceptional development; early intervention and mental health.

Ms. Feshbach and the Staff

LEARNING AND INSTRUCTION

212A. Learning and Education.

A review of the theoretical and empirical literature on learning in relation to instruction.

Mr. Silberman, Mr. Wittrock

212B. Motivation and Affect in the Educative Process.

Prerequisites: courses 210A and 212A. A review of the theoretical and empirical literature on motivational factors in school settings and the conditions for the acquisition of affective outcomes.

Mr. Keislar

212C. Cognition and Creativity in Education.

Prerequisite: course 212B. A review of the theoretical and empirical literature on cognitive processes in school learning, including concept learning, problem solving, learning to learn, and creativity.

Mr. Wittrock

256A. Seminar: Special Topics in School Learning.

Prerequisite: consent of instructor.

Mr. Keislar, Mr. Wittrock

258A. Seminar: Problems in Instructional Research.

Mr. Keislar, Mr. Wittrock

258B. Seminar: Problems in Instructional Development.

Ms. Baker, Mr. Keislar

267. Seminar: Educational Technology.

Prerequisite: course 433A; 433B recommended.

Ms. Baker, Mr. Silberman

419A. Experimentation on Media of Communication and Instruction.

Prerequisite: course 210A. Analysis of basic methods used and results obtained in experiments on the development of knowledge, skills and attitudes through audio-visual communication media and other instructional programs.

The Staff

419B. Experimental Analysis of Instructional Program Variables.

Two class hours, four hours laboratory. Prerequisite: courses 210A, 212A, 419A; 210B and 212B or 212C recommended. Advanced problems of methodology and rationale in the planning and conduct of experiments on the effects of psychologically defined variables in instructional programs; theory and techniques of laboratory and field experiments on instructional media.

The Staff

433A. Instructional Product Development.

Prerequisite: consent of the instructor. An examination of the procedures employed in the systematic development of instructional products. Students acquire competencies associated with those procedures.

Ms. Baker, Mr. Popham

433B. Technological Development in Educational Media.

Two class hours, four hours laboratory. Prerequisite: course 433A; 210A and 212A recommended. Theory, current problems, and anticipated trends in instrumentation and systems development for instructional applications and research; including computer-aided instruction, communication satellites, and other advanced systems; theory and laboratory practice with instrumentation in educational research.

Mr. Silberman

RESEARCH METHODS AND EVALUATION

210A. Basic Concepts in Educational Research.

Fundamentals of research. The language of research. Basic statistical concepts. Planning of research. Interpretation of research outcomes. Introduction to descriptive statistics: mean, median, mode, variance. Introduction to normal curve. It is strongly recommended that all students have this background as a minimum.

Mr. Burstein, Mr. Shavelson, Mr. Skager

210B. Experimental Design in Educational Research.

Prerequisite: knowledge of descriptive statistics. Inference. Randomization test or t-test. Normal curve tests. Analysis of variance. Randomized block and factorial designs. Internal and external threats to the validity of research conclusions.

Mr. Burstein, Mr. Shavelson

210C. Experimental Design: Advanced Topics.

Prerequisite: course 210B or equivalent work. Completely randomized designs, randomized block designs and their combinations into advanced factorial designs using fixed, random, and mixed models. Analysis of covariance, introduction to multiple regression and quasi-experimental designs.

Mr. Keesling, Mr. Shavelson

210D. Experimental Design: Multivariate Analysis.

Prerequisite: course 210C or equivalent work. Review of multiple regression analysis, analysis of covariance. Introduction to matrix algebra. Introduction to multivariate normal distribution. Multivariate analysis of variance. Linear discriminant function. Analysis of repeated measurements. Canonical correlation. Principal components.

Mr. Burstein, Mr. Keesling

211A. The Measurement of Educational Achievement and Aptitude.

Prerequisite: course 210A. A critical study of tests of achievement and aptitude with an emphasis on group tests; the relation of achievement to aptitude; social implications of the measurement of intelligence; elements of validity and reliability.

Mr. Alkin, Mr. Shavelson, Mr. Skager

211B. Measurement in Education: Underlying Theory.

Prerequisite: course 211A. Measurement theory as applied to testing, focusing primarily on classical test theory; implications of theories for test construction and selection; current status of validity and reliability theory.

Mr. Burstein, Mr. Shavelson, Mr. Skager

211C. Problems in Measurement.

Prerequisite: courses 210C and 211B or equivalent work. Generalizability theory and some other statistical theories of mental test scores; implications for the design and interpretation of generalizability and decision studies; advanced topics in validity.

Mr. Burstein, Mr. Shavelson, Mr. Skager

218A. Multiple Regression Analysis.

Prerequisite: course 210B. Regression-based techniques for analyzing quantitative data; multiple regression methods, multiple correlation, partial correlation; introduction to the general linear model; with direct application to educational inquiry.

Mr. Burstein, Mr. Keesling

218B. Quasi-Experimental Models in Educational Research.

Prerequisites: course 218A or the equivalent and consent of the instructor. Study of the assumptions and limitations inherent in quasi-experimental research designs. The time-series intervention design will be stressed. The students will be able to design an appropriate quasi-experiment to assess the impact of a particular educational intervention.

Mr. Keesling and the Staff

218C. Causal Models in Non-Experimental Research.

Prerequisites: course 218A or the equivalent and consent of the instructor. Study of the inferential bases for the construction and validation of causal models in settings where true experiments are not appropriate. Statistical models from sociology, biology, and econometrics will be discussed. Assumptions and limitations of these models will be stressed.

Mr. Burstein and the Staff

219. Laboratory: Advanced Topics in Research Methodology. (½ course)

Provides assistance in the design of research and interpretation of data to advanced students from other specializations. Coverage of special topics not included in other courses on research methods.

Mr. Shavelson

221. Critical Analysis of Empirical Research in Education.

Prerequisites: courses 210A and 210B or equivalent background, and consent of the instructor. A course examining contemporary empirical research in education and its relevance to educational practice. Designed to develop critical skills in reviewing substantive and methodological aspects of research.

Mr. Shavelson

255. Seminar: Special Topics in Measurement and Research Design.

Prerequisite: courses 210C and 211C or consent of the instructor.

The Staff

SPECIAL EDUCATION

125. The Education of Exceptional Children.

Prerequisites: Psychology 10 and 12 or 101. The psychology of individual difference with emphasis on the learning characteristics of exceptional children and application of research and theory to special education programs.

Mr. Chan, Mr. Hewett

225. Issues in the Education of Exceptional Children.

Prerequisite: limited to students in graduate degree programs. Analysis of major research regarding contemporary trends, issues, and programs for the exceptional; consideration of commonalities and differences among exceptional children.

Mr. Chan, Ms. Keogh, Ms. Krupski

226A. Medical-Biological Aspects of Mental Retardation.

Research on physical and psychiatric aspects of mental retardation as they affect learning in children; instructional modifications based on such factors.

Ms. Krupski

226B. Psychosocial Aspects of Mental Retardation.

Prerequisite: course 225 or equivalent. Research on the psychological and sociological aspects of mental retardation as they affect learning in children; instructional modifications based on such factors.

Mr. Chan

227A. Research on the Education of the Emotionally Disturbed.

Prerequisite: course 225 or equivalent. Research on the emotionally disturbed and their learning characteristics; instructional modifications based on such factors.

Mr. Hewett

227B. Research on the Education of Children with Learning Disabilities.

Prerequisite: course 225 or equivalent; Psychology 132A-132B recommended. Research on learning disorders with special reference to minimal neurological impairment; instructional modifications based on such factors.

Ms. Keogh

280A. Seminar: Exceptional Children.

Prerequisite: course 225, or 226A, or 227A and admission to a doctoral program.

Mr. Chan, Ms. Krupski

280B. Seminar: The Mentally Retarded.

Prerequisite: course 225, or 226A, or 277A and admission to a doctoral program.

Ms. Krupski

280C. Seminar: The Educationally Handicapped.

Prerequisite: courses 225, or 226A, or 227A and admission to a doctoral program.

Mr. Hewett, Ms. Keogh

M280D. Seminar: Children with Learning Disorders.

(Same as Psychology M276A.) Prerequisite: course 225, or 226A, or 227A and admission to a doctoral program.

Mr. Coleman

M280E. Seminar: Children with Learning Disorders.

(Same as Psychology M276B.) Prerequisite: course 225, or 226A, or 227A and admission to a doctoral program.

Mr. Coleman

325A. Introductory Laboratory in the Education of Exceptional Children. (½ to 1 course)

Prerequisite: course 125 or consent of the instructor. Four to eight hours per week field work in the UCLA Neuropsychiatric Institute School, other campus facilities, or public school special education programs. Emphasis on observation and study of children who have learning disabilities, are emotionally disturbed, or are mentally retarded.

Mr. Chan, Mr. Hewett, Ms. Krupski

325B. Advanced Laboratory in the Education of Exceptional Children. (½ to 1 course)

Prerequisite: course 325A or consent of the instructor. Four to eight hours per week field work in the UCLA Neuropsychiatric Institute School, other campus facilities, or public school special education programs. Emphasis on teaching children who have learning disabilities, are emotionally disturbed, or are mentally retarded.

Mr. Chan, Mr. Hewett, Ms. Krupski

425A. Appraisal of Exceptional Children.

Prerequisite: courses 225 and 415A or the equivalent. Individual appraisal of exceptional children with emphasis on the physically handicapped, mentally retarded, educationally handicapped, and gifted; analysis of tests and diagnostic procedures; case studies.

The Staff

425B. Guidance of Exceptional Children.

Prerequisite: course 225 or the equivalent. Educational, vocational, and personal guidance of the exceptional; parent counseling; career and training opportunities; community referrals.

The Staff

426. Analysis of Programs for the Mentally Retarded.

Prerequisite: course 225 or the equivalent. Evaluation of instructional practice in relation to current research; formulation of model programs.

The Staff

427A. Analysis of Programs for the Emotionally Disturbed.

Prerequisite: course 225 or the equivalent. Evaluation of instructional practice in relation to current research; formulation of model programs.

Mr. Hewett

427B. Analysis of Programs for Children with Learning Disabilities.

Prerequisite: course 225 or the equivalent. Evaluation of instructional practice in relation to current research; formulation of model programs.

Mr. Chan, Ms. Keogh

■Area III: Organizational and Administrative Studies in Education

Fields of Specialization:
Administrative Studies in Education
Business-Economic Education
Comprehensive Curriculum
Higher Education
The Study of Elementary and Secondary School Programs
Urban Educational Policy and Planning
Vocational-Technical Education

ADMINISTRATIVE STUDIES IN EDUCATION

240A. Theory and Research in Educational Administration.

Comprehensive study of the organizational problems of education.

Mr. Lucio

240B. Problems in Educational Government and Finance.

Intensive study of problems and issues affecting the governance and finance of schools.

The Staff

240C. Administrtion of the Instructional Program.

Examination of current educational problems in the society and the strategies of their solution through curriculum policy and practice; instructional design and operation; and in-service training of teaching staffs.

Mr. Fielstra

241. Research Methodology in School Administration.

Prerequisite: consent of the instructor. Examination of research problems and strategies in school administration.

The Staff

242A. Administration of Large Systems and Individiual Schools.

Prerequisite: consent of the instructor. Theoretical and functional problems in the administration of large systems and decentralized individual schools.

Mr. Lucio

242B. Legal Bases of Education.

Theory of laws relating to education; specific laws, court decisions, and legal procedures relating to schools, colleges, and universities.

The Staff

242C. Personnel Systems in Schools.

The formulation and execution of personnel policies from both the organizational and individual basis.

Mr. Fawcett

242D. Educational Finance.

Historical and theoretical background of educational finance; considers principles related to federal and state participation in educational finance; considers other economic factors related to the provision and utilization of financial resources in schools.

The Staff

242E. Administration of In-Service Education.

Emphasis on the development of knowledge, skills, and attitudes essential to exercising leadership in the facilitation of the professional growth of teachers, school administrators, and other educational personnel, especially as such growth contributes to instructional improvement and relevant curriculum development.

Mr. Fielstra

242F. Economic Analysis for Educational Policy and Planning.

Introductory survey in the use of quantitative analysis for problems in educational planning. Includes multivariate analysis, instructional systems engineering, systems approach to educational planning, design of management information systems in education, educational planning in underdeveloped countries, and computer-programming fundamentals.

Mr. Bruno

242G. Communication Systems in Schools.

Communication theory and its application to administrative problems; includes internal communications among board members and among superintendent and staff, and external communication with the community.

Mr. Fawcett

270A. Seminar: Large Systems and Individual Schools.

Prerequisite: consent of the instructor.

Mr. Lucio

270B. Seminar: Educational Government.

Prerequisite: consent of the instructor.

The Staff

270C. Seminar: Personnel Systems.

Prerequisite: consent of the instructor.

Mr. Fawcett

270D. Seminar: Educational Finance.
Prerequisite: consent of the instructor.
The Staff

270E. Seminar: In-Service Education.
Prerequisite: consent of the instructor.
Mr. Fielstra

270F. Seminar: Communication Systems.
Prerequisite: consent of the instructor.
Mr. Fawcett

BUSINESS-ECONOMIC EDUCATION

262G. Seminar: Business Education.
Mr. Erickson

262J. Seminar: Economic Education.
Mrs. Kourilsky

337A. The Curriculum in Business Education.
The curriculum in business education in secondary schools, including instructional techniques, course content, prognosis of achievement, standards, error analyses, transfer of training, remedial techniques, and evaluation.
Mr. Erickson

337B. The Teaching of Secretarial Subjects.
A survey and evaluation of procedures and materials used in teaching typewriting, secretarial subjects, office practice and business machines.
Mr. Erickson

337C. The Teaching of Bookkeeping, General Business, and Economics.
A survey and evaluation of the procedures and materials used in teaching bookkeeping, general business, and economics in secondary schools.
Mr. Erickson

436A. Principles and Problems of Business Education.
Historical development and principles, practices, and problems in business education in secondary schools and colleges.
Mr. Erickson

436B. Business Education in Secondary and Higher Education: Advanced.
Advanced study in business education with a critical analysis of significant research applicable to curriculum and teaching practices.
Mr. Erickson

436C-436D. Education in Family Finance.
Prerequisite: credit toward advanced degrees by petition only. Theories, principles, concepts and research relating to sound personal and family financial management.
Mr. Erickson

436E. Evaluation and Field Research in Family Finance Education. (¼ to 1 course)
Concepts and principles relating to family finance education and their application to teaching situations.
Mr. Erickson

437A. Principles of Curriculum in Economic Education.
Theories, principles and concepts relating to an understanding of the business and economic system; their application to teaching in the secondary school.
Mrs. Kourilsky

437B. Corporate Educational Programs.
History and scope of corporate training programs; current educational problems in training programs within industry as they are affected by automation and technological change.
The Staff

437C. Curriculum in Electronic Computers.
This course deals with courses of study, instructional materials, methods of presentation and evaluation of a number of programs in automated information processing for high schools and junior colleges.
The Staff

COMPREHENSIVE CURRICULUM

260. Seminar: Principles of Curriculum and Instruction.
Mr. Goodlad, Mr. McNeil, Mrs. Tyler

410A. Procedural Problems in Curriculum Evaluation.
Assessment methodologies appropriate for curriculum evaluation problems. Writing evaluation proposals, developing program monitoring procedures, selecting appropriate evaluation design strategies, coping with ethical considerations in evaluation, framing the decision context, and reporting evaluation results.
Mr. Alkin, Mr. Popham

410B. Assessment Problems in Curriculum Evaluation.
An examination of problems and alternative solutions associated with the task of evaluating curriculum enterprises. Consideration is given to criterion-referenced measurement, domain-referenced achievement testing, and unobtrusive measurement strategies as these topics relate to the assessment of curricular programs.
Mrs. Baker, Mr. Popham

420A. Principles of Curriculum.
Critical examination of the basic concepts underlying the determination of objectives, the selection and organization of learning experiences, and the evaluation process.
Mr. McNeil, Mrs. Tyler

420B. Instructional Analysis.
Prerequisite: consent of instructor. Analysis of instructional variables as they relate to diverse types of instructional strategies. The student acquires skill in techniques of conducting instructional research.
Mrs. Baker, Miss Crabtree

420C. Evaluation of Curriculum and Instruction.
Prerequisite: consent of instructor. Ways of evaluating the effectiveness of curriculum and instruction, including assessment and improvement of teacher behavior and accomplishment.
Mr. Alkin, Mr. Popham, Mrs. Tyler

420D. Interrelationships Among Curriculum, Instruction, and Evaluation.
Examines the dynamics among three major decision-making arenas in the field of education, namely, curriculum, instruction, and evaluation. The course is designed for the nonspecialist in these emphases, and provides an overview of important issues and methodologies associated with each.
Mrs. Baker, Mr. McNeil, Mrs. Tyler

423. The Humanistic Curriculum.
Considers the philosophical and cultural foundations of humanistic curricular strategies. Reviews techniques and procedures of affective education with a view to their place in an overall theory of teaching and learning.
Mr. Weinberg

460. Seminar: Special Issues in Curriculum Evaluation.
Mr. Alkin, Mr. Popham, Mrs. Tyler

HIGHER EDUCATION

209A. History of Higher Education.
An examination of the development of post-secondary education in the United States with attention to the social context and to the scope and variety of institutions.
The Staff

209B. Issues in Higher Education.
Identification, analysis, and discussion of major problems and issues in higher education—in administration, curriculum, student life, governance, and institutional purposes—and of efforts to deal with these issues.
Mr. A. Cohen

209C. Problems in Research and Evaluation in Higher Education.
A critical review of research and evaluation studies of higher education with special attention to the need for studies of new programs and problems, and to the design and methodology of evaluative research.
Mr. Astin, Mr. Pace

249A. Seminar: National Evaluations of Post-Secondary Education
Critical review of national evaluation studies of higher education including programs of general education, and professional and graduae school programs; emphasis on the design, methodology, and interlpretation of large-scale evaluation studies.
Mr. Astin

249B. Seminar: Institutional Research and Program Evaluation.
Critical review of institutional evaluation studies with consideration of the scope of information needed for various purposes and the problems of interrelating this information to appraise overall institutional functioning and effectiveness.
Mr. Riley, Mr. Trent

259A. Seminar: Research on Characteristics of Students.
Mr. Trent

259B. Seminar: Research on Characteristics of Educational Environments.
Mr. Pace

261D. Seminar: The Community College.
Mr. A. Cohen, Mr. Kintzer

261F. Seminar: Higher Education.
Mr. Cartter, Mr. Riley, Mr. Solmon

334. Supervised Teaching: Junior College.
Prerequisite: course 431B taken prior to or concurrent with 334.
Mr. A. Cohen

431A. Administration in Higher Education.
An overview of college and university administration. Case studies of administrative problems, policies, and practices. Management information systems, resource allocations, and issues related to responsibility, authority, and participation in administrative decisions.
Mr. Cartter, Mr. Riley

431B. Curriculum and Instruction in Higher Education.
Principles of curriculum and instruction in post-secondary programs. Theory and practices in goal-setting, testing, media selection, and related instructional responsibilities. Preparing to teach college level students.
Mr. A. Cohen

431C. Innovative Forms and Practices in Higher and Continuing Education.
New institutional forms, e.g., external degree programs and other nontraditional approaches to higher education, neighborhood learning centers, and peoples' colleges. Methodological innovations such as computer-

assisted instruction, credit by examination, and independent study.

The Staff

432. Seminar: Professional Topics in Higher Education.

Mrs. Astin, Mr. Cartter

461A. Seminar: Adult Education.

Mrs. Penfield

461B. Seminar: Adult Education in Other Countries.

Mrs. Penfield

461C. Seminar: Community Service and Development Programs in Post-Secondary Education.

Mr. Kintzer

THE STUDY OF ELEMENTARY AND SECONDARY SCHOOL PROGRAMS

220A. Inquiry into Schooling: Organization and Change.

Critical analysis of issues in the reconstruction of schooling; concepts of function and structure of schooling; organization theory; systems approaches in the analysis of organization development and change.

Miss Crabtree, Mr. Goodlad, Mrs. Tyler

220B. Inquiry into Schooling: Curricular Problems.

Inquiry into the curriculum of schooling. Critical analysis of the relationship of curricular decision-making to social system and contextual variables.

Mr. Goodlad, Mrs. Tyler, Mr. Wright

220C. Inquiry into Schooling: Basic Issues.

The nature of the school in the United States and in selected countries; school organization; schooling alternatives; special problems.

Mr. Goodlad, Mrs. Tyler

261B. Seminar: Elementary Education.

Miss Crabtree, Mr. Wright

261C. Seminar: Secondary Education.

Mr. Silberman

262A. Seminar: The Social Studies.

Miss Crabtree

262B. Seminar: Reading.

Miss Laine

262C. Seminar: Mathematics.

The Staff

262D. Seminar: Language Arts and English.

Miss Laine

262E. Seminar: Science.

The Staff

268. Seminar: Instructional Analysis.

Prerequisite: course 420A. Critical examination of theories of instruction; problems in conceptualizing and researching related instructional, learner, and social-system variables in classroom learning; problems in instructional decision-making and change.

Miss Crabtree, Mr. Silberman, Mrs. Tyler

424A. The Social Studies in the Curriculum.

Advanced study in social studies curriculum development; problems in defining objectives and organizing single and multidisciplinary programs; critical review of literature on cognitive and affective learning in social science, with emphasis on experimental study of instructional programs.

Miss Crabtree, Mr. Wright

424B. Reading in the Curriculum.

Prerequisite: courses 210A and 313. Study of reading curricula and instructional procedures, with emphasis on the rationale and research underlying their development and the research comparing their effectiveness.

Miss Laine, Mr. Wright

424C. Language in the Curriculum.

Advanced study in the school language curriculum; application to the improvement of the curriculum in the field.

Miss Laine

424D. Mathematics in the Curriculum.

Prerequisite: courses 314 and Mathematics 38. Study of the school mathematics curriculum; the new mathematics; evaluation procedures.

The Staff

424E. Science in the Curriculum.

Prerequisite: courses 210A and 314. Study of current research problems, findings, methodology and design in school science with emphasis on application to and improvement of instruction; new types of courses; curriculum development; instfuctional techniques.

The Staff

URBAN EDUCATIONAL POLICY AND PLANNING

245A. Educational Policy Formation: The School in the Community Setting.

Prerequisite: consent of the instructor. Analyses of the school system as a political system and school-community relationships as they affect policies for urban school systems and inner-city schools. The impact of community expectations, participation, control, and power for school district responsiveness.

The Staff

245B. Educational Policy Formation: The School in a Bureaucratic Setting.

Prerequisite: consent of the instructor. Analyses of the structure and operation of urban school districts. Examination of school district dysfunction including the causes and effects of bureaucracy, the consequences of societal demands, the influences of the informal system, and the impact of teacher militancy.

The Staff

245C. Educational Policy Formation: The School in a Federal System.

Prerequisite: consent of the instructor. Analyses of intergovernmental relationships as they affect policies for urban school systems, with particular focus upon decisions influencing inner-city schools. Major attention will be given to problems of coordinating governmental programs at the community and school district level.

The Staff

246A. Mathematical Modeling of Educational Problems.

Prerequisite: course 242F and knowledge of computer programming or consent of the instructor. Mathematical modeling of educational processes and problems. Emphasis upon problems amenable to quantitative types of analysis in educational administration and more theoretical projects concerned with educational planning.

The Staff

246B. Operations Research—Systems Analysis in Education.

Prerequisite: courses 242F and 246A; knowledge of computer programming or consent of the instructor. Advanced topics in systems analysis, operations research and field work in educational institutions related to use of quantitative techniques in educational planning.

The Staff

246C. Strategic Planning in Education.

Problems of goal formulation; interorganizational competition; and control of environmental forces affecting resource utilization, with particular attention to the utility of open-planning models in providing alternative resource-allocation patterns.

The Staff

247. Seminar: Educational Policy and Planning, Special Studies.

Prerequisite: consent of the instructor.

The Staff

448A. Urban School Leadership.

Prerequisite: consent of the instructor. Analysis of the problems of urban school leadership. Emphasis is on the changing nature of the urban principalship; however, considerable attention is given to the role of other school and community agencies that interact with the urban school leader.

The Staff

448B. Urban Leadership Laboratory.

Prerequisite: consent of the instructor. Analysis of and opportunity to practice human and technical skills requisite for success as an urban school leader. Topics include negotiations, conflict resolution, applied computer technology, and effective communication. Activities include gaming, simulation, computer programming and group dynamics.

The Staff

VOCATIONAL-TECHNICAL EDUCATION

214C. Principles of Career Planning.

Prerequisite: courses 112, 211A and 415A. The use of tests and occupational information in helping students in educational and vocational planning.

Mr. Barlow, Mr. Healy

214D. Vocational Guidance.

Prerequisite: course 214C. Depth study of current interests and needs in vocational guidance; principles, problems, and practices of vocational guidance.

Mr. Barlow

233. Principles of Adult, Vocational, and Technical Education.

Prerequisite: consent of the instructor. Foundations of adult, vocational and technical education in the context of the changing nature of educational, technological, and manpower conditions.

Mr. Barlow

261E. Seminar: Technical Education in the Junior College.

Mr. Barlow

262I. Seminar: Vocational Education.

Mr. Barlow

438A-438B. Vocational Education.

Prerequisite: course 100 or the equivalent. An advanced course in the principles of vocational education from the point of view of supervisory and administrative personnel.

Mr. Barlow

TEACHER EDUCATION

100. Cultural Foundations of Education.

Prerequisite: consent of the instructor. Analysis of selected problems and issues in contemporary American education, using sociological, historical and philosophical perspectives. Special emphasis is placed upon concepts of equality, justice, indoctrination, autonomy, and authority in the context of the nature and aims of education.

The Staff

102. The Mexican-American and the Schools.

Review of research and teaching strategies. Analysis of school policies and practices and their effect on the development of Chicanos.

Mr. Gonzalez

112. Psychological Foundations of Education.
Prerequisite: consent of the instructor. Analysis of the learning processes in school situations. Examines the evaluation of learning, affective and cognitive development, social and personal growth, and the implications of relevant theory and research for instructional practice.
The Staff

264. Seminar: Teacher Education.
Prerequisite: consent of the instructor. The exploration of past and current practices in teacher education, coupled with an experimentally based approach to the assessment of such programs.
Mr. Fenstermacher

312. Curriculum and Instruction in the Schools.
Prerequisite: consent of the instructor. Analysis of basic concepts in the development, organization and evaluation of school curricula; and of the design of instruction, including study of a variety of teaching methods, and their relation to selected fields. Observation and participation in the schools.
The Staff

313. Principles and Methods of Teaching the Language Arts and Reading: K-12.
Prerequisite: consent of the instructor. Principles and methods for development of instructional programs in language arts and reading; participation in schools; two-hour laboratory by arrangement.
The Staff

314. Principles and Methods of Teaching Mathematics and Science: K-12.
Prerequisite: consent of the instructor. Principles and methods for development of instructional programs in mathematics and science with emphasis upon the integration of mathematics and science curricula. Special attention is given to teaching the metric system. Participation in schools; two-hour laboratory by arrangement.
The Staff

315. Language Development and the Teaching of Reading.
Prerequisite: consent of the instructor. The nature of the reading process, the relationship of culture to language learning, different approaches to the teaching of reading, and methods of fostering the development of reading skills. Observation and participation in the schools.
The Staff

***324A. Supervised Teaching: Multiple Subject Instruction. (1½ courses)**
The Staff

***324B. Supervised Teaching: Multiple Subject Instruction. (1½ courses)**
Prerequisite: course 324A.
The Staff

***324C. Supervised Teaching: Multiple Subject Instruction. (½ to 1½ courses)**
Prerequisite: courses 324A and 324B.
The Staff

***329. Supervised Library Service. (½ to 1 course)**
Prerequisite: limited to students or alumni of the UCLA School of Library Service.
The Staff

***330A. Supervised Teaching: Single Subject Instruction. (1½ courses)**
The Staff

***330B. Supervised Teaching: Single Subject Instruction. (1½ courses)**
Prerequisite: course 330A.
The Staff

***330C. Supervised Teaching: Single Subject Instruction. (½ to 1½ courses)**
Prerequisite: courses 330A and 330B.
The Staff

480. Learning and Development in Childhood and Adolescence.
Prerequisite: consent of the instructor. Research and theory from psychology of learning and instruction, and psychology of child and adolescent development applied to practical issues in classroom teaching. Emphasis on intellectual and cognitive development, achievement motivation, self-concept, concept learning, problem solving, and individual differences.
Miss Falender, Mrs. Feshbach, Mr. Wittrock

481. Knowledge and Inquiry in the Classroom.
Prerequisite: consent of the instructor. Examines the logical features of instruction, and demonstrates their application to inquiry techniques in teaching and learning. Analyzes various conceptions of truths, beliefs, fact and opinion, and studies their application to classroom learning situations.
Mr. Fenstermacher, Mr. Weinberg

482. Society and the Organization of School and Classroom.
Prerequisite: consent of the instructor. Analysis and resolution of problems of socialization in the classroom. Case study methods will be used to employ social and cultural concepts and social evaluation to the diagnosis and interpretation of classroom teaching problems.
Mr. Gordon, Mr. O'Shea,

483. Reading and the Cognitive Process.
Critical analysis of scholarly studies, theoretical and applied, treating relationship between reading and the mind. Considers implications for teaching of reading. Opportunities for student interaction with foremost scholars in the field, whose studies represent the "growing edge" of research.
Mr. McNeil

484. Attitudinal Change and the Classroom Environment.
Comparative study of school motivation within the classroom including behavioristic, cognitive-developmental, and humanistic approaches. Critical review of work within each of these theoretical frameworks on factors contributing to attitude change in schools, with particular reference to teaching of reading.
Mr. Keislar

489. Strategies for Educational Instruction.
Prerequisite: consent of the instructor. Analyzes methodologies in academic instruction, including research and active participation in the adversary approach, forms of debate, role playing, interaction process analysis, and feedback instruments. Practical emphasis on social sciences and humanities instruction, K-12.
Mrs. Kourilsky

490. Instructional Decision-Making. (1½ courses)
Prerequisite: consent of the instructor. Analysis of instructional models relevant to public school education. Assumptions, procedures, and constraints of each strategy considered in terms of learner and task variables. Laboratory experiences in classroom settings permit students systematically to apply and evaluate alternative instructional strategies.
Mrs. Baker, Mrs. Kourilsky

491. Curricular Decision-Making. (1½ courses)
Prerequisite: consent of the instructor. Examination of alternative solutions for the practical problems that classroom teachers face in making curricular decisions. Analysis of the influence of psychological, societal, and institutional factors in curricular decisions.
The Staff

492. Evaluation of Teaching and Learning.
Prerequisite: consent of the instructor. Examines relationship between appraisal instruments and information required for making decisions about teachers, pupils, and materials. Introduces recent developments in the evaluation of teaching and learning, and demonstrates the use of modern appraisal techniques in classroom settings.
Mr. McNeil, Mr. Popham, Mr. Skager

INDEPENDENT STUDY, RESEARCH AND INTERNSHIP

199. Special Studies. (½ to 2 courses)
Prerequisite: senior standing and consent of the instructor. Independent study of individual problems.
The Staff

299A-299B-299C. Research Practicum in Education.
May be repeated once for credit.
The Staff

498A-498B-498C. Directed Field Experience.
May be repeated once for credit.
The Staff

499A-499B-499C. Advanced Directed Field Experience.
May be repeated once for credit.
The Staff

596. Directed Independent Study. (½ to 2 courses)
Individual study or research for graduate students. Maximum credit, three courses.
The Staff

597. Preparation for the Master's Comprehensive Examination or the Doctoral Qualifying Examination.
Individual study for master's degree comprehensive examinations or for qualifying examinations on the Ph.D. or Ed.D. Maximum credit, two courses.
The Staff

598. Thesis Research.
Research for and preparation of the master's thesis. Maximum credit, two courses.
The Staff

599. Dissertation Research. (1 or 2 courses)
Research for and preparation of the doctoral dissertation. Maximum credit, no limit.
The Staff

CREATIVE PROBLEM SOLVING PROGRAM

M147. Quantitative Analysis of Public Policy Issues.
(Same course as Creative Problem Solving M177.) Prerequisite: upper division standing; elementary background in mathematics and statistics is required, or consent of the instructor. Quantitative orientation for understanding and critically analyzing the public policy issues affecting social institutions, emphasis being placed upon education. Fundamental skills in multivariate analysis and econometrics are provided to promote a better understanding of important social issues.
Mr. Bruno

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*All candidates must (1) secure the approval of the Office of Student Services at least one quarter prior to assignment, including formal recommendation of Student Health Service and evidence of suitable scholastic averages; and (2) apply to the Head of Supervised Teaching by the middle of the quarter preceding the assignment.

■ ENGINEERING AND APPLIED SCIENCE

(Office of the Dean, 7400 Boelter Hall)

Russell R. O'Neill, Ph.D., *Dean.*
Alfred C. Ingersoll, Ph.D., *Associate Dean.*
Richard Stern, Ph.D., *Assistant Dean.*
Chand R. Viswanathan, Ph.D., *Assistant Dean.*
Ahmed R. Wazzan, Ph.D., *Assistant Dean.*

COMPUTER SCIENCE

(Department Office, 3732 Boelter Hall)

Algirdas Avizienis, Ph.D., *Professor of Engineering and Applied Science.*
Bertram Bussell, Ph.D., *Professor of Engineering and Applied Science.*
Wesley W. Chu, Ph.D., *Professor of Engineering and Applied Science.*
Gerald Estrin, Ph.D., *Professor of Engineering and Applied Science.*
Walter J. Karplus, Ph.D., *Professor of Engineering and Applied Science (Chairman of the Department).*
Leonard Kleinrock, Ph.D., *Professor of Engineering and Applied Science.*
Michel Melkanoff, Ph.D., *Professor of Engineering and Applied Science.*
*Jacques J. Vidal, Ph.D., *Professor of Engineering and Applied Science.*
Thomas A. Rogers, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
Antonin Svoboda, D. Tech. Sci., *Emeritus Professor of Engineering and Applied Science.*
Alfonso F. Cardenas, Ph.D., *Associate Professor of Engineering and Applied Science.*
Joseph A. Goguen, Jr., Ph.D., *Associate Professor of Engineering and Applied Science.*
Allen Klinger, Ph.D., *Associate Professor of Engineering and Applied Science.*
David F. Martin, Ph.D., *Associate Professor of Engineering and Applied Science.*
Lawrence P. McNamee, Ph.D., *Associate Professor of Engineering and Applied Science.*
Richard R. Muntz, Ph.D., *Associate Professor of Engineering and Applied Science.*
Daniel M. Berry, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Milos D. Ercegovac, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Gerald J. Popek, Ph.D., *Assistant Professor of Engineering and Applied Science.*

*Member of the Brain Research Institute.

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David G. Cantor, Ph.D., *Professor of Mathematics and Professor of Engineering and Applied Science.*
John Hanley, Ph.D., *Associate Professor of Psychiatry in Residence and Associate Professor of Engineering and Applied Science in Residence.*
William B. Kehl, A.M., *Lecturer in Engineering and Applied Science.*
Leon Levine, M.S., *Sr. Lecturer in Engineering and Applied Science.*
Robert Uzgalis, *Lecturer in Engineering and Applied Science.*

ELECTRICAL SCIENCES AND ENGINEERING

(Department Office, 7732 Boelter Hall)

Frederick G. Allen, Ph.D., *Professor of Engineering and Applied Science.*
Francis F. Chen, Ph.D., *Professor of Engineering and Applied Science.*
Robert S. Elliott, Ph.D., *Professor of Engineering and Applied Science.*
A. Theodore Forrester, Ph.D., *Professor of Engineering and Applied Science and Professor of Physics.*
H. John Orchard, M.Sc., *Professor of Engineering and Applied Science.*
Frederick W. Schott, Ph.D., *Professor of Engineering and Applied Science.*
Gabor C. Temes, Ph.D., *Professor of Engineering and Applied Science (Chairman of the Department).*
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Cavour W. Yeh, Ph.D., *Professor of Engineering and Applied Science.*
Louis L. Grandi, M.S., *Emeritus Professor of Engineering and Applied Science.*
W. D. Hershberger, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
Ellis F. King, M.S., E.E., *Emeritus Professor of Engineering and Applied Science.*
Nicolaos G. Alexopoulos, Ph.D., *Associate Professor of Engineering and Applied Science.*
Oscar M. Stafsudd, Jr., Ph.D., *Associate Professor of Engineering and Applied Science.*
Jack Willis, B.Sci., *Associate Professor of Engineering and Applied Science.*
Alan N. Willson, Jr., Ph.D., *Associate Professor of Engineering and Aplied Science.*
Lee W. Casperson, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Rodolfo F. Cordero, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Paul T. Greiling, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Siegfried G. Knorr, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Neville C. Luhmann, Ph.D., *Assistant Professor of Engineering and Applied Science.*

ENERGY AND KINETICS

(Department Office, 5531 Boelter Hall)

Douglas N. Bennion, Ph.D., *Professor of Engineering and Applied Science.*
Harry Buchberg, M.S., *Professor of Engineering and Applied Science.*
Donald K. Edwards, Ph.D., *Professor of Engineering and Applied Science (Chairman of the Department).*
Traugott H. K. Frederking, Ph.D., *Professor of Engineering and Applied Science.*
William E. Kastenberg, Ph.D., *Professor of Engineering and Applied Science.*
Eldon L. Knuth, Ph.D., *Professor of Engineering and Applied Science.*
Joseph W. McCutchan, M.S., *Professor of Engineering and Applied Science.*
Ken Nobe, Ph.D., *Professor of Engineering and Applied Science.*
David Okrent, Ph.D., *Professor of Engineering and Applied Science.*
Richard L. Perrine, Ph.D., *Professor of Engineering and Applied Science.*
Gerald C. Pomraning, Ph.D., *Professor of Engineering and Applied Science.*
Lawrence B. Robinson, Ph.D., *Professor of Engineering and Applied Science.*
Ahmed R. Wazzan, Ph.D., *Professor of Engineering and Applied Science.*
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Vernon E. Denny, Ph.D., *Associate Professor of Engineering and Applied Science.*
Anthony F. Mills, Ph.D., *Associate Professor of Engineering and Applied Science.*
George E. Apostolakis, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Vijay K. Dhir, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Alan Z. Ullman, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Vincent L. Vilker, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Wen Shean Young, Ph.D., *Assistant Professor of Engineering and Applied Science.*

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Chung K. Chan, Ph.D., *Assistant Professor of Engineering and Applied Science in Residence.*
Chauncey Starr, Ph.D., *Adjunct Professor of Engineering and Applied Science.*

ENGINEERING SYSTEMS

(Department Office, 7619 Boelter Hall)

Albert F. Bush, M.S., *Professor of Engineering and Applied Science and Professor of Public Health.*
Edward P. Coleman, Ph.D., *Professor of Engineering and Applied Science.*
J. Morley English, Ph.D., *Professor of Engineering and Applied Science.*
Cornelius T. Leondes, Ph.D., *Professor of Engineering and Applied Science.*
John H. Lyman, Ph.D., *Professor of Engineering and Applied Science and Professor of Psychology.*
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Philip F. O'Brien, M.S., *Professor of Engineering and Applied Science.*
Russell R. O'Neill, Ph.D., *Professor of Engineering and Applied Science.*
Allen B. Rosenstein, Ph.D., *Professor of Engineering and Applied Science.*
Moshe F. Rubinstein, Ph.D., *Professor of Engineering and Applied Science.*
Allen R. Stubberud, Ph.D., *Professor of Engineering and Applied Science, Resident at Irvine.*
William D. Van Vorst, Ph.D., *Professor of Engineering and Applied Science (Chairman of the Department).*
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John L. Barnes, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
Ralph M. Barnes, Ph.D., *Emeritus Professor of Engineering and Applied Science and Emeritus Professor of Production Management.*
Alexander W. Boldyreff, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
Harry W. Case, Ph.D., *Emeritus Professor of Engineering and Applied Science and Emeritus Professor of Psychology.*
W. Julian King, M.S., M.E., *Emeritus Professor of Engineering and Applied Science.*
Wesley L. Orr, C.E., *Emeritus Professor of Engineering and Applied Science.*
Arthur F. Pillsbury, Engineer, *Emeritus Professor of Engineering and Applied Science.*
Bonham Campbell, A.B., E.E., *Associate Professor of Engineering and Applied Science.*
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Stephen Jacobsen, Ph.D., *Associate Professor of Engineering and Applied Science.*
Bruce L. Miller, Ph.D., *Associate Professor of Engineering and Applied Science.*
Judea Pearl, Ph.D., *Associate Professor of Engineering and Applied Science.*
William W-G. Yeh, Ph.D., *Associate Professor of Engineering and Applied Science.*
Subramani Arunkumar, Ph.D., *Assistant Professor of Engineering and Applied Science.*
L. Arthur Campfield, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Charles R. Scherer, Ph.D., *Assistant Professor of Engineering and Applied Science.*

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Alfred C. Ingersoll, Ph.D., *Professor of Engineering and Applied Science in Residence.*
Melvin W. Lifson, Ph.D., *Lecturer in Engineering and Applied Science.*
Arnold M. Ruskin, Ph.D., *Lecturer in Engineering and Applied Science.*

MATERIALS

(Department Office, 6531 Boelter Hall)

Alan J. Ardell, Ph.D., *Professor of Engineering and Applied Science.*
Rointan F. Bunshah, D.Sc., *Professor of Engineering and Applied Science.*
Didier de Fontaine, Ph.D., *Professor of Engineering and Applied Science.*
David L. Douglas, Ph.D., *Professor of Engineering and Applied Science.*
William J. Knapp, Sc.D., *Professor of Engineering and Applied Science.*
John D. Mackenzie, Ph.D., *Professor of Engineering and Applied Science.*
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Alan S. Tetelman, Ph.D., *Professor of Engineering and Applied Science.*
Christian N. J. Wagner, Dr. rer. nat., *Professor of Engineering and Applied Science (Chairman of the Department).*
Alfred S. Yue, Ph.D., *Professor of Engineering and Applied Science.*
Daniel Rosenthal, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
William Klement, Jr., Ph.D., *Associate Professor of Engineering and Applied Science.*
Kanji Ono, Ph.D., *Associate Professor of Engineering and Applied Science.*
Aly H. Shabaik, Ph.D., *Associate Professor of Engineering and Applied Science.*

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Stephen L. Cannon, Ph.D., *Assistant Professor of Engineering and Applied Science in Residence.*
Bruce Dunn, Ph.D., *Assistant Professor of Engineering and Applied Science in Residence.*

MECHANICS AND STRUCTURES

(Department Office, 5732 Boelter Hall)

Andrew Charwat, Ph.D., *Professor of Engineering and Applied Science.*
Julian D. Cole, Ph.D., *Professor of Engineering and Applied Science and Professor of Mathematics.*
Stanley B. Dong, Ph.D., *Professor of Engineering and Applied Science (Chairman of the Department).*
C. Martin Duke, M.S., *Professor of Engineering and Applied Science.*
Kurt Forster, Ph.D., *Professor of Engineering and Applied Science.*
Robert E. Kelly, Sc.D., *Professor of Engineering and Applied Science.*
Kenneth L. Lee, Ph.D., *Professor of Engineering and Applied Science.*
Tung Hua Lin, D.Sc., *Professor of Engineering and Applied Science.*
Ajit K. Mal, Ph.D., *Professor of Engineering and Applied Science.*
William C. Meecham, Ph.D., *Professor of Engineering and Applied Science.*
Antony J. A. Morgan, Ph.D., *Professor of Engineering and Applied Science.*
Rokuro Muki, Ph.D., *Professor of Engineering and Applied Science.*
Lucien A. Schmit, Jr., M.S., *Professor of Engineering and Applied Science.*
Edward H. Taylor, M.S., *Professor of Engineering and Applied Science.*
William T. Thomson, Ph.D., *Professor of Engineering and Applied Science, Resident at Santa Barbara.*
Russell A. Westman, Ph.D., *Professor of Engineering and Applied Science.*
Joseph S. Beggs, D.Ing., *Emeritus Professor of Engineering and Applied Science.*
Walter C. Hurty, M.S., *Emeritus Professor of Engineering and Applied Science.*
Steven C. Crow, Ph.D., *Associate Professor of Engineering and Applied Science.*
Steven Dubowsky, Sc.D., *Associate Professor of Engineering and Applied Science.*
Lewis P. Felton, Ph.D., *Associate Professor of Engineering and Applied Science.*
Michael E. Fourney, Ph.D., *Associate Professor of Engineering and Applied Science.*
Gary C. Hart, Ph.D., *Associate Professor of Engineering and Applied Science.*
Chung-Yen Liu, Ph.D., *Associate Professor of Engineering and Applied Science.*
D. Lewis Mingori, Ph.D., *Associate Professor of Engineering and Applied Science.*
Richard B. Nelson, Ph.D., *Associate Professor of Engineering and Applied Science.*

Sanford B. Roberts, Ph.D., *Associate Professor of Engineering and Applied Science.*
Lawrence G. Selna, Ph.D., *Associate Professor of Engineering and Applied Science.*
Richard Stern, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Ross R. Allen, Ph.D., Assistant Professor of Engineering and Applied Science.
Steven J. Barker, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Peretz Friedmann, Sc.D., *Assistant Professor of Engineering and Applied Science.*
Paul V. Lade, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Hirokazu Miura, Ph.D., *Assistant Professor of Engineering and Applied Science in Residence.*

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Dixon Rea, Ph.D., *Acting Associate Professor of Engineering and Applied Science.*
George J. Tauxe, M.S., *Sr. Lecturer in Engineering and Applied Science.*

SYSTEM SCIENCE

(Department Office, 4532 Boelter Hall)

Masanao Aoki, Ph.D., *Professor of Engineering and Applied Science.*
A. V. Balakrishnan, Ph.D., *Professor of Engineering and Applied Science and Professor of Mathematics.*
Jack W. Carlyle, Ph.D., *Professor of Engineering and Applied Science (Chairman of the Department).*
Sheila A. Greibach, Ph.D., *Professor of Engineering and Applied Science.*
Paul K. C. Wang, Ph.D., *Professor of Engineering and Applied Science.*
Nhan Levan, Ph.D., *Associate Professor of Engineering and Applied Science.*
Richard E. Mortensen, Ph.D., *Associate Professor of Engineering and Applied Science.*
Jimmy K. Omura, Ph.D., *Associate Professor of Engineering and Applied Science.*
Donald M. Wiberg, Ph.D., *Associate Professor of Engineering and Applied Science.*
Kung Yao, Ph.D., *Associate Professor of Engineering and Applied Science.*
Izhak Rubin, Ph.D., *Assistant Professor of Engineering and Applied Science.*

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Jan M. Chaiken, Ph.D., *Adjunct Associate Professor of Engineering and Applied Science.*
Emily P. Friedman, Ph.D., *Assistant Professor of Engineering and Applied Science in Residence.*
Hector O. Fattorini, Ph.D., *Associate Professor of Mathematics and Associate Professor of Engineering and Applied Science.*

Undergraduate Required Courses

Lower Division: 10
Upper Division: The student is to select 8 core courses (32 units) from the 5 subject areas as listed below. The minimum and maximum number of units allowed in each of the 5 subject areas is also given.

Subject Areas (5)
Courses (12)

(1) *Computer Processes*
Courses: 124A
Units: 0-4
(2) *Electrical Sciences*
Courses: 100, 100B
Units: 4-8
(3) *Mechanics*
Courses: 102, 103A, 108
Units: 8-12
(4) *Systems*
Courses: 106B, 121C, 127B
Units: 4-8
(5) *Thermal and Materials Science*
Courses: 14†, 105A, 105D
Units: 8-12

Core Courses Required for Students Following Catalogs prior to 1976/77: 10, 100, 100L, 100B, M100D, 101A, 102, 103A, 105A, 105D, 107B, 107C, 108.

Students following pre 1976/77 catalogs are referred to the respective catalogs for further information.

School Courses

11, 12, 104, 104CD, 192A, 192B, 192C, 193A, 196A, 291A, 291B, 291C, 470A-470D;**Open only to Engineering Executive Program students. 471A-471C,* 472A-472D,* 473A-473B,* 596, 597A, 597B, 597C, 598, 599.

Departmental Course Responsibility

Computer Science Courses

5, 20, 30, 123A, 123B, 124D, 125A, 125B, 125L, 125N, 125Z, 126A, 126C, 195A, 199A, M223A, M223B, 223C, 223D, 223E, 223F, 223K, 223Z, 224A, 224B, 224Z, 225A, 225B, 225C, 225D, 225F, 225K, 225L, 225M, 225P, 225S, 225X, 225Z, 226C, 226D, 226R, 226Z, 295A.

Electrical Sciences and Engineering Courses

110A, 110B, 110C, 111A, 111B, 113A, 113B, 115A, 115B, 115C, 115D, 115E, 115F, 115L, 115M, 116A, 116B, 116C, 116D, 116L, 116M, 116N, 117A, 117B, 117C, 117D, 117L, M118, 195A, 199B, 210A, 210B, 210C, 210D, 210E, 213A, 213B, 214A, 214B, 214C, M214E, 215A, 215B, 215C, 215D, 216A, 216B, 216C, 217A-217B, 217C, 218B, 219A, 219B, 219C, 219D, 219X, 295A.

Energy and Kinetics Courses

130A, 131A, 131C, 132A, 133A, 134A, 134B, 134C, 135A, 135B, 135C, 135D, M136A, 137, 137A, 137B, 137C, 137D, 138A, 138B, M138D, 139A, 199C, 230A, 230B, 231A, 231B, 231C, 231D, 232A, 232B, 232C, 232D, 233A, 234A, 235A, 235B, 235C, 235D, 236A, 236B, 236C, 236D, 236E, M236G, 237A, 238A, 238B, 238C, 238D, 239A, 239B, 239C, 239D, 239E, 239S.

Engineering Systems Courses

106A, 106C, 107A, 109, 171A, 171C, 172A, 173, M174A, 177A, 177B, 180A, 180B, 181A, 184A, 184B, 184D, 193B, M196C, 199D, 270A, 271A, 271B, 271C, 271D, 272A, 272B, 272C, 272D, 273A, 273B, 273C, 274A, 274B, M275A, 275B, 276A, 277A, 277B, 280A, 280B, 284A, 284B, 284C, 284D, 284E, 284F, 284G, 284H, M288A, M288B, M296A, M296B, M296C.

Materials Courses

140C, 140D, 141, 142, 143A, M143B, M144, 145A, 146A, 146B, 146C, 147A, 147B, 147C, 147D, 147E, 147F, 147L, 148, 149A, 149B, 199E, 241, 242A, 242B, 243A, 243B, 243C, 244, 245A, 245C, 245D, 246A, 246B, 246C, 246D, 247A, 247B, 247C, 248A.

Mechanics and Structures Courses

150A, 150B, 150C, 151, 152, 153A, 153B, 153C, 155, 156A, 157, 158A, 161A, 162A, 162B, 162C, 163, 165A, 165B, 165C, 166, 167A, 167B, 167C, 168, 169A, 185A, 185B, 186A, 191A, 199F, 250A, 250B, 250C, 251A, 251B, 251C, 252A, 252B, 252D, 253A, 253B, 253C, 254A, 254B, 255A, 255B, 256A, 256B, 256C, 256F, M257A, M257B, 258A, 258B, 259A, 259B, 259C, 261A, 261B, 262A, 263A, 263B, 264A, 264B, 265A, 265B, 265C, 266A, 266B, 267A, 267B, 267C, 267S, 268A, 268B, 269A, 269B, 269C, 269D, 285A, 285B, 285C, 285D, 285L, 286A, 286B, M292A, M292B.

System Science Courses

120A, 120B, M120C, 122A, 122B, 128A, 128D, 128L, 129A, 199G, 220A, 220B, 220G, 222A, 222B, 222C, 222D, 222E, M222F, M222G, 223F, 227A, 227B, 227C, 227D, 227E, 227F, 227G, 228A, 228B, 228C, 228D, 228E, 228F, 228G, 228J, 228K, 229A, 229B, 229C, 229D, 229E, 229JKL, M299A, M299C, M299D.

Lower Division Courses

5. Computers in the Man-Made World.
An introduction to computers and computing for non-mathematically oriented students. How a computer functions and how one can "talk" to it will be explained through a study of logical circuits, memory, control, arithmetic, computer organization, and programming.
Mr. Karplus (W)

10. Introduction to Computing.
Open to graduate students on a S/U basis only. Algorithms and programming languages. Description and use of PL/1 programming language. Selected topics in numerical analysis. Organization and characteristics of digital computers. Machine language. Programming and running of several numeric and non-numeric problems.
Mr. Levine (F,W,Sp)

†Not open for credit for students who have taken Engineering 107B.

*Open only to Engineering Executive Program students.

11. Patterns of Problem Solving.
An introduction to patterns of reasoning in the process of problem solution and decision making. Exposure to concepts, theories and techniques in the analysis and synthesis of total systems in our complex technological civilization.
Mr. Elliott, Mr. Hart, Mr. Rubinstein (F,W,Sp)

12. Applied Patterns of Problem Solving.
Prerequisite: course 11. An application of the tools and methods discussed in Engineering 11, to three specific problems of a social and technical nature.
Mr. Rubinstein (W,Sp)

14. Science of Engineering Materials.
Prerequisite: Chemistry 1A, 1B; Physics 8A and 8B; Physics 8C (may be taken concurrently). (Not open for credit to students who have taken Engr. 107B.) General introduction to different types of materials used in engineering designs: metals, ceramics, plastics and composites, relationship between structure (crystals and microstructure) and properties of technological materials. Illustration of their fundamental differences, and their applications in engineering.
Mr. Wagner (F,W,Sp)

20. Programming and Problem Solving.
Prerequisite: course 10 or consent of the instructor. Open to graduate students on a S/U grade basis only. Solution of numerical and nonnumerical problems of intermediate complexity, using assembly languages and several programming languages. Students will analyze, program, and run half a dozen problems. Emphasis is placed on individual ability to carry out assignments under minimum supervision.
Mr. Meikanoff, Mr. Uzgalis (F,W,Sp)

30. Introduction to Computer Operating Systems.
Prerequisite: course 20. Open to graduate students on a S/U grade basis only. Introductory course on functions and use of modern computer systems. Overview of batch and time-sharing systems. Functional description of assemblers, compilers, linkage editors, loaders. Job control language, overlays, file structures, buffering, protection. Assignments will include problems on the computer.
Mr. Muntz (F,W,Sp)

Upper Division Courses

100. Electrical and Electronic Circuits.
Prerequisite: Mathematics 32C, may be taken concurrently; Physics 8C. Electrical quantities, circuit principles, signal wave-forms, A.C. circuits, semiconductor devices, small signal models, amplifiers, electrical and electronic instruments.
Mr. Willis (F,W,Sp)

100L. Circuit Analysis Laboratory. (½ course)
Prerequisite: Physics 8C; Engineering 100, which should be taken concurrently. Experiments with circuits containing linear and nonlinear devices; transient and steady state behavior of circuits.
Mr. Willis (F,W,Sp)

100B. Engineering Electromagnetics.
Prerequisite: Physics 8C, Mathematics 32C. Electromagnetic field concepts; Maxwell's Equations; static and quasistatic fields; field energy; energy flow and the Poynting vector; electromechanical interactions; waves in unbounded media and on two-wire transmission lines; reflection and refraction; lossy media; skin effect; analogs to electromagnetic fields.
Mr. Alexopoulos (F,W,Sp)

101A. Engineering Analysis
Prerequisite: calculus, including elements of linear algebra and differential equations (Mathematics 31C and 32C or equivalents); two quarters of general physics recommended. Engineering formulation and solution of linear constant-coefficient differential systems; the matrix exponential; the Laplace transformation. Elementary examples of nonlinear systems. Approximations.
Mr. Levan (F,W,Sp)

102. Mechanics of Particles and Rigid Bodies.
Lecture, three hours; recitation, two hours. Prerequisite: Mathematics 32C (may be taken concurrently). Newtonian mechanics (statics and dynamics) of particles and rigid bodies. Fundamental concepts of mechanics. Statics, kinematics, and kinetics of particles and rigid bodies. Impulse-momentum and work-energy relationships. Applications.
Mr. Mingori (F,W,Sp)

103A. Elementary Fluid Mechanics.
Prerequisite: Mathematics 32C; Engineering 102 recommended. An introductory course dealing with the application of the principles of mechanics to the flow of compressible and incompressible fluids.
Mr. Cole, Mr. Liu (F,W,Sp)

104. Introduction to Experimental Techniques. (½ course)
Principles of simple machining operations, engineering drawing practices, soldering and welding techniques, vacuum systems, glassblowing, American standard sizes and color-codes, effective presentation of results. One lecture-demonstration per week. May be taken before junior year. To be graded on P/NP basis.
Mr. Chen, Mr. Shabaik, Mr. Stern (F,Sp)

104C-104D. Undergraduate Research Laboratory.
Laboratory, eight hours. Prerequisite: senior standing. Two quarter comprehensive projects in experimental engineering — research or design — involving laboratory work. Students may submit projects of their own choosing. May serve as basis for graduate research. Will satisfy Engineering laboratory requirement. Qualified non-engineering students are encouraged to enroll.
Mr. Shabaik, Mr. Stern, Mr. Willis (F,W,Sp)

105A. Engineering Thermodynamics.
Prerequisite: Physics 8B and Mathematics 32A. Phenomenological thermodynamics. Concepts of equilibrium, temperature and reversibility. First law and concept of energy; second law and concept of entropy. Equations of state and thermodynamic properties. Application of these principles in analysis of closed and open systems of engineering interest.
Mr. Noble, Mr. Wazzan (F,W,Sp)

105D. Transport Phenomena.
Prerequisites: Physics 8B and Mathematics 32C. Transport phenomena; heat conduction, mass species diffusion, convective heat and mass transfer, and radiation. Engineering applications in thermal and environmental control.
Mr. Denny, Mr. Vilker (F,W,Sp)

108A. Principles of Engineering Economy.
Prerequisite: upper division standing. Economic analysis of engineering projects; value systems; economic decisions on capital investment and choice of engineering alternatives; new projects, replacement and abandonment policies; risky decisions including make/buy policies and research investment; corporate financial practices and accounting.
Mr. English (F,W,Sp)

108B. Introduction to Design and Systems Methodology.
Prerequisite: course 10; Mathematics 32C. Theory of engineering design and synthesis. Models and modeling. Analysis, test and evaluation. Methods for design optimization. Elementary decision theory. Student's design projects.
Mr. Rosenstein (F,W,Sp)

108C. Experimental Design Laboratory.
Recitation, two hours; laboratory, six hours. Prerequisite: course 106B. Course will be organized into group laboratory projects. Each group will plan and implement an R&D type experimental activity in support of a design project normally initiated in Engineering 106B.
Mr. Nottage, Mr. Rosenstein(Sp)

107A. Principles of Biotechnology.
Prerequisite: third quarter sophomore or higher standing. The principles of biological science are developed in an engineering context. An emphasis is placed on how physiological, psychological, and sociological factors affect the integration of man into environmental, informational and managerial systems by engineering means.
Mr. Lyman (F,W,Sp)

107B. Introduction to Science of Materials.
Prerequisite: Chemistry 1B, Physics 8C; (not open for credit to students who have taken Engr. 14). General introduction to different types of materials used in engineering designs: metals, ceramics, plastics and composites, relationship between structure (crystals and microstructure) and properties of technological materials. Illustration of their fundamental differences, and their applications in engineering. Laboratory experiments on selected topics.
Mr. Mackenzie (F,W,Sp)

107C. Structure and Properties of Materials. (½ course)
Prerequisite: course 107B. The relationship between the microstructure and properties of commercial alloys such as steel, nickle-base, titanium-base, and precipitation hardenable alloys and ceramic materials. The control of microstructure by fabrication, processing and heat treatment and its effect on engineering properties.
Mr. MacKenzie (F,W,Sp)

108. Mechanics of Deformable Solids.
Prerequisite: Mathematics 32C (may be taken concurrently); Engineering 102 is recommended. Review of equilibrium principles. Concepts of stress and strain. Material constitution (stress-strain relations). Energy in deformable bodies. Structural applications to trusses, beams, shafts, columns and pressure vessels.
Mr. Nelson, Mr. Westmann, (F,W,Sp)

109. The Engineer and Society.
Prerequisite: senior standing. Selected lectures, discussions, oral and written reports related to creative engineering, its sociological and ecological impacts, present, future, and past relationships. Maximum student participation in topical selection and class structuring. Creativity and original thinking is emphasized.
Mr. Ingersoll (F,W,Sp)

110A. Basic Circuit Theory I.
Prerequisite: course 100. The zero-input, zero-state, transient, steady-state, and complete response of first-order and second-order circuits. Linear time-invariant networks: step response, impulse response, convolution integral. Sinusoidal steady-state analysis. Coupling elements and coupled circuits. The Laplace transform.
Mr. Willson (F,W)

110B. Basic Circuit Theory II.
(Formerly numbered 110A.) Prerequisite: course 110A. Elementary graph theory, general methods of analyzing electric circuits. Introduction to state equations, natural frequencies. Properties of network functions. Network theorems. Methods of characterizing two-port networks.
Mr. Orchard (W,Sp)

110C. Passive Network Synthesis.
(Formerly numbered 110B.) Prerequisite: course 110B or equivalent. Properties of positive real functions and tests for positive realness. Synthesis of one and two-port RLC and two-element kind networks.
Mr. Temes (F,Sp)

111A. Electric Power Systems.
Prerequisite: course 100. Overall electric power system requirements; typical systems; one-line diagrams.

Per-unit quantities; characteristics of machines, transformers, overhead lines and cables; steady-state analysis of systems. Power limits and stability; fault calculations; relays and relay systems.

Mr. Schott (Sp)

111B. Electromechanical Energy Conversion.

Prerequisite: course 100. Energy conversion and power flow in electromechanical interactions; electromechanics of acutuators and rotating a.c. synchronous and induction machines and d.c. machines. Linear machines.

Mr. Schott (W)

113A. Introduction to Lasers and Quantum Electronics.

Prerequisite: course 100B or equivalent or consent of the instructor. Physical principles and applications of lasers and other quantum electronic devices. Interferometers, crystal optics, gain and saturation phenomena, and gas discharges.

Mr. Casperson, Mr. Stafsudd (F)

113B. Laser Laboratory. (½ course)

Recitation, one hour; laboratory, three hours. Prerequisite: course 100B or equivalent or consent of the instructor. Properties of lasers including saturation, mode-locking and relaxation effects, and laser applications including optics, modulation, communication, holography, interferometry and nonlinear effects.

Mr. Casperson, Mr. Stafsudd (F)

115A. Fundamentals of Solid State I.

Prerequisite: junior standing in Engineering; course 130A or equivalent is recommended. Introductory atomic concepts, quantum mechanical principles, energy level in complex atoms, quantum statistics, crystal structure, energy levels in solids, band theory.

Mr. Viswanathan (F,Sp)

115B. Fundamentals of Solid State II.

Prerequisite: course 115A. A discussion of the solid state properties, lattice vibrations, thermal properties, dielectric, magnetic, and super-conducting properties.

Mr. Stafsudd, Mr. Viswanathan (F)

115C. Semiconductor Physical Electronics.

Prerequisite: course 115B. Band structure of semiconductors, homogeneous semiconductors, excess carriers in semiconductors, semiconductor surfaces, optical and thermal properties.

Mr. F. G. Allen, Mr. Viswanathan (W)

115D. Physics of Semiconductor Devices.

Prerequisite: senior standing in Engineering. Semiconductor technology, Schottky barrier, p-n junction, MOS capacitance, transistor fundamentals, drift transistor, high frequency properties, field effect transistors, integrated electronics.

Mr. Greiling, Mr. Viswanathan (F,Sp)

115E. Solid State Electronics Laboratory. (½ course)

Prerequisite: course 115C. Experiments on magnetic dielectric properties of solids; measurement of electronic properties of both p and n type semi-conductors; thermal electronic properties of p-n junction; optical properties of semiconductors.

Mr. Stafsudd, Mr. Viswanathan (W)

115F. Semiconductor Devices Laboratory. (½ course)

Prerequisite: course 115D. Design, fabrication and characterization of junction, field effect and other semiconductor devices. In particular, the student will perform various processing tasks such as wafer preparation, oxidation, impurity diffusion, metallization, sintering and photolithography.

Mr. F. G. Allen, Mr. Greiling (F,Sp)

*115L. Integrated Circuit Technology and Fabrication. (½ course)

Recitation, two hours; laboratory, four hours. Prerequisite: senior standing in Engineering. A discussion accompanied by demonstration experiments of the various technological steps in the fabrication and testing of integrated circuits.

Mr. Viswanathan

*115M. Semiconductor Devices Fabrication Laboratory. (1/2 course)

Lecture, one hour; laboratory, four hours. Prerequisite: course 115D. Continuation of the laboratory in course 115D. Design, fabrication and characterization of JFET, MOSFET and bipolar transistors.

Mr. F. G. Allen, Mr. Greiling

116A. Electronics I.

Prerequisite: course 100. Equivalent circuit modeling of electron devices. Device-circuit-environment interactions. Design of single-stage amplifiers. Introduction to cascaded stages, coupling problems and frequency response.

Mr. Greiling (F,W,Sp)

116B. Electronics II.

Prerequisite: course 116A. Electron device-circuit-environment interactions with emphasis on multistage amplifiers. Tuned amplifier considerations. Nonlinear situations requiring graphical method of solution. Emphasis on design techniques including economics, reliability and realization of performance specifications.

Mr. Willis (F,W)

116C. Pulse and Digital Methods.

Prerequisite: courses 116A, 116B. Analysis and design of switching-mode electronic circuits and systems including pulse generation, logic operations, timing and frequency counting.

Mr. Willson (W,Sp)

116D. Electronic Signal Processing.

Prerequisite: courses 116B, 121C. Signals and spectra. Signal distortion in transmission filters, transmission bandwidth requirements. Random signals and noise, linear modulation, exponential modulation circuits and characteristics. Commercial communication systems.

Mr. Willis (Sp)

116L. Electronics I Laboratory. (½ course)

Prerequisite: to be taken concurrently with course 116A. Experimental determination of device characteristics, resistive diode circuits, single-state amplifiers, compound transistor stages, effect of feedback on single-stage amplifiers.

Mr. Greiling (F,W)

116M. Electronics II Laboratory. (½ course)

Prerequisite: to be taken concurrently with course 116B. Experimental and computer studies of multistage, wideband, tuned, and power amplifier, and multiloop feedback amplifier.

Mr. Willis (F,W)

116N. Pulse and Digital Methods Laboratory. (½ course)

Prerequisite: to be taken concurrently with course 116C. Experimental and computer studies of diode and transistor switching and timing circuits. Linear and nonlinear wave shaping techniques. Waveform generation.

Mr. Willson (Sp)

117A. Electromagnetic Waves I.

Prerequisite: course 100B. Review of transmission line theory; guided waves in enclosed waveguide and on surfaces; Smith Chart; excitation of guided waves; phase and group velocity; cavity resonators; concept of Q; perturbation theory; waves in complex media (ferrites, crystals, semiconductors, plasmas).

Mr. Schott (F,Sp)

117B. Electromagnetic Waves II.

Prerequisite: course 117A. Retarded potentials; dipole radiation; radiation from wire antennas; near-field and far-field phenomena; aperture antennas; spherical antennas; simple arrays scattering from spheres and cylinders; radar cross-sections.

Mr. Alexopoulos (W)

117C. Electromagnetic Waves III.

Prerequisite: course 117A. Special relativity; relativistic kinematics; field transformations; particle trajectories in electromagnetic fields; radiation from accelerated changes; waves in active media, microwave sources.

Mr. C. W. Yeh (Sp)

117D. Modern Optics.

Prerequisite: courses 113A, 117A. Two dimensional transforms. Diffraction methods. Geometrical optics and applications, Gaussian beams. Coherent and incoherent imaging systems. Optical processing methods. Holography and applications.

Mr. Alexopoulos, Mr. Casperson (Sp)

117L. Electromagnetics Laboratory. (½ course)

Prerequisite: course 117A; course 117B may be taken concurrently. Experimental investigation of microwave and millimeter wave sources; coaxial, waveguide strip line transmission systems; detectors and power measuring devices; cavity resonator studies; antenna impedance and radiation characteristics.

Mr. Schott (W)

M118. Plasma Physics.

(Same as Physics M122.) Prerequisite: course 100B for Engineering students only; or Physics 110A. Atomic processes and particle motions; equilibrium and shielding; fluid and kinetic descriptions; transport properties; m waves and instabilities; electromagnetic interaction. Production, confinement, heating and diagnostics. Application to fusion and space.

Mr. Chen (F,Sp)

120A. Probability.

Prerequisite: Mathematics 32A-32B-32C or Mathematics 12A-12B-12C or consent of the instructor. An introduction to the theory and application of probability, including random variables and vectors, distributions and densities, characteristic functions, limit theorems, preliminary concepts of stochastic processes.

Mr. Omura, Mr. Yao (F,W)

120B. Stochastic Processes.

Prerequisite: course 120A or comparable background in probability (e.g., Mathematics 150A-150B). An introduction to the theory and application of stochastic models, emphasizing stationary processes and filtering. Random signals and noise, correlation, linear systems; mean-square estimation, the orthogonality principle, Weiner and Kalman filters.

Mr. Mortensen, Mr. M. Yao (W,Sp)

M120C. Stochastic Processes.

(Same as Mathematics M151.) Prerequisite: course 120A or Mathematics 150A-150B, or Mathematics 152A and consent of the instructor. An introduction to the theory and application of stochastic models, emphasizing Markov chains and pure jump processes; illustrations from queueing systems, point processes, birth and death processes, renewal theory; Poisson processes, Brownian motion.

Mr. Balakrishnan, Mr. Rubin (F)

121C. Systems and Signals.

Prerequisites: Mathematics 31B, 11B or 3B, Physics 8C, 7B, or 6B, or consent of the instructor. Introductory course with illustrations from physical and life sciences. Input-output descriptions of systems, linearity; impulse and frequency responses, Fourier methods; transforms, analysis of signals. Introduction to digital filtering and Fast Fourier Transform. Computational aspects of system modelling and identification.

Mr. Carlyle, Mr. Levan (F,W,Sp)

122A. Principles of Feedback Control.

Prerequisite: course 121C or consent of the instructor. Classical methods of analysis and design of feedback control systems, as applied to problems selected from engineering, biology and related areas.

Mr. Mortensen, Mr. Wang (W)

*Not to be given 1976-1977.

122B. Linear Systems and Optimal Control: The State Space Approach.

Prerequisite: course 128A or equivalent, or consent of the instructor. Introduction to the modern state-space approach to linear dynamic systems analysis and control. State reduction, controllability, observability. Elementary treatment of optimal control problems, e.g., the variational approach, linear systems with quadratic costs, algebraic matrix Riccati equations, pole-assignment, stabilizability.

Mr. Karplus, Mr. Levan, (W,Sp)

123A. Basic Structures for Data Representation.

Prerequisite: course 20. Linear lists; sequential and linked storage allocation; circular, multi-linked and multi-dimensional lists. Trees, traversing algorithms; representation and mathematical properties of trees. Dynamic storage allocation.

Mr. Muntz (F,W,Sp)

123B. Theoretical Models in Computer Science.

Prerequisite: senior standing or consent of the instructor. Sets, strings, and languages. Phrase-structure languages. Finite-state languages and finite-state automata. Context-free languages and pushdown store automata. Unrestricted phrase-structure languages and Turing machines. Context-sensitive languages and linear-bounded automata. Elementary decision problems of automata and languages.

Mr. Martin (F,W,Sp)

124A. Applied Numerical Computing.

Prerequisite: course 10 and Mathematics 32C or equivalents. An introduction to scientific computing and an application-oriented survey of computing techniques for several important classes of problems, including matrix computations, rootfinding, ordinary differential equations, interpolation and approximation. Student computing exercises.

Mr. Carlyle, Mr. Karplus (F,W,Sp)

124D. On-Line Computer Systems.

Prerequisites: senior standing or consent of the instructor. A survey of fundamentals with emphasis on hardware and systems concepts. Adapting digital computers to interfaces, including multi-programming, interrupt and time-sharing considerations. Digital communication, remote consoles, sampling, quantizing, multiplexing, analog-digital conversion, and data reconstruction.

Mr. Karplus, Mr. Levine (W,Sp)

125A. Computer System Architecture: I (Introductory)

Prerequisite: college level Physics (electricity and magnetism); Engineering 10; Engineering 125Z to be taken concurrently. Introduction to computer architecture. Description of machine organization and operation. Information: its representation and manipulation. Combinational logic design with IC's and MSI devices. Sequential circuits, storage elements and MSI packages. Arithmetic and the arithmetic-logic unit.

Mr. Avizienis, Mr. Bussell (F,W,Sp)

125B. Computer System Architecture: II (Intermediate)

Prerequisite: courses 125A, 125Z; 125Y to be taken concurrently. Formal description of machine organization. Effects on machine organization of: instruction sets and formats; addressing structures. Memory organization and management; control sequence generator; I/O processing and interrupts; reliability aspects.

Mr. Avizienis, Mr. Bussell (F,W,Sp)

125L. Programming Languages.

Prerequisite: course 20. The main objective is to study, compare and evaluate programming languages, in particular commercially available languages: FORTRAN, ALGOL 60, COBOL, PL/1, and ALGOL 68. Additional topics as instructor sees fit.

Mr. Berry, Mr. Cardenas, Mr. Uzgalis (F,W,Sp)

125N. Compiler Construction.

Prerequisite: courses 100D, 125L or consent of the instructor. Modern compiler structure. Syntax analysis. Lexical analysis. Semantic analysis and run-time environment. Program and data structure. Code optimization.

Mr. Martin, Mr. Popek (W,Sp)

125Y. Digital Systems Laboratory. (½ course)

Prerequisite: course 125B to be taken concurrently. A computer based laboratory which probes computer architecture through construction simulation and measurement of digital subsystems.

Mr. Bussell (F,W,Sp)

125Z. Introductory Digital Circuits Laboratory. (½ course)

Prerequisite: Engineering 10; this course (125Z) is to be taken concurrently with either Engineering M100D or 125A. Principles of computer hardware measurement and design. How to use scopes, meters; how to put together simple logical networks (combinational, sequential). Basic facts about printed circuit technology. Troubleshooting.

Mr. Svoboda (F,W,Sp)

126A. Simulation and Models.

Prerequisite: course 20. Model formulation and programming for discrete event systems in simulation languages (e.g., GPSS, SIMSCRIPT). The simulation data base and considerations for language development. Statistical considerations: design of experiments, random number generation, analysis of model results. Computer exercises.

Mr. Karplus, Mr. McNamee (W)

126C. Systems Programming.

Prerequisite: courses 30, 123A. Introduction to modern operating systems. Mapping and binding of addresses. The organization of multiprogramming and multiprocessing systems; interrupts, process model, and interlocks. Resource allocation models and the problem of deadlocks. Job control and system management.

Mr. Muntz (F,Sp)

127B. Elements of Probability and Information.

Prerequisite: Mathematics 31B, 11B or 3B, or Mathematics 2B and consent of the instructor. An introduction to finite systems for coding and transmission of messages as character strings. Basic laws of probability and decision in finite systems. Information sources, entropy, noisy channels, capacity, discussion of the meaning and application of Shannon's theorems.

Mr. Carlyle, Mr. Omura (F,W,Sp)

128A. Continuous-State Systems.

Prerequisite: Mathematics 32C. State-space methods of system analysis and design, with application to problems in areas such as networks, control, optimization, system identification, modeling.

Mr. Levan, Mr. Wang (F,W)

128D. Discrete Systems and Automata.

Prerequisite: two quarters of lower-division mathematics or comparable experience with mathematical ideas, such as in linguistics or basic courses in logic or computer programming. An introductory course, emphasizing finite-state systems: graphs, machines, languages, regular expressions, coding, computing; memory, system identification, diagnosis; design considerations.

Mr. Carlyle, Ms. Greibach (Sp)

128L. System Science Laboratory.

Laboratory, six hours. Prerequisite: course 121C or consent of the instructor. Laboratory studies such as: applications of interactive computing and online graphics; waveform generation, spectral analysis, random signals; control, servomechanisms, stability; holography, spatial signal processing. Students will have the opportunity to use computer facilities and contemporary equipment for measurement and data analysis.

The Staff, System Science Department (Sp)

129A. Introduction to Optimization Techniques.

Prerequisite: Mathematics 31C and 32A or 12A and 12B and some knowledge of digital computer programming or consent of the instructor. Optimization of functions of many variables, unconstrained and with linear or nonlinear constraints. Nonlinear programming algorithms. Direct search, gradients, Lagrange multipliers, penalty functions, etc. Duality. Sample problems from engineering, economics, management, operations research. Students will solve problems on digital computers.

Mr. Aoki, Mr. Wang (F,Sp)

130A. Introduction to Statistical Thermodynamics.

Prerequisite: course 105A. Calculations of expected values and variances of thermodynamic functions for perfect monatomic gas, Einstein monatomic crystal, photon gas, electron gas in a metal, perfect adsorbed gas, perfect diatomic gas, and Debye monatomic crystal. Calculations of gross emission rates from surfaces.

Mr. Knuth, Mr. Robinson (F)

131A. Intermediate Heat Transfer.

Prerequisite: course 105D. Heat transfer by conduction in a stationary medium and by conduction and convection in a laminarly flowing fluid. Steady-state and transient conduction in solids. Heat transfer in laminar entrance flow in ducts and laminar boundary layer flows over surfaces.

Mr. Edwards (F)

131C. Environmental Transfer Processes.

(Not the same as course 131C prior to Fall Quarter 1971.) Prerequisite: course 105D and either 131A or consent of the instructor. Dispersion of waste heat ("thermal pollution control") by bodies of water and cooling towers. Atmospheric transfer processes and methods of estimation of both gaseous and particulate concentrations due to emissions from power plant stacks, cooling towers, or other localized sources.

Mr. Catton (W)

132A. Mass Transfer.

Prerequisite: course 105D or 131A. The principles of mass transfer by diffusion. Mass transfer by convection in laminar and turbulent flows. Simultaneous heat and mass transfer. Applications including combustion of solids and volatile fuels, evaporation and condensation, ablation and transpiration cooling, gas absorption and catalysis.

Mr. Mills (W)

133A. Power Production and Propulsion.

Prerequisite: courses 103A and 105D or equivalent. Thermodynamic properties of gases. Flows in turbomachinery, nozzles and rocket motors, steam, gas and air power plant cycle analysis. Combustion. Aerodynamic design elements of compressors and turbines. Elements of aircraft and rocket performance. Turbine power systems and variants. Ramjets and pulse jets.

Mr. Catton, Mr. Frederking (W)

134A. New Energy Technology: Resources, Conversion, Constraints.

Prerequisite: course 105A or equivalent in Physics or Chemistry, or consent of the instructor. Energy resources: fossil fuels (fuel to fuel conversions), nuclear fuels, geothermal sources, solar power, etc. Conversion methods for power production and other energy uses. Consideration of thermodynamic, economic and environmental constraints.

Mr. Buchberg (F)

134B. Solar Energy Use and Control.

Prerequisite: course 105D or equivalent; or consent of the instructor. Nature and availability of solar radiation; review of selected heat transfer topics pertinent to solar energy collection and use; design analysis of nonfocusing solar energy collector-converters and methods of energy storage; selected applications.

Mr. Buchberg (W)

134C. Chemical, Nuclear and Thermal Pollution of the Environment.

(Formerly numbered 134.) Prerequisite: upper division standing. Description of the environment and the nature of environmental problems. Emphasis on the atmosphere and water as receptors of man-made and natural pollution; a description of sources of pollution, alternatives for control, and transport in the environment.

Mr. Buchberg, Mr. Kastenberg, Mr. Perrine (Sp)

135A. Nuclear Reactor Theory.

Prerequisite: junior standing. Introduction to nuclear reactor theory, basic physics, neutron diffusion, slowing down, and elementary thermalization in homogenous reactor cores. Multi-region reactors and multigroup diffusion theory.

Mr. Kastenberg (F)

135B. Nuclear Reactor Theory and Experiment.

Lecture, four hours; laboratory, two hours. Prerequisite: course 135A. Basic nuclear reactor theory and laboratory emphasizing special physical phenomena in a power reactor. The effects of heterogeneity, control rods, temperature, poisoning, and long term reactivity by theory and experiment.

Mr. Okrent (W)

135C. Nuclear Reactor Processes and Laboratory.

Lecture, four hours; laboratory, two hours. Prerequisite: course 135B. Continuation of 135B. Fuel and product materials, fuel management, isotope separation, energy removal, calculational techniques by numerical and experimental methods.

Mr. Apostolakis (Sp)

135D. Introductory Nuclear Reactor Design.

Prerequisites: courses 135A, 135B; 135C (may be taken concurrently). Reactor physics, engineering, fuel element design for nuclear reactor core, criticality, reactivity considerations, and heterogenous effects; power distribution and heat removal; fuel and clad behavior; differences among various power reactor systems.

Mr. Okrent (Sp)

M136A. Failure Analysis and Reliability.

(Same as Engineering M143B.) Prerequisites: courses 101A, 107B, and 107C. Concepts of mechanical, structural, and electrical failure; methods of failure analysis (system failure, component failure, material failure); environmentally and internally caused failure; statistical analysis of failure data; fault tree and failure mode and effects analysis; case histories of failure. Field trips to be arranged.

Mr. Apostolakis (W)

137. Introduction to Chemical Engineering Operations.

Prerequisites: Mathematics 31C, Chemistry 1C. Fundamentals of Chemical Engineering processes and practices. Material and energy balances in reacting and non-reacting systems; analysis of thermochemical and thermophysical properties of industrial materials; staged processes and unit operations; introduction to industrially important chemical processes.

Mr. Bennion, Mr. McCutchan (Sp)

137A. Chemical Equilibrium.

Prerequisite: course 105A. Calculation of chemical potentials and activities, chemical reaction equilibrium constants, and phase equilibrium for ideal and real systems. Dynamic interpretation of equilibrium and introduction to chemical reaction rate expressions.

Mr. Bennion, Mr. Nobe (F)

137B. Separation Operations — Environmental Control.

Prerequisite: course 105D and either 137A or consent of the instructor. Fundamentals of separation processes with emphasis on environmental control applications. Topics include filtration, precipitation, gas absorption, distillation and reverse osmosis.

Mr. Bennion, Mr. Denny (W)

137C. Applied Chemical Kinetics.

Prerequisite: course 130A or 137A. Mechanisms of chemical reactions that are of importance to industrial systems. Measurement of reaction rates and interpretation of kinetic data. Interaction between transport phenomena and chemical kinetics. Introduction to chemical reactor design and control.

Mr. Perrine, Mr. Ullman (W)

137D. Thermo-Chemical Processes.

Prerequisite: courses 137A, 137C or 131A. Application of the basic principles of heat, mass, and momentum transport to the design, operation, and control of thermochemical systems. Typical systems include heat exchangers, chemical reactors, high pressure vessels, high vacuum systems, distillation and chromotographic columns.

Mr. Vilker (Sp)

138A. Cryogenics.

Prerequisite: course 105B or 130A. Gas liquifaction; cooling methods; cryogenic techniques and associated transport phenomena, changes of state and phase; superfluids.

Mr. Frederking

138B. Fundamentals of Corrosion.

Prerequisite: course 105A. Fundamentals of electrochemistry pertinent to complex corrosion processes are presented. Topics such as pitting, stress corrosion and hydrogen embrittlement will be discussed. Optional laboratory experiments will be offered.

Mr. Nobe (F)

M138D. Vacuum Techniques and Applications.

(Same as Engineering M144). Lecture, two hours; laboratory, four hours. Prerequisite: junior standing; 130A (may be taken concurrently). Elementary kinetic theory. Vacuum production and measurement, vacuum-system design, vacuum-based instruments, leak detection, physical and chemical interactions at surfaces. Processes requiring a vacuum environment (freeze drying, vapor depositing, space simulation). Molecular-beam techniques and applications.

Mr. Young (Sp)

139A. Energy and Kinetics Laboratory.

Prerequisite: courses 103A, 105A, 105D or equivalent. Basic laboratory practice for the study of energy transformation and rate processes. Selected experiments include examples from thermodynamics, heat and mass transfer, chemical and electrochemical processes, cryogenics, chemical kinetics, molecular dynamics, saline water conversion and environmental problems.

Mr. Ullman (Sp)

140C. Electronic Structure and Properties of Metals.

Prerequisite: courses 14 (or 107B) and 145A. Lattice energy and crystal structure. Thermal properties of solids. Binary alloys. Hume-Rothery rules for alloy phases. Order-disorder transformations in solids. Elastic constants, conductivity, and superconductivity of perfect crystals and the effect of defects, impurities and alloying elements upon these properties.

Mr. Wagner (W)

140D. Solid State Technology.

Prerequisite: course 107B. Rate processes and crystal growth. Technology and preparation of single crystals. Epitaxial growth. Vapor deposition and thin film techniques. Powder metallurgy. Phase diagrams. Annealing and diffusion techniques of semiconductors. Chemical and mechanical treatments of crystals. Field trips.

Mr. Yue (Sp, even years)

141. Phase Relations and Thermodynamics of Condensed Matter.

Prerequisite: courses 105A and 107B, (or 14). Stability of solids, liquids and glasses. Multicomponent phase diagrams. Relation between thermodynamic and physical properties. Phase changes and chemical reactions. Free energy of binary systems and the construction of phase diagrams. Thermodynamics of interfaces and defects.

Mr. deFontaine (F)

142. Kinetics of Phase Transformations in Solids.

Lecture, three hours; laboratory, three hours. Prerequisite: course 141. Diffusion, grain growth, recovery and recrystallization, theories of nucleation and growth, solidification, precipitation from solid solution, spheroidization and coalescence of a dispersed phase, eutectoid decompositions, martensite transformations.

Mr. Douglass (F)

143A. Mechanical Behavior of Materials.

Prerequisite: courses 107C and 108 or equivalent. Plastic flow of metals under simple and combined loading, strain rate and temperature effects, dislocations, effect of microstructure on mechanical properties, creep behavior, fatigue, fracture, significance of mechanical properties in design, mechanical and thermal treatment of steel for engineering applications.

Mr. Shabaik (W)

M143B. Failure Analysis and Reliability.

(Same as Engineering M136A.) Prerequisites: courses 101A, 107B, and 107C. Concepts of mechanical, structural, and electrical failure; methods of failure analysis (system failure, component failure, material failure); environmentally and internally caused failure; statistical analysis of failure data; fault tree and failure mode and effects analysis; case histories of failure. Field trips to be arranged.

Mr. Tetelman (W)

M144. Vacuum Techniques and Applications.

(Same as Engineering M138D.) Lecture, two hours; laboratory, four hours. Prerequisite: junior standing; 130A (may be taken concurrently). Elementary kinetic theory. Vacuum production and measurement, vacuum-system design, vacuum-based instruments, leak detection, physical and chemical interactions at surfaces. Processes requiring a vacuum environment (freeze drying, vapor depositing, space simulation). Molecular-beam techniques and applications.

Mr. Bunshah (Sp)

145A. Crystal Structure and X-Ray Diffraction of Materials.

Prerequisite: course 107B or 107C. Fundamentals of crystallography, properties of x-rays, x-ray diffraction; powder method, Laue method; determination of crystal orientation, and crystal structure; phase-diagram determination; x-ray stress measurements.

Mr. Wagner (Sp)

146A. Structure and Properties of Ceramics.

Prerequisite: senior standing. The nature of typical ceramic materials. Bonding in ceramics. The relationship of crystal structure, microstructure and defects to properties including elastic, plastic, strength, thermal and electrical. The structure and properties of glasses.

Mr. Mackenzie (W)

146B. Processing of Ceramics.

Prerequisite: senior standing. A study of the processes used in fabrication of ceramics, and relationship to structure and properties. Processing operations including materials preparation, forming and sintering. Effects of thermal and chemical treatments.

Mr. Knapp (Sp)

146C. Properties of Art Ceramic Materials.

Prerequisite: senior standing. Composition of art ceramic materials and products. Properties of ceramic bodies and glazes, and calculation methods used in expressing composition. Occasional field trips will be scheduled. (Open to students in Fine Arts.)

Mr. Knapp (W)

147A. Introduction to Physical Metallurgy.

Lecture, three hours; laboratory, three hours. Prerequisite: course 107B, (or 14). Structures and properties of metals and alloys. Influences of mechanical and thermal treatments. Plastic deformation, work hardening, and recrystallization. Grain growth. Distribution of phases in alloys. Alloy diagrams. Solution hardening. Diffusion hardening. Precipitation hardening. The iron-carbon system.

Mr. Wagner (F)

147B. Metal Fabrication Processes.

Prerequisite: courses 107B and 107C. Theoretical basis for cold forming and hot forming processes; rolling, extrusion and forging. Conventional and electrochemical metal removal. Solidification processes and casting. Powder metallurgy.

Mr. Shabaik (Sp)

147C. Powder Metallury.

Prerequisite: course 147A or equivalent. Forming of metal powder, sintering, engineering components, processing and properties of bearing and friction materials, cemented carbides, porous metals, electrical and magnetic materials.

(F, even years)

147D. Principles and Applications of Foundry Engineering.

Prerequisite: course 147A or equivalent. Basic metallurgy of castings, solidification theory, rising, gating, principles of sand casting, investment casting, centrifugal casting, melting procedures, properties of cast alloys.

Mr. Yue (F, odd years)

147E. Vacuum Metallurgy.

Prerequisite: course 141 or equivalent. Metallurgical processes carried out in vacuum including melting, purification, heat treatment, degassing of liquid metals, joining. Properties and applications of these materials.

Mr. Bunshah (W)

147F. Welding Metallurgy.

Prerequisite: course 107B, or a course in physical metallurgy (i.e., course 147A). Welding and brazing processes, slags and atmospheres, filler materials, solidification, the fusion zone, the heat-affected zone, porosity, segregation, hot and cold cracking, hydrogen embrittlement, residual stress, preheating and postheating, weldability tests, problems with selected materials, occasional laboratory demonstrations.

(Sp, odd years)

147L. Metal Fabrication Processes Laboratory. (½ course)

Prerequisite: course 147B. Experimental investigation and analysis of metal forming processes (forging, extrusion, drawing and rolling). Force measurements and energy calculations in metal cutting. Experimental investigation of hot and isostatic pressing of powder.

Mr. Shabaik (Sp)

148. Nondestructive Evaluation of Materials.

Prerequisite: course 107B. Interaction of acoustic wave and electromagnetic radiation with solids. Ultrasonic pulse-echo and spectroscopy. Radiography, magnetic particle, eddy current and fluid penetrant techniques. Practical applications of flaw detection in castings, forgings and pressure vessels. Potential methods including acoustic emission and holography.

Mr. Ono (F, even years)

149A. Polymer Science.

Prerequisite: introductory chemistry and consent of the instructor. Polymerization mechanisms, molecular weight and distribution, chemical structure and bonding, structure crystallinity, and morphology and their effects on physical properties. Glassy polymers, springy polymers, elastomers, adhesives. Fiber forming polymers, polymer processing technology, plasticiation.

Mr. Cannon (W)

149B. Engineering Design of Polymers.

Lecture, four hours; laboratory, three hours. Prerequisite: course 149A. Engineering fundamentals of polymer processing; relationship between processing techniques, structure and mechanical performance; design of polymers for high mechanical performance, application of fracture mechanics to design; effect of environment; stress/strain/time relationships to performance; reinforced polymers; economics.

Mr. Cannon (Sp)

150A. Applied Fluid Mechanics I.

Prerequisite: course 103A or consent of the instructor. The course will provide students with a working knowledge of incompressible fluid mechanics. Equations of motion will be derived and applied to a variety of engineering fields. These will include flow over bodies, turbulent flow in pipes, open channel flow, ocean waves, and porous media.

Mr. Barker (F,W)

150B. Applied Fluid Mechanics II.

Prerequisite: course 103A or equivalent, or consent of the instructor. Gas dynamics: isentropic flow in nozzles, normal and oblique shocks, Prandtl-Meyer expansion fan, effects of friction and heat transfer in channel flows, thin airfoils in supersonic flow. Viscous flow: exact solutions of Navier-Stokes equations, boundary layer theory, instability, turbulence, separation.

Mr. Cole (W,Sp)

150C. Aerodynamics.

Prerequisite: courses 103A, 150A. The course presents the classical ideas of aircraft aerodynamics. The laws of vorticity are developed and applied to the theory of lift and induced drag. Frictional drag, thrust, and power are discussed, then aircraft performance, and stability and control.

Mr. Crow (Sp)

151. Performance of Vehicles.

Prerequisite: courses 103A, 105A. Preliminary design analysis of the performance of a variety of vehicles, including automobiles, trains, aircraft, rocket-powered vehicles, ground effect machines, ships and sailboats; performance parameters will include speed, range, payload, efficiency, dynamics and stability, noise, and air or water pollution.

Mr. Charwat (F)

152. Hydraulics and Flow Machinery.

Prerequisite: course 103A. Flow in open and closed conduits; distribution and dispersion (mixing) problems. Unsteady effects: transients, resonances. Fluid energy sources: winds, waves, tides, rivers. Design of turbines, pumps and fans. Activators and fluidic logic elements.

Mr. Charwat (Sp)

153A. Engineering Acoustics.

Prerequisite: upper division standing in Engineering or consent of the instructor. Fundamental course in acoustics. Includes: the ear and hearing; basic acoustical instrumentation; propagation of sound; sources of sound; architectural reverberation; selected subjects.

Mr. Stern (F)

153B. Acoustics Laboratory.

Laboratory, eight hours. Prerequisite: course 153A (may be taken concurrently) or consent of the instructor. Experimental studies in the field of acoustics, including audiometry, noise and noise control, acoustical filters, impedance measurements, transducer characteristics and interferometry. Occasional field trips may be necessary to obtain data.

Mr. Stern (W)

153C. Noise and Noise Control Design.

Prerequisite: course 153A or consent of the instructor. Practical concepts in design, construction, measurement and analysis of noise suppression techniques. Includes equipment, transducers, environmental factors in sound propagation, enclosures, properties of materials, sound interaction in structures, mufflers, isolators, damping of panels, ducts, aerodynamic noise, noise criteria and standards.

Mr. Stern (Sp)

155. Intermediate Dynamics.

Prerequisite: course 102 or equivalent. Not open for full credit to students having taken 102B. The axioms of Newtonian mechanics, generalized coordinates, Lagrange's equations, variational principles; central force motion; kinematics and dynamics of a rigid body, Euler's equations, motion of rotating bodies, oscillatory motion, normal coordinates, orthogonality relations, the vibrating string.

Mr. Forster (Sp)

156A. Advanced Strength of Materials.

Prerequisite: course 108. Columns and beam columns. Torsion; Airy's stress functions, stress concentrations. Loads on balls, rollers. Rotating disks, thick hollow spheres, thick hollow circular cylinders, curved beams, coiled springs.

Mr. Liu, Mr. Nelson (Sp)

157. Mechanics and Structures Laboratory.

Lecture, two hours; laboratory, four hours. Prerequisite: courses 102, 103A, and 108 (or equivalent); plus one of the following courses consistent with the area of intended experimental work: 150A, 150B, 153A, 155, 156A, 158A, 162A, 162B, (162A-162B formerly numbered 178A-178B), 165A, 169A, 185A. Study of experimental techniques in mechanics and structures; formulation and execution of an experiment in one of the following optional areas: acoustics, biomechanics, dynamics, fluid dynamics, kinematics, soil mechanics, solid mechanics, structures.

Mr. Charwat, Mr. Felton (W,Sp)

158A. Elasticity and Plasticity.

Prerequisite: Mathematics 32B. Three-dimensional stress and strain. Criteria for prediction of mechanical failure. Differential equations in three dimensions; analytical, numerical, and experimental solutions of plane state and torsion problems. (Stress function, iteration, strain gages, photoelasticity.) Homogeneous plastic flow, plastic tensile instability.

Mr. Westmann (F,W)

***161A. Introduction to Astronautics.**

(Not the same as Engineering 161A prior to Fall Quarter 1975.) Prerequisite: course 102. The space-environment of earth, near-earth orbits and trajectories, step rockets and staging, the two-body problem, orbital transfer and rendezvous, elementary perturbation theory, influence of earth's oblatness.

The Staff, Mechanics and Structures Department

162A. Introduction to Mechanism and Mechanical Systems.

(Formerly numbered 178A.) Prerequisite: course 102. The analysis and synthesis of mechanisms and mechanical systems are studied including both kinematics and dynamics aspects. Mechanisms from a wide range of applications including automatic machinery, transportation systems and computer peripheral equipment are introduced.

Mr. Dubowsky (F)

162B. Fundamentals of Mechanical System Design.

(Formerly numbered 178B.) Lecture, three hours; laboratory, three hours. Prerequisite: course 102. Techniques of modern design and development of mechanical systems. Application and analysis of basic components and sub-systems such as gear trains, bearings, hydraulic and pneumatic sub-systems. The dynamics of high-speed machines. Students will create a design of their choice.

Mr. Dubowsky (W)

162C. Electromechanical Systems Laboratory.

Lecture, one hour; laboratory, five hours. Prerequisite: course 162B or consent of the instructor. Laboratory course for students interested in research,

*Not to be offered, 1976-1977.

design or development of complex mechanical and electromechanical systems. Student, with consent of instructor, will select a system which he will develop, build and instrument. Behavior of this system is studied in detail.

Mr. Dubowsky (Sp)

163. Dynamics and Control of Physical Systems.

Prerequisites: courses 171A and either 155 or 169A: (concurrent enrollments satisfactory). Application of the principles of dynamics and classical control theory to a wide range of physical systems, including simplified models of machines and electromechanical devices, space and ground transportation vehicles, and biomechanical systems. Mathematical modeling and computer simulation are emphasized.

Mr. Dubowsky (W)

165A. Elementary Structural Analysis.

Prerequisite: course 108. Equilibrium of statically determinate structures; virtual displacements in equilibrium problems; influence lines; deformation of elementary structures; moment area theorem; virtual work theorem; application of virtual forces to kinematics of statically determinate structures; analysis of redundant structures; introduction to displacement of methods.

Mr. Dong (F,Sp)

165B. Intermediate Structural Analysis.

Prerequisite: course 165A. Classical force, displacement methods of structural analysis; three moment equation, slope deflection equations, moment distribution; virtual work, minimum potential, complementary potential theorems; Castigliano's theorems, generalized displacements, forces; Rayleigh-Ritz method; introduction to matrix methods; stiffness, flexibility matrices for bars, beams.

Mr. Nelson (F,W)

165C. Computer Analysis of Structures.

(Formerly numbered 165N.) Prerequisite: course 165A. Development of algorithms and FORTRAN coding for matrix manipulation, inversion; solution of the linear algebraic equations, eigenvalue problems; structural applications; matrix displacement method for planar trusses, frames, direct assembly of system stiffness; matrix force method for planar frames.

Mr. Selna (Sp)

166. Elementary Structural Mechanics.

Prerequisite: course 165A. Analysis of stress, strain; phenomenological material behavior, fatigue, cumulative damage; bending, extension of beams, unsymmetrical sections, stiffened shell structures; torsion of beams, stress function, warping, thin-walled cross-sections; shear stresses; plate analysis; instability, failure of columns, plates, approximate methods, empirical formulas.

Mr. Schmit (F,W)

167A. Design of Steel Structures.

Lecture, three hours; recitation, three hours. Prerequisite: course 165A. Determination of loads. Approximate methods of analysis. Component design by working stress and ultimate strength methods.

Mr. Felton, Mr. Rea (F)

167B. Design of Reinforced Concrete Structures.

Lecture, three hours; recitation, three hours. Prerequisite: course 165A. Design of reinforced concrete buildings. Reinforced concrete beams, columns, and slabs. Working stress and ultimate strength methods of analysis. Determination of loads and design constraints. Introduction to reinforced concrete structural systems.

Mr. Felton, Mr. Rea (W)

167C. Design of Prestressed Concrete Structures.

Prerequisite: course 165A. Properties of concrete and prestressing steels. Prestressing and post-tensioning techniques. Loss of prestress. Analysis of sections for flexure stresses and ultimate strength. Design of beams by working stress, strength, and load balancing methods. Design of slabs and bridges.

Mr. Rea (Sp)

168. Design of Aerospace Structural Systems.

Prerequisite: courses 165B, 166; 165B may be taken concurrently. Design of aircraft, helicopter, and space structures. External loadings and environment factors of safety; internal stresses; allowable stresses; applied theory of thin-walled structures; design for prevention of fatigue; selection of materials; optimization of configuration.

Mr. Friedmann (Sp)

169A. Introduction to Mechanical Vibrations.

Prerequisite: course 102. Fundamentals of vibration theory and applications. Free, forced and transient vibration of one and two degrees of freedom systems including damping and nonlinear behavior. Normal modes, coupling and normal coordinates. Elements of vibration and wave propagation in continuous systems.

Mr. Fourney, Mr. Mingori (F,W)

171A. Introduction to Feedback and Control Systems: Dynamic Systems Control I.

Lecture, three hours; lecture/laboratory, one hour. Prerequisite: consent of the instructor. Introduction to feedback principles, control systems and stability. Unified introductory treatment of continuous and discrete-time (digital or sample-data) systems. Control systems modeling applications in engineering and other fields. Emphasis on concepts. Computer-aided problem solving techniques for systems analysis and design.

Mr. DiStefano, Mr. Leondes (F,W)

171C. Dynamic Systems Control II.

Prerequisite: either course 171A or 122A is recommended. State-space models of continuous and discrete-time dynamic systems. Linear algebra of systems; vector spaces; geometric concepts; transformations and matrices; canonical forms. Stability. Controllability and observability. State representation of nonlinear systems; linearization. Emphasis on modeling concepts, applications, and computer-aided problem solving.

Mr. DiStefano (W,Sp)

172A. Linear Programming.

Basic course in linear programming. Review of the fundamentals of linear algebra. The simplex algorithm. Duality thory. Geometry of linear programs. Introduction to the decomposition principle of linear programs. Applications of linear programming to engineering and economic systems.

Mr. Jacobsen, Mr. Miller (F,W,Sp)

173. Engineering Project Management.

Prerequisite: courses 172A, 193A, or equivalent with consent of the instructor. Scientific principles and application arts for computer-compatible management in project definition, design, implementation, and evaluation. Quantitative interdisciplinary formulations exemplifying environmental, industrial, business, and administrative challenges with people influences and reiterative value-goal strategies. Organization theory. Project manager as a leader.

Mr. Coleman, Mr. Nottage (W)

M174A. Introduction to Elements of Decision Making.

(Same as Creative Problem Solving M174A.) (Not the same as 174A prior to Fall Quarter 1974.) Prerequisite: course 193A or equivalent mathematics course. Elements of decision making and the decision process. Decision and utility theory. Formulation of utility functions and objective functions. Subjective probabilities. Bayesian approach to value of information. Risk sharing and group decisions. Methods of eliciting judgements; bias and scoring rules.

Mr. Coleman, Mr. Rubenstein (W)

177A. Engineering Economics I.

Prerequisite: Economics 100 or equivalent or consent of the instructor. A concise analytic development of modern microeconomic and macroeconomic theory with emphasis on a high technology society and the engineering firm.

Mr. English (F)

177B. Engineering Economics II.

Prerequisite: courses 106A and 193A or equivalent or consent of the instructor. Supply of and demand for money. Equilibrium in money and bond markets. Financial instruments and institutions. Investment decision-making for engineering enterprise under certainty, risk, and uncertainty. Break-even analysis, goal programming, capital allocation, sensitivity analysis. Financing of engineering projects, public and private.

Mr. English (W)

180A. Environmental Biotechnology.

Prerequisite: course 107A or consent of the instructor. Physical, physiological, and psychological aspects of the interaction between man and thermal, atmospheric, radiant, and mechanical agents and energies in the environment. Biological and physical requirements for engineering control of the environment; applications to complex systems.

Mr. O'Brien (F)

180B. Machine and Systems Biotechnology.

Prerequisite: course 107A or consent of the instructor. Quantitative and qualitative methods for assessing man as a component in engineering design applications. Limits and optima of human psycho-physiological capabilities applied to display-control design, decision-making problems, and task definition; problems of man-machine interactions in large-scale systems.

Mr. Lyman (W)

181A. Air Pollution Control.

Prerequisite: senior standing or consent of the instructor. Quantitative consideration of the air resource and its management. Air quality measurements and standards. Systems for pollution removal. Industrial, commercial and community air pollution problems. Data analyses and interpretations. Lectures, occasional laboratory and field trips.

Mr. Bush (Sp)

184A. Engineering Hydrology.

Prerequisite: senior standing or consent of the instructor; elementary probability recommended. Precipitation, climatology, stream flow analysis, flood frequency analysis, groundwater, snow hydrology, hydrologic simulation. Possible field trips.

Mr. Dracup (F)

184B. Introduction to Water Resources Engineering.

Prerequisite: course 103A or consent of the instructor. Principles of hydraulics, the flow of water in open channels and pressure conduits, reservoirs and dams, hydraulic machinery, hydroelectric power, introduction to system analysis applied to Water Resources Engineering.

Mr. Taylor (W)

184D. Water Resources Quality Control Systems.

Prerequisite: senior standing in engineering or consent of the instructor. Water as a resource; the physical, chemical, and biological bases of pollution and degradation. Potability and chemical aspects of quality control and reclamation; analytical, economic, and performance aspects of systems design for prevention and treatment. Field trips.

Mr. Bush (F)

185A. Principles of Soil Mechanics.

Prerequisite: courses 108 or 108A; Geology 11 is recommended. Soil as a foundation for structures and as a material of construction. Soil formation, classification, physical and mechanical properties, compaction, bearing capacity, earth pressures, consolidation and shear strength.

Mr. Lade, Mr. Lee (F,W)

185B. Soil Mechanics — Laboratory Practices. (½ course)

Lecture, one hour; laboratory, three hours. Prerequisite: course 185A (may be taken concurrently). Laboratory experiments to be performed by the students to get basic data required for assigned design problems. Soil classification, Atterburg limits, permeability, compaction, shear strength and specific gravity determination.

Mr. Lee (Sp)

186A. Elements of Construction.

Lecture, two hours; special projects, field trips, four hours. Prerequisite: senior standing in engineering. Anatomy of the industry, bidding and purchasing strategies, contracts, costs and economics, operations research in construction, planning and scheduling, equipment and materials, construction methods, field engineering techniques, observation and engineering analysis of current construction projects in the vicinity.

Mr. Duke (Sp)

191A. Laplace Transforms and Applied Complex Variables.

Prerequisite: courses 100, 102. Introduction to the Laplace Transformation: application to electrical and mechanical problems, convolution-type integral equations, difference equations and simple boundary value problems in partial differential equations. Complex variable theory, contour integrals, residues; application to transform inversion and partial differential equations.

Mr. Forster (F)

192A. Mathematics of Engineering.

Prerequisite: Mathematics 32C or equivalent. Application of mathematical methods to problems of interest in engineering. The main topic covered is systems of linear ordinary differential equations. Fourier series, transforms, and nonlinear effects are also discussed as related to the solutions of differential equations.

Mr. Catton, Mr. Forster, Mr. Jacobsen (F,W,Sp)

192B. Mathematics of Engineering.

Prerequisite: course 192A or equivalent. Applications of mathematical methods to engineering problems are considered. Eigenvalue problems for continuous sytems and the related special functions are studied.

Mr. Catton, Mr. Forster, Mr. Jacobsen (F,W,Sp)

192C. Mathematics of Engineering.

Prerequisite: course 192A or equivalent. Application of mathematics to engineering problems. A survey of the classical partial differential equations, wave, heat, and potential. The formulation of boundary value problems and analytical and numerical methods are studied.

Mr. Catton, Mr. Forster, Mr. Jacobsen (Sp)

193A. Engineering Probabilistics and Stochastics.

Prerequisite: junior standing in engineering. Sets and set algebra; sample spaces; combinatorics; absolute and conditional probability; discrete and continous random variables; probability distribution, increment, and density functions; Chebychev's inequality; Laplace-Fourier transforms; law of large numbers; central limit theorems; discrete and continuous stochastic processes.

Mr. Cole, Mr. Coleman, Mr. Robinson (F,W,Sp)

193B. Engineering Statistics.

Prerequisite: course 193A or equivalent or consent of the instructor. Introductory concepts of statistical decision and estimation. Population parameters, samples, data, statistics. Classical test of significance and hypotheses. OC-functions and sample sizes. Statistical estimation for one- and two-parameter populations. Bayesian inference, stopping rules. Decision theory, payoffs, losses. Applications.

Mr. Arunkumar, Mr. Coleman (W)

195A. Computer Aided Circuit Design.

Prerequisite: course 110B; also, use of a computer will be required but not taught. Piecewise analysis of large networks. Device modeling. AC, DC and transient analysis of linear and nonlinear networks. Sensitivity and tolerance analysis. Computer-aided circuit optimazation.

Mr. McNamee, Mr. Temes (W)

196A. Introduction to Topics in Bioengineering. (½ course)

Prerequisite: calculus. History, motivation and current directions in bioengineering. Bioinstrumentation and measurement. Biomaterials. Biomechanics. Biosystems. Health services and patient protection. Human factors engineering. Orthotic/prosthetic systems and sensory aids. This course is graded on a passed/not passed basis.

Mr. DiStefano, Mr. Roberts, Mr. Vilker (F,Sp)

M196B. Modeling and Simulation of Biological Systems.

(Same as Medicine M196B; formerly numbered M171F.) Prerequisite: calculus. Introduction to classical and modern systems modeling and simulation methods for studying biological systems. Applications in physiology and medicine. Life science and medical students are encouraged to enroll.

Mr. Campfield, Mr. DiStefano (F,Sp)

199A-199G. Special Studies. (½ to 2 courses)

Prerequisite: senior standing and consent of the instructor. Individual investigation of a selected topic, to be arranged with a faculty member. Enrollment request forms are available in Department Offices. Occasional field trips may be arranged. May be repeated for bachelor's degree credit.

199A. Computer Science Department. The Staff

199B. Electrical Sciences and Engineering Department. The Staff

199C. Energy and Kinetics Department. The Staff

199D. Engineering Systems Department. The Staff

199E. Materials Department. The Staff

199F. Mechanics and Structures Department. The Staff

199G. System Science Department. The Staff (F,W,Sp)

Graduate Courses

210A. Advanced Circuit Theory I.

Prerequisite: course 110A; concepts of linear algebra and complex function theory. State equations for linear circuits. Characterization of n-ports and multi-terminal elements. Introduction to, and applications of, the scattering matrix, and related topics.

Mr. Orchard (F)

210B. Advanced Circuit Theory II.

Prerequisite: course 210A. Analytical techniques for active circuits: return difference, Blackman's formula for an active impedance. Characterization of nonlinear elements. State equations for nonlinear circuits. Stability of nonlinear circuits: Liapunov's direct method. Theory of nonlinear transistor circuits.

Mr. Willson (W)

210C. Advanced Network Synthesis.

Prerequisite: course 210A or consent of the instructor. (Not open to students having taken 210A Fall Quarter 1969.) Relations between the real and imaginary parts of network functions; approximation theory; frequency and time-domain interrelations; cascade, ladder and lattice realization of reactance twoports.

Mr. Orchard, Mr. Temes (W)

210D. Active, Passive, and Digital Filters.

Prerequisite: course 210C or consent of the instructor. Approximation theory. Realization of passive filters. Electro-mechanical filters. Active filters with lumped and/or distributed elements. Switched and digital filters.

Mr. Orchard, Mr. Temes (Sp)

210E. Digital Signal Processing.

Prerequisite: course 110B. Relationship between continuous-time and discrete-time signals. The z-transform. The discrete Fourier transform. The fast Fourier transform. State equations for discrete-time systems. Network structures for digital filtering. Digital filter design techniques. Effects of quantization errors.

Mr. Willson (F)

213A. Quantum Electronics I.

(Formerly numbered 215C.) Prerequisite: course 215A or consent of the instructor. (Not open to students who have taken course 215C prior to Winter Quarter 1973.) Optical beams and resonators, interaction of light with atoms including amplification and saturation, properties of lasers including power output and mode effects.

Mr. Casperson, Mr. Stafsudd (W)

213B. Quantum Electronics II.

(Formerly numbered 215E.) Prerequisite: graduate status, or consent of the instructor. (Not open to students who have taken course 215E prior to Spring Quarter 1973.) Quantum electronic systems, modulation, non-linear optics, and some advanced laser topics.

Mr. Casperson, Mr. Stafsudd (Sp)

214A. Plasma Waves and Instabilities.

Prerequisite: courses 100B and M118 or Physics M122. Wave phenomena in plasmas described by the macroscopic fluid equations. Emphasis on homogeneous plasmas in uniform magnetic fields. Microwave propagation, plasma oscillations, ion acoustic waves, cyclotron waves, hydromagnetic waves, whistlers and helicon waves, and their classification. Illustrative experiments.

Mr. Chen (W)

214B. Advanced Plasma Waves and Instabilities.

Prerequisite: course M118 or Physics M122, and course 214A or 218B or Physics 222. Interaction of intense electromagnetic waves with plasmas: waves in inhomogeneous and bounded plasmas, nonlinear wave coupling and damping, parametric instabilities, anomalous resistivity, shock waves, echoes, laser heating. Emphasis on experimental considerations and techniques.

Mr. Chen (Sp)

214C. Principles of Thermonuclear Fusion.

(Formerly numbered 214B.) Prerequisite: course M118 or Physics M122 and consent of the instructor. Principles of confinement and heating of plasmas in magnetic fields. Field configurations: pinches, magnetic mirrors and wells, toruses. Methods of plasma stabilization. Plasma production and heating. Advantages of thermonuclear reactors and considerations in their design.

Mr. Chen (F)

M214E. Seminar in Fusion Reactor Technology.

(Same as Engineering M236G.) Prerequisite: consent of the instructor. Non-plasma problems in the design of fusion reactors: environmental hazard, lithium blankets, radiation damage, first-wall materials, tritium handling, super-conducting magnets, energy storage, fuel injection and ash removal, reactor stability and control, transmutation of radioactive wastes, and other current topics.

Mr. Chen (W, odd years)

215A. Solid State Electronics I.

Prerequisite: courses 115A, 115B, 115C. Review of quantum mechanics, matrix methods, approximation methods, crystal field theory, interaction of radiation and matter.

Mr. Viswanathan (F)

215B. Solid State Electronics II.

Prerequisite: course 215A. Energy band theory, equilibrium in semiconductors, transport properties, high frequency (microwave and optical frequencies) properties, superconductors.

Mr. Stafsudd, Mr. Viswanathan (W)

215C. Microwave Semiconductor Devices.
Prerequisite: course 115D or consent of the instructor. Physical principles and design considerations of microwave solid-state devices: IMPATT and TRAPATT diodes, BARRITT diodes, transferred electron devices, tunnel diodes, optoelectronic devices and acoustic surface wave devices.
Mr. Greiling, (W)

215D. Physics of Solid State Devices.
Prerequisite: course 115D. Physical principles and design considerations of modern solid state devices; minority carrier devices; field effect devices; optoelectronic devices; acoustic electric devices.
Mr. F. G. Allen, Mr. Viswanathan (Sp)

216A. Advanced Electronics.
Prerequisite: courses 110B, 116B. Active network theory with particular reference to linear integrated circuits. Design of multistage low pass amplifier. Multistage feedback amplifier, high frequency band pass amplifier, and coupling and matching networks.
Mr. Willis (F,Sp)

216B. Modern Electronic and Parametric Devices.
Prerequisite: course 116B. Critical examination of modern electron devices, with emphasis upon basic operating principles and behavior and performance in system usage. Specific devices to be analyzed may be grouped as follows: semiconductor microwave, parametric, and quantum electronic devices.
Mr. Greiling (W)

216C. Integrated Circuit Design.
Prerequisite: course 116B. Design constraints, layout procedure, resistors, transistors, capacitors, parasitics, reference diodes, current sources, active loads, level shifters, Op Amps, voltage regulators, thermal problems, logic circuits.
Mr. Temes (Sp)

217A-217B. Advanced Engineering Electrodynamics.
Prerequisite: courses 117A, 117B or equivalent. Advanced treatment of concepts in electrodynamics and their applications to modern engineering problems. Waves in anisotropic, inhomogeneous and dispersive media. Guided waves in bounded and unbounded regions. Radiation and diffraction, including optical phenomena. Partially coherent waves, statistical media.
Mr. Alexopoulos, Mr. C. W. Yeh (217A-F; 217B-W)

217C. Microwave Circuits.
Prerequisite: course 117A. Transmission line review; application to strip line and microstrip. Multiport microwave networks; scattering and immittance matrices; devices. Inhomogeneously filled guides. Surface guides. Excitation of guided waves. Periodic structures and filters.
Mr. Elliott, Mr. Schott (Sp)

218B. Interaction of Electromagnetic Waves with Plasmas.
Prerequisite: courses 117A, 117B. Motion of charged particles in fields, wave propagation in cold plasmas, antennas in plasmas, waves in warm plasmas, Alfven waves, Boltzmann-Vlasov equations, Landau damping, longitudinal waves.
Mr. C. W. Yeh (W)

219A. Seminars on Advanced Topics in Electromagnetics.
Prerequisite: courses 117A, 117B or equivalent. Current topics in electromagnetics, such as wave interaction with ferrites, moving media, data processing antennas, waves in statistically varying media, numerical methods applied to eletromagnetic problems, holograms and partially coherent waves. May be repeated for credit.
Staff, Electrical Sciences and Engineering Department (Sp)

219B. Seminars on Advanced Topics in Solid State Electronics.
Prerequisite: courses 215A, 215B. Current research areas, such as radiation effects in semiconductor devices, diffusion in semiconductors, optical and microwave semiconductor devices, nonlinear optics, and electron emission.
Staff, Electrical Sciences and Engineering Department (F)

219C. Seminar: Special Topics in Applied Electronics.
Prerequisite: course 216C or consent of the instructor. Current topics in applied electronics and electronic systems, such as: Fourier optics, optical data processing, communication systems and techniques, parametric electronics and devices. May be repeated for credit.
Staff, Electrical Sciences and Engineering Department (F)

219D. Special Topics in Electric Circuit Theory.
Prerequisite: course 210B or 210C or 210D. Advanced treatment of topics chosen from research areas in electric circuit theory.
The Staff Electrical Sciences and Engineering Department (F)

219X. Advanced Electrical Science and Engineering Seminar. (½ course)
Prerequisite: passing of the Ph.D. major field examination or instructor's approval. Seminar on current research topics in solid state and quantum electronics (Section 1) or in electronic circuit theory and applications (Section 2). Each student will report on a tutorial topic and on a research topic in his dissertation area. May be repeated for credit. To be graded on S/U basis.
Mr. Temes, Mr. Viswanathan (F,W,Sp)

220A. Stochastic Theory of Queueing Systems I.
Prerequisite: course M120C or consent of the instructor. Stochastic Point Processes. Topics in the theory of queues; the Imbedded Markov Chain Method; equilibrium results for multiple server queues; method of stages; applications to communication, control, and systems optimization.
Mr. Balakrishnan, Mr. Rubin (W)

220B. Stochastic Theory of Queueing Systems II.
Prerequisite: course 220A. Advanced topics in queueing theory and systems; transient behavior, virtual waiting time and busy period, integral equation method, series of queues and priority queues. Inventories, communication, control and systems problems.
Mr. Omura, Mr. Rubin (Sp)

220G. Graphs and Network Flows.
Prerequisite: courses 120A and 129A or consent of the instructor. Solution to analysis and synthesis problems which may be formulated as flow problems in capacity constrained (or cost constrained) networks. Tools of network flow theory are developed using graph theoretic methods and are applied to communication, transportation and transmission problems.
Ms. Greibach, Mr. Rubin (Sp)

222A. Nonlinear Control.
Prerequisite: course 122B or consent of the instructor. Graphical and analytical techniques for designing and understanding nonlinear control systems, including Liapunov's direct method, input-output stability and Popov theory.
Mr. Wang, Mr. Wiberg (F,Sp)

222B. Stochastic Control.
Prerequisite: courses 120B and 122B. Estimation and control of linear discrete-time and continuous-time stochastic systems; separation theorem and applications; Kalman filtering.
Mr. Aoki, Mr. Mortensen (Sp)

222C. Optimal Control.
Prerequisite: course 122B. Applications of variational methods, Pontryagin's maximum principle, dynamic programming and nonlinear programming to problems of optimal control theory and practical systems.
Mr. Wang (F,Sp)

222D. Seminar in Control.
Prerequisite: courses 222A, 222B and 222C, or consent of the instructor. A series of lectures and student presentations on topic of current research interest in control theory and applications. Recommended for advanced students who may wish to undertake doctoral dissertations in this field. May be repeated for credit.
Mr. Aoki, Mr. Wang (W)

222E. Special Topics in Control.
Prerequisite: consent of the instructor. Thorough treatment of one or more aspects of control theory and applications, such as: computational methods for optimal control; stability of distributed systems; identification; adaptive control; nonlinear filtering; differential games; applications to flight control, nuclear reactors, process control, biomedical problems. May be repeated for credit.
Mr. Aoki, Mr. Mortensen, Mr. Wiberg (Sp)

M222F. Biological Control Systems.
(Same as Anesthesiology M222.) Prerequisite: Engineering 122A or equivalent. Introduction to the application of control theory to the modeling and analysis of biological control systems, such as the respiratory system, cardiovascular system and neuro-muscular system. Emphasis on solving problems of current interest in biomedicine.
Mr. Swanson, Mr. Wiberg (Sp)

M222G. Control and Coordination in Economics.
(Same as Economics M240.) Prerequisite: graduate standing in Economics or Engineering, consent of the instructor. Appropriate mathematics course recommended. Stabilization policies, short- and long-run dynamics and stability analysis; decentralization, coordination in teams; certainty equivalence and separation theorems; stochastic and learning models, Bayesian approach to price and output rate adjustment.
Mr. Aoki (Sp)

M223A. Queueing Systems: Theory and Application.
(Formerly numbered M220A); same as Management M216A. Prerequisite: course 120A or consent of the instructor. Analysis of queueing (waiting-line) systems. Discrete- and continuous-time Markov processes; birth-and-death processes; baby queueing theory. Equilibrium results for single and multiple server queues; method of stages. Priority queueing. Applications to communication systems, data-processing systems, time-shared processors, computer and communication networks.
Mr. Kleinrock (F)

M223B. Advanced Queueing Theory and Applications.
(Formerly numbered M220B); same as Management M216B. Prerequisite: course M223A. Advanced topics in queueing theory: including Lindley's Integral Equation; Pollaczek method; busy period; virtual waiting time; method of collective marks; inequalities, bounds, and approximations; tandem queues; an algebra for queues. Applications to communication and computer nets, computer systems and time-sharing systems.
Mr. Kleinrock (W)

223C. Computer Communication Networks.
Prerequisite: course M223A. Computer communication network models, analysis and design techniques are examined. Experience with an existing international network (the ARPANET) is discussed and the operational procedures and pitfalls are presented. Measured performance and cost effectiveness of large scale computer networks are considered.
Mr. Kleinrock (Sp)

223D. Automatic Deduction: Theory and Applications.

Prerequisite: some knowledge of logic, list-processing languages and programming. Historical development of automatic deduction programs. The resolution principle. Program structure and efficiency strategies. Fundamental meta theorems. Rules of inference for equality and decision procedures. Formalization and axiomatization.

Mr. Goguen, Mr. Melkanoff

223E. Heuristic Programming and Artificial Intelligence.

Prerequisite: course 123A or 125L or consent of the instructor. Survey of a body of computer programs which successfully perform tasks generally agreed to require some intelligence. The objective is to develop understanding of current research and possibilities of limitations implied by existing experiments in automating intelligent behavior.

Mr. Goguen, Mr. Klinger (Sp)

223F. Theory of Computation.

Prerequisite: some background in automata, formal languages, and computability (e.g., course 123B or course 228B or Mathematics 114), and consent of the instructor. Introduction to the theory of formalized flow charts and models of computer programs; emphasis on program and recursion schemata; problems or equivalence, optimization, correctness, translatability.

Ms. Greibach, Mr. Melkanoff (Sp)

223K. Information Processes in Nervous Systems.

Prerequisite: consent of the instructor. Conceptual discussion of acquisition and transfer of information in the nervous system and of the role of computers in the analysis and interpretation of neurophysiological data.

Mr. Vidal (W)

223Z. Seminar: Current Topics in Computer Science. (½ to 3 courses)

Prerequisite: consent of the instructor. Review of current research and literature in an area of Computer Science, in which the instructor has developed proficiency from the results of current research. May be repeated for credit, provided no duplication exists.

The Staff, Computer Science Department (F,W,Sp)

224A. Continuous System Simulation.

Prerequisite: courses 124A, 124D. The organization, operation and areas of application of analog-digital computer systems. Error analysis, numerical analysis aspects, digital simulation languages for continuous systems.

Mr. Karplus, Mr. Levine (Sp)

224B. Computer Applications: Distributed Parameter Systems.

Prerequisite: course 124A. A survey of the mathematical formulation and computer solution of engineering field problems governed by partial differential equations. Emphasis on digital simulation methods, including finite difference approximations. Monte Carlo methods and the use of modern problem-oriented languages.

Mr. Karplus, Mr. Vidal (F)

224Z. Seminar: Current Topics in Computer Science-Methodology. (½ to 3 courses)

Prerequisite: consent of the instructor. Review of current literature in an area of Computer Science Methodology in which the instructor has developed special proficiency as a consequence of research interests. Student reports on selected topics. May be repeated for credit provided no duplication exists.

The Staff, Computer Science Department (F,W,Sp)

225A. Computer System Design: Arithmetic Processors.

Prerequisite: courses 125A, 125B. Concepts of number systems, digital numbers, algorithms; logic and organization of digital arithmetic processors; conventional arithmetic; algorithm acceleration; floating-point and significance arithmetics; redundant, signed-digit, residue number systems; error detecting codes for digital numbers; algorithm evaluation by analysis and simulation.

Mr. Avizienis, Mr. Ercegovac (F,Sp)

225B. Digital Computer Seminar.

Prerequisite: course 225A. Advanced topics in computer system architecture. Analysis of programs, synthesis of systems performance measures. Formal description of complex systems.

Mr. Estrin (W)

225C. Computer System Design: Fault Tolerance.

Prerequisite: courses 125A, 125B. Fault masking at the level of components, logic circuits, and sub-systems. Diagnosis of logic nets. Techniques of automatic replacement and reorganization. Reliability estimation of fault-tolerant systems. Recovery from fault-induced errors.

Mr. Avizienis (W)

225D. Computer Memories and Memory Systems.

Prerequisite: course 125B or consent of the instructor. Generic types of memory systems; control, access modes, hierarchies and allocation algorithms. Characterisitcs, system organization and device considerations of ferrite memories, thin film memories and semiconductor memories.

Mr. Chu, Mr. Estrin (Sp)

*225F. Data Communications in Computer Systems.

Prerequisite: courses 120A, and either 124D or 125B. Intraprocessor Communications: communication between processor, memory and input/output. Multiprocessor communication, switching and multiplexing. Multi-computer systems: interprocess communications, synchronization, flow control, file allocation and dead lock problems. Communications with remote multiple terminals: measurements and modeling, error detection and handling, optimal block size, line control protocol, and multiplexing.

Mr. Chu

225K. Operational Semantics of Programming Languages.

Prerequisite: courses 123B, 125L; (may be taken concurrently). Interpreter Models of Programming Language Semantics: information structure models, Vienna definition language, lambda calculus, LISP definition, interpreter equivalence and correctness.

Mr. Berry, Mr. Melkanoff (F)

225L. Advanced Topics in Programming Systems.

Prerequisite: course 125N or consent of the instructor. Theoretical models of compilation. Syntax-directed transduction, tree automata, and tree grammars. Parallel programs, including their structure and translation. Other topics of current research interest in the general field of design and implementation of computer programming languages.

Mr. Martin (F)

225M. Pattern Recognition.

Prerequisite: graduate standing. Theory of computer processing of patterned information. Applications to character recognition, nuclear experiment data (bubble chamber), and medical records (electrocardiograms). Threshold logic units, training algorithms, fuzzy sets. Hardware and software for input and display of graphic data.

Mr. Klinger (Sp)

225P. Advanced Topics in Programming Languages.

Prerequisite: course 125L. Presentation, analysis and discussion of specialized programming languages, new higher level languages and new and/or advanced features of programming languages.

Mr. Berry, Mr. Melkanoff (W)

225S. Computer Science Seminar. (1/2 course)

Prerequisite: graduate standing in Computer Science. Lectures on current research topics in Computer Science. To be graded on a S/U basis. (May be repeated for credit.)

Mr. Berry, Mr. Muntz (F,W,Sp)

225X. Advanced Computer Science Seminar.

Prerequisite: completion of Major Field Examination in Computer Science or consent of the instructor. Current computer science research into theory of, analysis and synthesis of, and applications of information processing systems. Each member will complete one tutorial and one or more original pieces of work in his specialized area. May be repeated for credit.

Mr. Estrin, Mr. Karplus (F,W,Sp)

225Z. Seminar: Computer Science-System Design (Architecture). (½ to 3 courses)

Prerequisite: consent of the instructor. Review of current literature in an area of Computer Science System Design, in which the instructor has developed special proficiency as a consequence of research interests. Student reports on selected topics. May be repeated for credit, provided no duplication exists.

The Staff, Computer Science Department (F,W,Sp)

226C. Analytic Models in Operating Systems.

Prerequisite: courses 126C, M223A. Time-sharing system queueing models. Models of program behavior, multilevel memory allocation, paging algorithms. Analysis of file structures. I/O scheduling. Measurement techniques and analysis.

Mr. Muntz (Sp)

226D. Data Management Systems.

Prerequisites: course 125L, or Management 113A-113B, or equivalent; course 123A or equivalent helpful. Information and file handling in higher level languages, storage devices and operating systems. Secondary index organizations. Models and architecture of data management systems. Logical and physical structures. Query languages. Commercially available generalized file management and data base management systems. Management information systems.

Mr. Cardenas, Mr. Popek (F,Sp)

*226R. Computers, Science and Society.

Prerequisite: diversified computer experience and consent of the instructor. (Some background in social science is recommended.) The challenge of computer-serviced societies; experimental evaluation of human effectiveness in man-computer communication; computer utility developments; computers and experimental method; computers and work; computers and human values; information networks and the social order.

Mr. Klinger

226Z. Seminar: Current Topics in Computer Science-Programming Languages and Systems. (½ to 3 courses)

Prerequisite: consent of the instructor. Review of current literature in an area of computer science programming languages and systems in which the instructor has developed special proficiency as a consequence of research interests. May be repeated for credit, provided no duplication exists.

The Staff, Computer Science Department (F,W,Sp)

*Not to be given, 1976-1977.

227A. Signal Detection and Digital Communication.

Prerequisite: course 120B or consent of the instructor. Applications of statistical decision theory to signal detection in radar and communication; coherent and noncoherent detection of known signals in noise; detection of stochastic signals; binary and multiple-signal digital communication; sequential detection.

Mr. Yao (F,Sp)

227B. Information Theory and Coding.

Prerequisite: course 227A. Information theory and coding from the viewpoint of digital communication systems; digital transmission and block coding; linear codes; convolutional codes, maximum likelihood decoding, and sequential decoding; ensemble error performance bounds of block and convolutional codes.

Mr. Omura (W)

227C. Estimation and Filtering.

Prerequisite: courses 120B and 291A, or consent of the instructor. Methods of determination of optimal statistical estimators, applied to problems in stochastic processes, communication systems, analog modulation and demodulation.

Mr. Mortensen, Mr. Yao (Sp)

227D. Seminars in Communication Systems.

Prerequisite: courses 227A and 227B; and consent of the instructor. A series of lectures and student presentations on topics of current research interest in communication systems. Recommended for advanced students who may wish to undertake doctoral dissertations in this field. May be repeated for credit.

Mr. Omura, Mr. Yao (W)

227E. Special Topics in Communication Systems.

Prerequisite: consent of the instructor. Advanced topics in one or more special aspects of communication systems, such as phase-coherent communication systems, optical channels, time-varying channels, feedback channels, algebraic coding, etc. Content of the course varies from quarter to quarter. May be repeated for credit.

Mr. Omura, Mr. Yao (F)

227F. Algebraic Coding Theory.

Prerequisite: course 227B or consent of the instructor. Fundamentals of linear or parity-check codes and decoding algorithms based on the algebraic theory of finite groups and fields; cyclic codes; Hamming, Reed-Muller, Bose-Chaudhuri-Hocquenghem, and Reed-Solomon codes, and corresponding decoding algorithms.

Mr. Omura (F, even years)

227G. Rate Distortion Theory and Data Compression.

Prerequisite: course 227B or consent of the instructor. Sources and distortion measures, rate distortion function and its evaluation for discrete and continuous sources, source coding theorems, block and tree source encoding techniques, and application to data compression. Student presentations of current research.

Mr. Yao (Sp odd years)

228A. Foundations of Continuous-State System Theory.

Prerequisite: courses 128A and 291A. Fundamental characterization of "state" for systems described in input-output sets, and consequences; relation to system identification problems.

Mr. Levan (W)

228B. Machines, Algorithms, and Languages.

(Formerly numbered 228B-228C-228D.) Prerequisite: course 128D, or course 123B or comparable mathematical background. Concepts fundamental to the study of discrete information systems and the theory of computing, with emphasis on: algorithms, formal programs, grammars, Turing machines, decidable and undecidable problems; finite graphs and a-transducers, regular expressions and languages, operations and closure properties.

Mr. Carlyle (W)

228C. Computational Complexity.

(Formerly numbered 228B-228C-228D.) Prerequisite: course 228B and consent of the instructor. Topics selected from: specific complexity measures, time and storage requirements; "abstract" complexity theory, Blum measures; "concrete" complexity of numerical and combinatorial problems; randomness and Kolmogorov complexity. Content varies; may be repeated for credit with consent of the instructor.

Mr. Carlyle (F)

*228D. Discrete-State System Theory.

(Formerly numbered 228B-228C-228D.) Prerequisite: courses 128D and 228B or consent of the instructor. Realizability theory, transduction expressions; decomposition and synthesis of algebraic characterizations; linear machines; applications in coding and information theory; system identification, fault diagnosis; probabilistic machines and languages.

Mr. Carlyle (Sp)

228E. Context-Free Languages.

(Formerly numbered 228E-228F-228G.) Prerequisite: course 228B. Continuation of 228B, emphasizing thorough treatment of the theory of context-free languages, including: grammars, derivation trees, normal forms, inherent ambiguity, Ogden's Lemma; operations and closure properties; Dyck sets and generators; pushdown store machines; deterministic context-free languages; decision problems.

Ms. Greibach (Sp)

228F. Theory of Formal Languages.

(Formerly numbered 228E-228F-228G.) Prerequisite: courses 228B and 228E. Topics from: extensions of context-free languages—stack, macro, index languages; abstract families of languages and machines with finite state control; transducers; multitape machines, and intersection theorems; characterizations of recursively enumerable languages; substitution theorems and syntactic operators; undecidable properties.

Ms. Greibach (F)

*228G. Theory of Formal Languages.

(Formerly numbered 228E-228F-228G.) Prerequisite: courses 228B and 228E. Topics from: context-sensitive languages; machines with two-way input; quasi-realtime languages; time and tape bounded Turing machine languages; bounded erasings; limited universal languages; polynomial versus exponential growth.

Ms. Greibach (F)

228J. Seminar in Automata and Languages.

Prerequisite: three courses in the 228B-228G series, or consent of the instructor. A series of lectures and student presentations on topics of current research interest. Recommended for advanced students who may wish to undertake doctoral dissertations in this field. May be repeated for credit.

Mr. Carlyle, Ms. Greibach (F,Sp)

228K. Special Topics in Automata and Languages.

Prerequisite: consent of the instructor. Thorough treatment of one or more selected topics, such as: tree automata and languages; algebraic theories of machines, data structures, program schemes, semantics; picture grammars, pattern recognition; stochastic systems; cellular automata; biological models, developmental systems. May be repeated for credit.

Mr. Carlyle, Ms. Greibach (F,W)

229A. Numerical Techniques in Systems Optimization.

Prerequisite: course 129A or equivalent. Computational methods for constrained extrema of functionals.

Mr. Balakrishnan, Mr. Karplus (F)

229B. Functional Analysis and Optimization.

Prerequisite: course 291A or equivalent recommended, or consent of the instructor. Functional analysis approach to optimization problems for dynamic systems—lumped and distributed. Emphasis on computational aspects.

Mr. Balakrishnan, Mr. Fattorini (W)

229C. Stochastic Differential Systems.

Prerequisite: courses 120B, 291A recommended, or consent of the instructor. Integration with respect to continuous-parameter martingales; Radon-Nikodym derivatives in metric spaces; applications to filtering and stochastic control.

Mr. Balakrishnan, Mr. Mortensen (Sp)

229D. Seminar in System Optimization.

Prerequisite: consent of the instructor. A series of lectures and student presentations on topics of current research interest in system theory and applications. Recommended for advanced students who may wish to undertake doctoral dissertations in this field. May be repeated for credit.

Mr. Balakrishnan, Mr. Karplus (F)

229E. Special Topics in System Optimization.

Prerequisite: consent of the instructor. Thorough treatment of one or more selected topics in such areas as system optimization theory and numerical techniques, system identification, stochastic systems, finite graphs, network flows, queueing systems, etc. Content varies from quarter to quarter. May be repeated for credit.

Mr. Balakrishnan, Mr. Karplus (W)

229J-229K-229L. Public Systems Analysis.

Prerequisite: graduate standing or consent of the instructor. Exploration of the relevance of system science methodologies to research activities directed toward improvements in the systems that provide education, health care, transportation, communication, housing, environmental quality, and public safety services in urban areas.

Mr. Balakrishnan, Mr. Chaiken, Mr. Rubin (229J F; 229K W; 229L Sp)

230A. Applications of Statistical Thermodynamics.

Prerequisite: course 130A. Development of methods of statistical thermodynamics within the framework of molecular theory of matter. Presentation of the role of spectra and intermolecular forces in the interpretation of thermodynamic properties of ideal systems, gases, solids, and plasmas.

Mr. Frederking, Mr. Nobe (W)

230B. Nonequilibrium Thermodynamics.

Prerequisite: course 230A. Interpretation of nonequilibrium phenomena in terms of the Fourth Law of Thermodynamics, namely (a) linear interdependence of fluxes and driving forces and (b) Onsager reciprocal relations. Boltzmann transport equation; diffusion; electrical and heat currents; numerical calculation of parameters.

Mr. Robinson (Sp)

231A. Convective Heat Transfer Theory.

(Not the same as 231A prior to Fall 1972.) Prerequisite: course 131A. The conservation equations for flow of real fluids. Analysis of heat transfer in laminar and turbulent, incompressible and compressible flows. Internal and external flows; free convection. Variable wall temperature; effects of variable fluid properties. Analogies among convective transfer processes.

Mr. Mills (F)

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*Not to be given 1975-1976.

231B. Radiation Heat Transfer.

Prerequisite: course 131A. Radiant intensity and flux. Radiation properties of walls, gases, and particulates. Heat transfer by combined conduction, convection, and radiation in nonabsorbing and absorbing media. Applications to industrial, aerospace, energy-conversion, and environmental problems.

Mr. Edwards (W)

231C. Advanced Heat Transfer.

(Formerly numbered 231A.) Prerequisite: courses 231A, 231B. (Not open to students having taken 231A prior to Fall Quarter 1972.) Advanced topics in heat transfer from the current literature. Linear and nonlinear theories of thermal and hydrodynamic instability; boiling and two-phase flow; phenomenological theories of turbulent heat and mass transport.

Mr. Catton (F)

231D. Application of Numerical Methods to Transport Phenomena.

Prerequisite: courses 131B, 132A or consent of the instructor. Numerical techniques for solving selected problems in heat and mass transfer. Applications include free convection, boundary layer flow, two-phase flow, separated flow, flow in porous media. Effects of concentration and temperature gradients, chemical reactions, radiation, electric and magnetic fields.

Mr. Denny (F)

232A. Combustion Processes.

Prerequisite: courses 132A or 137C. Fundamentals: change equations for multicomponent reactive mixtures; rate laws. Applications: combustion, including burning of (a) premixed gases of (b) condensed fuels. Detonation. Sound absorption and dispersion. Pollutant productions in engines, including quenching at combustion-chamber walls and chemical reactions in expanding gases.

Mr. Knuth (Sp)

232B. Advanced Mass Transfer.

Prerequisite: courses 131A, 132A. The formulation of the general convective heat and mass transfer problem including equilibrium and nonequilibrium chemistry. Similar and nonsimilar solutions for laminar flows; solution procedures for turbulent flows. Multicomponent diffusion. Application to the hypersonic boundary layer, ablation and transpiration, cooling combustion.

Mr. Mills (Sp)

232C. Kinetic Theory and Molecular Flow.

Prerequisite: course 130A. The molecular structu;e of gases; kinetic foundations of thermodynamics and gasdynamics; physics of the upper atmosphere; aerodynamics in highly rarefied gases; gas-surface interactions; the Boltzmann equation; methods of analysis; experimental and theoretical results pertaining to the transitional flow regime; experimental techniques for research in rarefied gas dynamics.

Mr. Knuth (F)

232D. Molecular Dynamics.

Prerequisite: course 130A or 137C. Analysis and design of molecular-beam systems. Molecular-beam sampling of reactive mixtures in combustion chambers or gas jets. Molecular-beam studies of gas-surface interactions, including energy accomodations and heterogeneous reactions. Applications to air-pollution control and to catalysis.

Mr. Knuth (W)

233A. Advanced Power Production and Propulsion.

Prerequisite: course 133A or equivalent. Thermodynamic cycle analysis. Fluid mechanics and thermodynamics of compressors and turbines. Component matching. Atomization and vaporization. Flow and mixing in combustion chambers. Flame stabilization and combustion instabilities. Turbojet and ramjet engines and gas turbines. Rocket propulsion and stability of combustion processes.

Mr. Frederking (Sp)

234A. Topics in Thermal Design.

Prerequisite: courses 131B, 132A. Consideration of thermal design problems selected from applications such as heat exchangers, heat shields, heat pipes, thermal environment control, spacecraft temperature control and solar thermal conversion. Presentations will be made by the Staff and occasionally by invited off-campus specialists.

Mr. Buchberg (Sp)

235A. Nuclear Reactor Analysis I.

Prerequisite: course 135C. The analytical and computational methods used in one speed neutron transport theory. Spatial and angular dependent problems in various approximations; Pn, Sn and diffusion theory; the use of variational. Case and finite difference methods.

Mr. Apostolakis (F)

235B. Nuclear Reactor Analysis II.

Prerequisite: course 235A. The analytical and computational methods used in multigroup and energy dependent transport theory. Bn, multigroup, finite difference and variational methods applied to slowing down, thermalization and resonance phenomena in various approximations.

Mr. Okrent (W)

235C. Nuclear Reactor Kinetics and Control.

Prerequisite: course 235A. Time dependent behavior reactor systems. Analysis of the reactor as a lumped and distributed parameter system by methods of modern control theory. Calculational Methods; modal, nodal synthesis and adiabatic techniques.

Mr. Kastenberg (Sp)

235D. Methods of Nuclear Reactor Analysis.

(Formerly numbered 236C.) Prerequisite: course 135B. The analysis of nuclear systems by analytical, numerical and experimental methods. A synthesis of reactor physics and engineering with applications to various prototypes.

Mr. Kastenberg (F)

236A. Nuclear Reactor Materials.

Prerequisite: courses 105A, 107B, 135A. Behavior and properties of nuclear reactor materials, particularly fuel elements; thermodynamics of high temperature materials; stoichiometric effects and compatibility; a fission product, actinide, pore and fission gas bubble migration; sintering, creep, and hot pressing; fracture; irradiation-induced changes in metals; fuel swelling.

Mr. Okrent, Mr. Wazzan (F)

236B. Fuel Element Behavior.

Prerequisite: courses 158A, 236A. Performance and behavior of nuclear reactor fuel elements under steady state and transient conditions, mechanical interaction and stress analysis; generic fuel modeling codes; irradiation experience; advanced reactor fuel elements; fusion reactor first wall behavior.

Mr. Okrent, Mr. Wazzan (W)

236C. Thermal Reactor Safety.

Prerequisite: courses 135A; and 135B (may be taken concurrently). (Not the same as Engineering 236C prior to Spring Quarter 1975.) Safety-related characteristics of boiling water, pressurized water, and high-temperature gas-cooled nuclear power reactors; design criteria and siting considerations; methods of accident analysis; probalistic methods; general risk considerations.

Mr. Catton, Mr. Chan, Mr. Okrent (W)

236D. Fast Reactor Safety.

Prerequisite: courses 135A, 135B; and 135C (may be taken concurrently). Safety related characteristics of liquid-metal and gas-cooled fast power reactors; reactivity coefficients; sodium voiding and fuel-coolant interactions; super-prompt-critical behavior; generic accident codes; containment design aspects; post-accident heat removal.

Mr. Dhir, Mr. Kastenberg, Mr. Okrent (Sp)

236E. Advanced Problems in Reactor Design.

Prerequisite: at least 4 courses from 235A-235B-235C-235D and 236A-236B-236C-236D. Methods of attack and solution for advanced problems in reactor design, including fuel elements, power reactor cores, pulsed reactors, fuel cycle and fuel management, thermal-hydraulics, shielding, and safety.

Mr. Okrent (F)

M236G. Seminar in Fusion Reactor Technology.

(Same as M214E.) Prerequisite: consent of the instructor. Non-plasma problems in the design of fusion reactors: environmental hazards, lithium blankets, radiation damage, first-wall materials, tritium handling, superconducting magnets, energy storage, fuel injection and ash removal, reactor stability and control, transmutation of radioactive wastes, and other current topics.

Mr. Kastenberg (W, odd years)

237A. Analysis and Design of Chemical Reactors.

Prerequisite: course 137C. Principles of chemical kinetics, adsorption, and catalysis. Transport phenomena in reactor media. Optimal design of chemical reactors using dynamic programming, maximum principle, and other optimization techniques. Transient behavior, stability analysis, and optimal control of chemical reactors.

Mr. Ullman (F)

238A. Cryogenics.

Prerequisite: course 138A. The study of basic phenomena in low temperature systems including the third law, various cooling methods and superfluid systems. Emphasis will be placed on low temperature research and current developments.

Mr. Frederking (F)

238B. Fundamentals of Electrochemical Kinetics.

Prerequisite: one year physical chemistry or equivalent. Study of principles of electrode kinetics and other phenomena associated with metal-electrolyte interfaces. Some applications to engineering processes of current interest such as electrochemical energy conversion (i.e., fuel cells and batteries) and corrosion processes.

Mr. Nobe (Sp)

238C. Principles of Electrochemical Engineering.

Prerequisite: one year physical chemistry or equivalent. Transport phenomena in electrochemical systems: relationships between molecular transport, convection, and electrode kinetics will be discussed along with applications to industrial electrochemistry, fuel cell design, and modern battery technology.

Mr. Bennion (W)

238D. Atomic and Molecular Collisions.

Prerequisite: course 130A. Elastic scattering: classical theory (potential models, equations of motion); quantum theory (general relations for spherical potentials; some exactly treatable cases); approximate methods; resonance scattering; nonspherical potentials; multiple-potential interactions. Classical and semi-classical descriptions of inelastic and reactive scattering.

Mr. Young (Sp)

239A. Seminar: Thermodynamics of Phase Transitions.

Prerequisite: course 130A. Review of current literature in an area of thermodynamics in which the instructor has developed special proficiency as a consequence of research interests. Student reports on selected topics.

Mr. Robinson (F)

239B. Seminar: Current Topics in Transport Phenomena.

Prerequisite: consent of the instructor. Review of current literature in an area of transport phenomena in which the instructor has developed special proficiency as a consequence of research interests. Student reports on selected topics.

The Staff, Energy and Kinetics Department (W)

239C. Seminar: Current Topics in Energy Utilization.

Prerequisite: consent of the instructor. Review of current literature in an area of energy utilization in which the instructor has developed special proficiency as a consequence of research interests. Student reports on selected topics.

The Staff, Energy and Kinetics Department (W)

239D. Seminar: Current Topics in Nuclear Engineering.

Prerequisite: consent of the instructor. In odd-numbered years, reactor design will be discussed. In even-numbered years, current literature in an area of nuclear engineering in which the instructor has developed special proficiency as a consequence of research interests will be reviewed.

The Staff, Energy and Kinetics Department (F,W,Sp)

239E. Seminar: Current Topics in Chemical Engineering.

Prerequisite: consent of the instructor. Review of current literature in an area of chemical engineering in which the instructor has developed special proficiency as a consequence of research interest. Student reports on selected topics.

The Staff, Energy and Kinetics Department (W,Sp)

239S. Energy and Kinetics Department Seminar. (¼ course)

Prerequisite: graduate standing or consent of the instructor-in-charge. A series of lectures by faculty and graduate students in the Department of Energy and Kinetics. Invited lecturers will also present topics of current interest to Energy and Kinetics. S/U grading.

The Staff, Energy and Kinetics Department (F,W,Sp)

241. Oxidation of Metals.

Prerequisite: course 141, or equivalent, or consent of the instructor. The kinetics and mechanism of gas-solid reactions. Adsorption and phase-boundary reactions. Nucleation of reaction products, defect structure of oxides, crystal structure and morphology of oxide films, factors influencing adherence of surface films.

Mr. Douglass (W)

242A. Plasticity Theory Applied to Metal Working I.

Prerequisite: course 158A. Fundamental concepts describing the mechanics of plastic deformation of homogeneous solids. Yield criteria. Methods of solution, including slip line field, of problems involving plastic deformation, with examples involving plane strain and axisymetric deformation. Extrusion problem. Application of methods of solution.

Mr. Shabaik (F)

242B. Plasticity Theory Applied to Metal Working II.

Prerequisite: course 242A. Discussion of various metal working processes and the application of the theory of plasticity to the study of the mechanics. Includes drawing extrusion, forging, rolling with references to newer developments such as cold forging of steel and hydrostatic extrusion.

Mr. Shabaik (Sp, even years)

243A. Fracture of Structural Materials.

Prerequisite: course 158A or equivalent. The engineering and scientific aspects of crack nucleation, slow crack growth and unstable fracture. Fracture mechanics, dislocation models, fatigue, fracture in reactive environments, alloy development, fracture-safe design.

Mr. Tetelman (W)

243B. Design for Fatigue Reliability.

Prerequisite: courses 107B, 107C, or equivalent and consent of the instructor. The prediction of fatigue life of machines and vehicles with a statistical confidence. Probabilistic considerations of service loads and life. Design concepts to accommodate fatigue behavior. Detail design concepts to improve fatigue life.

Mr. Sines (Sp, odd years)

243C. Strengthening Mechanisms in Solids.

Prerequisite: course 245A. Dislocation mechanisms of yielding, work hardening and other strengthening methods. Creep and grain boundary sliding. Micro-structure-strength correlations and thermomechanical treatments in steels, superalloys, and high strength non-ferrous alloys.

Mr. Ono (F, odd years)

244. Electron Microscopy.

Prerequisite: course 145A or equivalent. Essential features of the electron microscope, geometry of electron diffraction, kinematical and dynamical theories of electron diffraction including anomalous absorption, applications of theory to defects in crystals, Moire fringes, direct lattice resolutions. Lorentz microscopy, laboratory applications of contrast theory.

Mr. Ardell (Sp, even years)

245A. Theory of Imperfections.

Prerequisite: course 143A; 158A is recommended. Advanced topics in theory of lattice defects: continuum and atomistic treatments of point defects, dislocations and planer faults; interactions between various defects; selected applications to physical and mechanical behavior of solids.

Mr. Ono (Sp)

245C. Diffraction Methods in Science of Materials.

Prerequisite: course 145A or equivalent. Theory of the diffraction of waves (x-rays, electrons, and neutrons) in crystalline and non-crystalline materials. Long- and short-range order in crystals, structural effects of plastic deformation, solid-state transformations, arrangements of atoms in liquids and amorphous solids.

Mr. Wagner (F, even years)

245D. Magnetic Interactions in Solids.

Prerequisite: courses 140B, 245B, or consent of the instructor. The characteristic properties of magnetically ordered solids. Origin of magnetism in atoms and ions. The molecular-field models of ordered magnetic solids. Exchange interactions between two electrons. Exchange interactions in solids. The excited states and statistical mechanics of ordered magnetic solids.

Mr. Robinson, Mr. Wazzan (F, odd years)

246A. Mechanical Properties of Nonmetallic Crystalline Solids.

Prerequisite: course 146A. Material and environmental factors affecting the mechanical properties of nonmetallic crystalline solids, including atomic bonding and structure, atomic-scale defects, microstructural features, residual stresses, temperature, stress state, strain rate, size, and surface conditions. Methods for evaluating mechanical properties.

Mr. Mackenzie, Mr. Sines (F, odd years)

246B. Structure and Properties of Glass.

Prerequisite: courses 146A. Structure of amorphous solids and glasses. Conditions of glass formation and theories of glass structure. Mechanical, electrical and optical properties of glass, and relationship to structure.

Mr. Mackenzie (Sp, even years)

246C. Thermodynamic Properties of Refractories at High Temperatures.

Prerequisite: course 141; 146A, 105B, or 130A recommended. Techniques for measurement of thermodynamic properties at high temperatures. Critical discussion of data for technologically important refractories. Data and theory for selected multicomponent refractory systems.

Mr. Klement (Sp, even years)

246D. Electronic and Optical Properties of Ceramics.

Prerequisite: course 146A. Principles governing electronic properties of ceramic single crystals and glasses and effects of processing and microstructure on these properties. Electronic conduction, ferroelectricity, and photochromism. Magnetic ceramics. Infrared, visible, and ultraviolet transmission. Unique application of ceramics.

Mr. Mackenzie (Sp, odd years)

247A. Solid State Reactions.

Prerequisite: course 142. Phenomenology and atomistic mechanisms of solid-state diffusion. Nucleation theory. Theory of diffusional growth processes, kinetics of diffusional transformations in solids. Precipitation in solids. Spinodal decomposition.

Mr. Ardell (W)

247B. Advanced Solid-State Transformations.

Prerequisite: course 247A. Classical theories of precipitate nucleation and growth, spinodal decomposition, cellular precipitation, entectoid decomposition, massive transformations, crystallography and kinetics of martensitic transformations, order-disorder transformations, particle coarsening, role of imperfections in precipitation.

Mr. deFontaine (Sp, odd years)

247C. Advanced Solidification.

Prerequisite: course 247A or equivalent. Liquid state concept of constitutional supercooling; nucleation from the liquid phase; solute redistribution during liquid-solid transformation; fluid motion; interface morphology; eutectic growth; determination of phase diagrams; student reports on current topics in solidification.

Mr. Yue (F, even years)

248A. Experimental Methods in Materials Synthesis.

Prerequisite: a bachelor's degree in chemistry, physics or engineering. Techniques used in materials synthesis temperature measurement, vacuum techniques, methods of heating and quenching, consolidation and refining of metals, crystal growth, thin film deposition and thick film deposition. Laboratory experiments and demonstrations carried out.

Mr. Bunshah (F)

250A. Foundations of Fluid Dynamics.

Prerequisite: course 150A or consent of the instructor. The course develops and applies the fundamental theorems of fluid dynamics. Ideal fluids, potential flow, vortex motion, and viscous flow are treated. The history of fluid dynamics is illustrated with problems drawn from mechanics, aerodynamics, and geophysics.

Mr. Crow (F)

250B. Viscous and Turbulent Flows.

Prerequisite: course 150A or consent of the instructor. The course applies the fundamental principles of fluid dynamics to the study of fluid resistance. States of fluid motion are discussed in order of advancing Reynolds number: wakes, boundary layers, instability, transition, and turbulent shear flows.

Mr. Crow (W)

250C. Compressible Flows.

(Formerly numbered 251A.) Prerequisite: course 150A or 150B or consent of the instructor. Effects of compressibility in viscous and inviscid flows. Steady and unsteady inviscid subsonic and supersonic flows; method of characteristics; small disturbance theories (linearized and hypersonic). Shock dynamics.

Mr. Charwat, Mr. Cole (Sp)

251A. Stratified and Rotating Fluids.

(Formerly numbered 250D.) Prerequisite: course 150A or equivalent or consent of the instructor. Fundamentals of fluid flows with density variations or rotation, illustrated by examples with environmental, geophysical or technical importance. Linear and finite amplitude wave motion. Flow past bodies; blocking

phenomena. Viscous effects. Instabilities. Turbulent shear flows, wakes, plumes, and gravity currents.
Mr. Kelly (F)

251B. Marine Hydrodynamics.
Prerequisite: course 150A or equivalent; or consent of the instructor; courses 193A-193B-193C or equivalent. Basic hydrodynamics; small amplitude and shallow water theories; waves on beaches; ship waves; mathematical hydraulics; breaking of a dam.
Mr. Cole, Mr. Charwat (W, odd years)

***251C. Fluid Dynamics of Pollution.**
Prerequisite: course 150A or consent of the instructor. (Not the same as 251C prior to Spring Quarter 1972.) The course is designed to introduce to engineers and/or scientists of various disciplines the fluid mechanical aspect of pollution problems. The lectures will discuss in depth the fluid dynamics of photochemical smog, oil slicks and pollution in waterways.
Mr. Liu

252A. Stability of Fluid Motion.
(Formerly numbered 250C.) Prerequisite: course 150A or equivalent or consent of the instructor. Mechanisms by which laminar flows can become unstable and lead to turbulence of secondary motions. Linear stability theory: thermal, centrifugal, and shear instabilities; boundary layer instability. Nonlinear aspects: sufficient criteria for stability, subcritical instabilities, supercritical states, transition to turbulence.
Mr. Kelly (W)

252B. Statistical Theory of Turbulence.
Prerequisite: course 150A or consent of the instructor. The course develops statistical methods of wide utility in engineering, then applies them to turbulent flows. Topics covered are stochastic processes, kinematics of turbulence, energy decay, Kolmogorov similarity, analytical theories, and origins of Reynolds stress.
Mr. Crow, Mr. Meecham (Sp)

***252D. Engineering Magnetohydrodynamics.**
(Formerly numbered 252A.) Prerequisite: courses 117A and 250A or consent of the instructor. Continuum theory of the motion of a conducting fluid in a magnetic field; typical solutions for incompressible and compressible flow; elements of the theory of conductivity in a plasma; propulsion and power generation applications.
Mr. Meecham

253A. Advanced Engineering Acoustics.
(Formerly numbered 253C.) Advanced studies in Engineering Acoustics includes: three-dimensional wave propagation; propagation in bounded media; Ray acoustics; attenuation mechanisms in fluids.
Mr. Stern (F)

253B. Fundamentals of Aeroacoustics.
(Formerly numbered 253A.) Prerequisite: course 150A or consent of the instructor. Detailed discussion of plane waves, point sources. Nonlinearity, layered and moving media, multiple reflections. Inhomogeneous wave equation. Monopole, dipole, quadrupole source fields from scattering inhomogeneities and turbulence; Lighthill's theory; moving sources. Similarity methods. Selected detailed applications.
Mr. Meecham (W)

253C. Sound and Vibration.
Prerequisite: course 153A or 155A, or consent of the instructor. Theoretical analysis of the interaction of sound and structures; acoustic transmission through fluid layers and walls; structural wave propagation; multidimensional random processes using wave number and frequency space; response and radiation of infinite and finite structures; statistical energy analysis.
Mr. Meecham (Sp)

254A. Special Topics in Aerodynamics.
Prerequisite: courses 150A-150B, 192A-192B-192C or equivalent or consent of the instructor. Special topics of current interest in advanced aerodynamics. Examples are transonic flow, hypersonic flow, sonic booms, and unsteady aerodynamics.
Mr. Cole (F)

254B. Experimental Techniques in Aerodynamics.
Prerequisite: course 251A. Theoretical foundations of experimental equipment and instruments used in aerodynamic research. Subsonic, supersonic and hypersonic wind tunnel design and practice. Hotshot, shock-tube and gun-tunnel—the course will include laboratory practice—evaluation of data and design of experiments.
Mr. Charwat (W)

255A. Advanced Dynamics.
Prerequisite: courses 155 and 169A, or consent of the instructor. Variational principles and Lagrange's equations. Kinematics and dynamics of rigid bodies; precession and nutation of spinning bodies.
(F)

255B. Mathematical Methods in Dynamics.
(Formerly numbered 263A.) Prerequisite: course 255A. (Not the same as 255B prior to Spring Quarter 1973.) Concepts of stability; state space interpretation; stability determination by simulation, linearization, and Liapunov's Direct Method; the Hamiltonian as a Liapunov function; nonautonomous systems; averaging and perturbation methods of nonlinear analysis; parametric excitation and nonlinear resonance. Application to mechanical systems.
Mr. Mingori (W)

256A. Mechanics of Deformable Solids.
Prerequisite: course 158A or consent of the instructor. Stress and strain tensors, indicial notation, compatability conditions, equations of motion. Work and energy, uniqueness of solution and extremum principles. Constitutive laws of isotropic elastic solids, thermoelasticity, linear viscoelasticity and incremental plasticity.
Mr. Lin, Mr. Muki (F)

256B. Elasticity.
(Formerly numbered 257A.) (Not the same as course 256B prior to Winter Quarter 1974.) Prerequisite: course 256A, or consent of the instructor. Formulation of elastostatic problems; general, plane strain, plane stress. Reciprocal theorems and variational theorems. Airy's stress function and Papkovich-Neuber solution. Fundamental singular solutions, stress concentration, thermal stresses, elastic contact, load transfer. St. Venan's principle and applications.
Mr. Muki, Mr. Nelson (W)

256C. Plasticity, Creep and Thermal Stresses.
(Formerly numbered 257B.) Prerequisites: course 156A or 158A or consent of the instructor. Incremental plastic stress-strain relations. Stress-strain-time relations commonly used in structural analysis. Unified treatment of plastic strain, creep strain and thermal strain. Elastic-plastic and creep analyses of beams, columns, shafts, frames and plates.
Mr. Lin (Sp)

256F. Analytical Fracture Mechanics.
Prerequisites: courses 243A; 156A, 158A or 166. Review of modern fracture mechanics, elementary stress analyses; analytical and numerical methods for calculation of crack tip stress intensity factors; engineering applications in stiffened structures, pressure vessels, plates and shells.
Mr. Westmann (Sp)

M257A. Elastic Wave Propagation I.
(Same as Planetary and Space Sciences M224A.) Prerequisite: course 158A or 159A, or consent of the instructor. Elastic wave equation and elementary solutions; wave motions in elastic half-spaces; reflection and refraction of elastic waves; surface waves; vibrations of rods and plates.
Mr. Mal (W, odd years)

M257B. Elastic Wave Propagation II.
(Same as Geophysics and Space Physics M224B.) Prerequisite: consent of the instructor. Wave propagation in layered media; Green's functions for various geometrics; diffraction and scattering of elastic waves; attenuation; inversion problems.
Mr. Mal (Sp, odd years)

258A. Continuum Mechanics I.
Prerequisite: courses 256A or 257A, 291A, or consent of the instructor. Bodies. Motions: referential, spatial and relative description; polar decomposition theorem. Cauchy-Green, stretching spin, (vorticity), stress, and couple-stress tensor. Balance principles, mass, linear and angular momentum energy. Entropy production.
Mr. Morgan (F)

258B. Continuum Mechanics II.
Prerequisite: course 258A. Principle of constitutive invariance. Material symmetries. *Simple* fluids and solids, sub-fluids, liquid crystals. Thermo*dynamics* of *simple* materials; the Clausius-Duhem inequality. Elastic (nonlinear) materials: problems of equilibrium, exact solutions. Contact with classical linear elasticity theory.
Mr. Morgan (W)

***259A. Seminar on Advanced Topics in Fluid Mechanics.**
Prerequisite: consent of the instructor. To study advanced topics in fluid mechanics with intensive student participation, involving assignments in research problems leading to a term paper or an oral presentation and possible help from guest lecturers.
Mr. Gazley, Mr. Liu

259B. Seminar on Advanced Topics in Solid Mechanics.
Prerequisite: consent of the instructor. Advanced study in various fields of solid mechanics on topics which may vary from term to term. Topics cover dynamics, elasticity, plasticity and stability of solids.
Mr. Lin, Mr. Morgan (Sp)

259C. Elements of Biomechanics.
Prerequisite: consent of the instructor. An introduction to selected current research problems in Biofluid Mechanics and Biostructural Mechanics.
Mr. Roberts (Sp)

***261A. Principles of Space Flight.**
Prerequisite: course 161A (or equivalent), or consent of the instructor. Introduction to celestial mechanics, the restricted three-body problem, Lagrange's points, libration, the canonical equations, the potential function, perturbation theory, Lambert's theorem, two-body orbit determination and orbital transfer.
Staff, Mechanics and Structures Department

***261B. Seminar and Special Topics in Space Flight.**
Prerequisite: courses 161A, 255A, 261A or consent of the instructor. Special topics of current interest in the area of space flight, such as: the problem of three bodies, relativistic dynamics, asymptotic expansions and matching of expansions, etc., will be discussed in depth, according to the interests of participants.
Staff, Mechanics and Structures Department

262A. Advanced Mechanisms and Mechanical Systems.
(Formerly numbered 278A.) Prerequisite: course 162A. The kinematic analysis and synthesis of mechanisms and mechanical systems with special emphasis on use of modern analytical methods are considered. The

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*Not to be given 1976-1977.

use of computer techniques is discussed. A broad group of example systems are studied.

Mr. Dubowsky (Sp, even years)

263A. Dynamics and Control of Machines and Electromechanical Systems.

(Formerly numbered 278B.) Prerequisite: course 163 or consent of the instructor. The analysis of complex machines and electromechanical systems. Emphasis of the performance and dynamic response of systems containing gears, elastic compliances, active feedback elements, and other complex components and subsystems. Both classical methods and modern computer-based techniques are applied.

Mr. Dubowsky (Sp, odd years)

263B. Vehicle Dynamics and Control.

Prerequisite: course 163; 255B is recommended. Application to a variety of vehicles of advanced methods of dynamics and motion stability analysis, incorporating both classical and modern control theory. Particular emphasis is given to space vehicles and ground tranportation vehicles, with special attention to current topics in these fields.

(Sp, even years)

264A. Theory of Plates and Shells.

(Formerly numbered 256D.) Prerequisite: courses 158A, 166, or consent of the instructor. Small and large deformation theories of thin plates; energy methods; free vibrations; membrane theory of shells; axisymmetric deformations of cylindrical and spherical shells including bending.

Mr. Dong, Mr. Nelson (W)

264B. Advanced Theory of Shells.

(Formerly numbered 256E.) Prerequisite: course 264A or consent of the instructor. Elements of differential geometry for surfaces; fundamental field equations for small deformations of thin shells; applications to shells of revolution; free vibrations; selected current topics in shell theory research.

Mr. Nelson (Sp)

265A. Advanced Structural Analysis.

Prerequisite: course 165B. Review of elasticity theory; theorem on virtual work, stationary value of potential and complementary potential; Castigliano, Maxwell-Betti theorems; stiffness, flexibility matrices for truss, beam elements; matrix force and displacement analysis of trusses, frames; introduction to finite element methods.

Mr. Nelson (F,W)

265B. Finite Element Analysis of Structures.

Prerequisites: courses 166, 265A or consent of instructor. Direct energy formulations for deformable systems; solution methods for linear equations; analysis of structural systems with one dimensional elements; introduction to variational calculus; discrete element displacement, force, and mixed methods for membrane, plate, shell structures; instability effects.

Mr. Dong, Mr. Schmit (W)

265C. Nonlinear Structural Analysis.

Prerequisite: course 265B or consent of instructor. Classification of nonlinear effects; material nonlinearities; conservative, nonconservative material behavior; geometric nonlinearities, Lagrangian, Eulerian description of motion; finite element methods in geometrically nonlinear problems; postbuckling behavior of structures; solution of nonlinear equations; incremental, iterative, programming methods.

Mr. Nelson (Sp)

266A. Stability of Structures I.

Prerequisite: courses 165B, 166 or equivalent. Elastic buckling of bars. Different approaches to stability problems. Inelastic buckling of columns and beam columns. Columns and beam columns with linear, nonlinear creep. Combined torsional and flexural buckling of columns. Buckling of plates.

Mr. Dong (F,Sp)

*266B. Stability of Structures II.

Prerequisite: course 266A. Continuation of the structural stability theory of course 266A, applied to rings, plates, and shells, dynamic stability of elements subject to transient and periodic forces.

267A. Optimum Structural Design.

Prerequisite: course 265A. Synthesis of structural systems; analysis and design as optimization problems; techniques for synthesis and optimization; application to aerospace and civil structures.

Mr. Felton, Mr. Schmit (W)

267B. Advanced Topics in Optimum Structural Design.

Prerequisite: course 267A. Recent advances in structural synthesis, hybrid methods and approximation concepts; optimum prestressing; optimum design of laminates; configuration and topological considerations; aeroelastic and dynamic response constraints; applications, and current research.

Mr. Felton, Mr. Schmit (Sp)

267C. Advanced Reinforced Concrete Design.

(Formerly numbered 268C.) Prerequisites: course 167B. Ultimate strength and seismic design considerations. Concrete mechanical properties. Columns: stability, biaxial bending. Slab design. Slab yield line theory. Footings. Joint design. Bracing systems: diaphragms, trusses and shear walls. Braced and unbraced frame design for gravity, wind and earthquake loads.

Mr. Hart, Mr. Rea, Mr. Selna (Sp)

267S. Advanced Steel Design.

Prerequisites: course 167A. Working and ultimate load methods. Emphasis on seismic design. Brittle fracture, fatigue and local buckling. Compression members. Element design for complex loading including torsion. Braced and unbraced frames. Drift requirements. Steel frame design for gravity, wind and earthquake loads.

Mr. Hart, Mr. Rea, Mr. Selna. (W)

268A. Experimental Structural Analysis.

Prerequisite: consent of instructor. Study of modern techniques in experimental mechanics, including dimensional analysis, measurement theory and measurement techniques. Emphasis will be placed on techniques of modern optics, e.g., holography, Moire analysis, photoelasticity and speckle interferometry.

Mr. Felton, Mr. Fourney (Sp)

268B. Failure of Structural Systems.

Prerequisite: course 165B. Philosophy of structural safety. Principles of design for prevention of failure (other than buckling). Fatigue, brittle failure, delayed cracking, creep, design of efficient joints, environmental effects. Emphasis on current problems in actual structures.

Mr. Sines (F)

269A. Dynamics of Structures.

Prerequisite: course 169A. Principles of dynamics. Determination of normal modes and frequencies by differential and integral equation solutions. Transient and steady state response. Emphasis on derivation and solution of governing equations using matrix formulation.

Mr. Friedmann (F,W)

269B. Advanced Dynamics of Structures.

Prerequisite: courses 265A, 269A. Analysis of linear and nonlinear response of structures to dynamic loadings. Stresses and deflections in structures. Structural damping and self-induced vibrations.

Mr. Friedmann (W)

269C. Introduction to Probalistic Dynamics.

Prerequisite: course 169A. Response of structural and mechanical systems to random vibrations. Stationary and nonstationary excitations. Response of systems with random parameters. Discrete and continuous linear systems. Applications to earthquakes, wind sway of buildings, gust response, vibrations due to gearing inaccuracies, train vibrations.

Mr. Friedmann, Mr. Hart (Sp, even years)

269D. Aeroelastic Effects in Structures.

Prerequisite: courses 166, 269A. Presentation of field of aeroelasticity from unified viewpoint applicable to flight structures, suspension bridges, buildings and other structures. Derivation of aeroelastic operators and unsteady airloads from governing variational principles. Static aeroelastic and flutter instabilities of simple systems.

Mr. Friedmann (Sp, odd years)

270A. Synthesis of Engineering Systems.

Prerequisite: course 172A or 179B; graduate standing in engineering. The logic and quantitative tools of synthesizing engineering systems. Needs and environment analysis leading to constraints, specifications, design concepts and design criteria. Physical realizability, economic justification, and financial feasibility. System stability, sensitivity and subsystem compatibility.

Mr. Rubinstein (W)

271A. Dynamic Systems Optimal Control.

Prerequisite: course 171C; or 122B or consent of the instructor. Optimal control problem formulation. Performance criteria for deterministic dynamic systems. Variational methods and Pontryagin's maximum principle for continuous and discrete-time models. Inequality constraints. Sensitivity analysis. Numerical computation methods for solving boundary value problems of optimal control. Applications in various fields.

Mr. DiStefano, Mr. Leondes (F,Sp)

271B. Dynamic Systems Stochastic Estimation and Control.

Prerequisite: courses 171C; 193A; 271A; or consent of the instructor. Applied treatment of optimal state estimation and stochastic control problems for continous and discrete-time dynamic models with state-space descriptions. Kalman filtering, smoothing and prediction algorithms. Stochastic optimal controllers; the separation principle. Emphasis on efficient numerical computations. Applications in various fields. .

Mr. DiStefano, Mr. Leondes (F,W)

271C. Dynamic Systems Identification, Stability and Adaptive Control.

Prerequisite: courses 271A; 271B is recommended; or consent of the instructor. Nonlinear system stability. Dynamic systems modeling, identification and parameter estimation techniques. Combined identification and control and self-adaptive control.

Mr. Leondes (W)

271D. Seminar and Special Topics in Dynamic Systems Control.

Prerequisite: consent of the instructor. Seminar on current research topics in dynamic systems modeling, control and applications. Topics selected from process control, differential games, nonlinear estimation, adaptive filtering, industrial and aerospace applications, etc.

Mr. Leondes (Sp)

272A. Nonlinear Programming.

(Formerly numbered 172B.) (Not the same as 272A prior to Fall Quarter 1975.) Prerequisite: course 172A. Basic graduate course in nonlinear programming. Convex sets and functions and their basic properties. Kuhn-Tucker saddle-point, and nonlinear or conjugate duality theory. Development of algorithms and convergence theory.

Mr. Jacobsen, Mr. Miller (F,W)

272B. Network Flow Theory and Integer Programming.

(Formerly numbered 272A.) Prerequisites: course 172A. Open to those students who took 272B between September 1974 and September 1975. Fundamental concepts of network and integer programming techniques. Basic notions of graph theory, flows through

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networks, minimum cost and multicommodity flows, pure and mixed integer programming algorithms. Applications to plant location, project planning, scheduling and network synthesis problems.

Mr. Arunkumar, Mr. Miller (F,W)

272C. Optimization Methods for Large-Scale Systems.

(Formerly numbered 272B.) (Not open to students who took 272B between September, 1974 and September, 1975; nor to students who took 272C prior to September, 1974.) Prerequisite: courses 172A, 272A. Theory and computational procedures for decomposing large-scale mathematical programming problems. Generalized linear programming, various decomposition algorithms, column generation techniques, economic implications. Applications to nonconvex programming, stochastic programming, and optimal control.

Mr. Arunkumar, Mr. Jacobsen (W, Sp)

272D. Advanced Topics in Operations Research and Large-Scale Systems.

Prerequisite: courses 272A, 272B, 272C or consent of the instructor. Advanced topics of current interest in operations research chosen from among identification and optimization problems for static and dynamic systems, sensitivity theory, aggregation and decomposition of stochastic systems, controllability, resource allocation, modeling techniques and other topics.

Mr. Jacobsen, Mr. Leondes, (Sp)

273A. Dynamic Programming.

(Formerly numbered 172C.) (Not open for credit to students who have taken 172C prior to Fall Quarter 1975.) (Not the same as 273A from Fall Quarter 1974 to Fall Quarter 1975.) Prerequisite: courses 172A, 193A; or 120A. Introduction to the mathematical analysis of sequential decision processes. The finite horizon model in both the deterministic and stochastic cases. The finite state infinite horizon model. Methods of solution. Detailed examples from inventory theory, finance, and transportation systems.

Mr. Jacobsen, Mr. Miller (F, Sp)

273B. Advanced Engineering Probability.

(Formerly numbered 273A.) Prerequisites: course 120A or 193A or consent of the instructor. Not open for credit to students who have taken 273A prior to Fall Quarter 1975. Laplace-Stieltjes transforms and characteristic functions. Tauberian theorems, inversion formulas, laws of large numbers, central limit theorem, birth and death processes, renewal theory, random walk in R^1, Markov chains.

Mr. Coleman, Mr. Jacobsen (W)

273C. Stochastic Models and Decision Theory.

(Formerly numbered 273B.) Prerequisites: course 273B. A basic graduate course in applied stochastic processes and Markov decision theory. Counting processes, renewal theory, Markov processes, renewal processes with rewards, optimization in stochastic processes, applications to queueing, inventory, and replacement problems.

Mr. Arunkumar, Mr. Miller (Sp)

274A. Problem Solving and Decision Making I.

(Formerly numbered 273A.) Prerequisite: course 193A or equivalent. Formal models of problem structures. Heuristic techniques for mechanized problem-solving. Foundations of quantitative measurements on qualitative systems. Theories of subjective-probabilities and utility. Bayesian and minimax approaches to decision analysis. Information-processing models of human decision-making and problem-solving behavior.

Mr. Goguen, Mr. Pearl, Mr. Rubinstein (W)

274B. Problem-Solving and Decision Making II.

Prerequisite: course 274A or consent of the instructor. Topics and projects in the methodology of problem solving by humans and machines. Foundation of homomorphisms between qualitative, numerical and symbolic relational structures. Value of information and the processing of judgmental data. Machine models of concept formation, learning and planning.

Mr. Goguen, Mr. Pearl (Sp)

M275A. Statistical Design of Engineering Experiments.

(Same as Management M215F.) Prerequisite: courses 193A, 193B. Matrix treatment of linear hypotheses in engineering experimentation. Statistical estimation, tests of hypotheses, analysis of variance, regression models. Randomized blocks, factorial, Latin square, multiple factor and level experiments. Principles of orthogonality, confounding, fractional replication, incomplete block designs with engineering applications.

Mr. Coleman (W)

275B. Reliability Theory with Applications.

Prerequisite: courses 193A, 193B or consent of the instructor. Basic graduate course in reliability theory. Reliability models for complex systems, coherent structures, modular decomposition, reliability bounds. Constant, monotone hazard functions. Optimization problems in reliability: redundancy allocations, maintenance policies, stress-strength and safety considerations in engineering design. Statistical problems, current topics.

Mr. Arunkumar, Mr. Coleman (Sp)

276A. Computer-Aided Design.

Prerequisite: courses 106B or equivalent, and 172A; 172B recommended. Seminar in computer-aided design of engineering systems and products. Organization of the design process, its decision points and back-up information, for automatic machine processing of the specifications to provide full design data for a family of products.

Mr. Rosenstein (Sp)

277A. Advanced Engineering Economics I.

Prerequisite: courses 177A and 177B or equivalent or consent of the instructor. Optimal investment decisions. Advanced theory of capital and its relationship to economic growth. Role of technology in economic development. Theoretical basis for cost of capital and discount rates in private and public sectors. Working capital decisions. Applications to engineering projects.

Mr. English (Sp)

277B. Advanced Engineering Economics II: Seminar.

Prerequisite: course 277A or equivalent or consent of the instructor. The economics of engineering and social systems. Long-range investment concepts. Physical analogy to Walras' model. An entropy approach to financial decision making. Term projects.

Mr. English (F)

280A. Advanced Biotechnology.

Prerequisite: course 180A or 180B or consent of the instructor. Review and analysis of contemporary bioscience research which bears on problems of engineering component and system design. Emphasis is on methodological and scientific factors underlying man-machine-environment interactions.

Mr. Lyman (W)

280B. Advanced Biotechnology.

Prerequisite: course 180A or 180B or consent of the instructor. Specialized coverage of "human factors" and "human engineering" with orientation toward obtaining design optimization of the functions of humans in relation to engineering parameters of environment, communication and control.

Mr. Lyman (Sp)

284A. Surface Water Hydrology.

Prerequisite: course 184A or consent of the instructor. In-depth study of the surface water components of the hydrologic cycle. Instantaneous units hydrograph, dynamic wave equations, rainfall-runoff models using system investigation and physical hydrology. Stochastic hydrology: time series analysis, Markovian streamflow generating models, and generation of multivariate synthetic streamflows. Applications.

Mr. W. G. Yeh (W)

284B. Groundwater Hydrology.

Prerequisite: course 184A or consent of the instructor. Theory of the movement and occurrence of water in subterranean aquifers. Steady flow in confined and unconfined aquifers. Mechanics of wells; steady and unsteady radial flows in confined and unconfined aquifers. Theory of leaky aquifers. Sea water intrusion. Numerical methods. Applications.

Mr. W. G. Yeh (Sp)

284C Water Resources Systems Engineering.

Prerequisite: courses 172A, 184B. Application of mathematical programming techniques to water resources systems. Topics include reservoir regulation, optimal timing, sequencing and sizing of water resources projects and real-time conjunctive operation of ground water and surface water resource systems. Emphasis is on the management of water quantity.

Mr. Dracup (Sp)

284D. Advanced Water Quality Control Systems.

Prerequisite: course 184D. Physical, chemical and biological bases for design of advanced water and wastewater quality control systems. Includes treatment processes, standards and requirements; concepts in physical, organic and colloidal chemistry; bacteriology and limnology; reservoir, stream, estuary, and ocean outfall management; water quality modeling. Field trips.

Mr. Dracup (W)

284E. Saline Water Conversion.

Prerequisite: course 137A and Chemistry 110A-110B or equivalent. Current research and development in saline water conversion, in the fields of distillation, electrodialysis, freezing, reverse osmosis and chemical extraction. A study of process optimization and economics of combined water power systems.

Mr. McCutchan, Mr. Van Vorst (W)

284F. Selected Topics in Water Resources. (½ course)

Prerequisite: graduate status; consent of the instructor. Review of recent research and development in the management of resources. Water and hydroelectric supply systems. Water quality management. Water law and institutions. Economic planning and optimization of water resources development. May be repeated twice for credit.

Mr. Dracup (F)

284G. Engineering Economics of Water and Related Natural Resources.

Prerequisite: one or more of the following courses recommended: course 177A, Economics 1, 2, 100, 101A, 101B, or consent of the instructor. Economic theory and applications in the management of water and related natural resources; application of price theory to water resource management, electric power supply, petroleum and natural gas management and renewable resources; benefit-cost analysis with applications to water resources planning.

Mr. Dracup, Mr. W. G. Yeh (F)

284H. Mathematical Models for Water Quality Management.

Prerequisites: courses 172A, 184D. Development of mathematical models relating pollutant inputs to water quality. Scheduling of treatment plants capacity expansion. Regional water quality system models. Emphasis is on use of analytical and simulation techniques to manage water quality in streams, lakes, and estuaries.

Mr. Dracup, Mr. Scherer, Mr. W. G. Yeh (Sp)

285A. Shear Strength of Soil and Stability of Slopes.

Prerequisite: course 185A. Detailed study of fundamental concepts of shear strength of soils, strength

determining factors, methods of strength measurement. Slope stability and stability analysis techniques using circular and noncircular failure surfaces, effect of side forces, total and effective stress analyses.

Mr. Lade, Mr. Lee (F)

285B. Foundation Engineering.

Prerequisites: courses 185A, 285A. Principles of foundation design including theory of consolidation, impeded drainage, stress distribution, settlement analysis, allowable bearing capacity for shallow foundations, piles and piers; laterally loaded piles.

Mr. Lade, Mr. Lee (W)

285C. Soil Dynamics.

Prerequisites: courses 185A, 285A. Design of foundation for vibrating equipment. Strength and stress-strain relations for soil under cyclic loading conditions. Fundamentals of earthquakes as applied to seismic response of earth structures and foundations. Design of embankments, retaining walls, and foundations for earthquake loading.

Mr. Lee (Sp)

285D. Earth Pressures and Earth Retaining Structures.

Prerequisite: course 185A; graduate standing. The basic concepts of the theory of earth pressures behind retaining structures is presented with special application to the design of retaining walls, bulkheads and excavation bracing; the effects of flexibility of bulkheads, creep in soils and construction techniques are also discussed in detail.

Mr. Lee (F)

285E. Seminar on Advanced Topics in Soil Mechanics.

Prerequisites: graduate standing in Engineering and consent of the instructor. Topics may vary from term to term to cover subjects as earth dam design, seepage through soils, consolidation, constitutive laws, finite difference and finite element methods with special application in soil mechanics, theories of elasticity and plasticity, and case histories.

Mr. Lade, Mr. Lee, Mr. Westmann (W)

285L. Advanced Soil Mechanics Laboratory.

Lecture, one hour; laboratory, six hours. Prerequisites: courses 185A, 185B, 285A, 285B. Lectures and laboratory studies of advanced aspects of soil properties and their application to design. Permeability, consolidation, strength testing, pore water pressure measurements, advanced instrumentation and measurement techniques. Preparation of engineering reports.

Mr. Lade, Mr. Lee (Sp)

286A. Earthquake Engineering.

Prerequisite: courses 256A or 265A or 285A or 169A. Engineering seismology: strong earthquake motion, microtremors, wave velocity and damping, induced vibrations, spectral analysis. Risk of earthquakes and fault breaks. Site evaluation. Structure-earth system response. Introduction to earthquake resistive design of buildings, bridges and dams. Theory and field experiments.

Mr. Duke (W)

286B. Structural Response to Ground Motions.

Prerequisite: course 269A or consent of the instructor. Spectral analysis of ground motions: response, time and Fourier spectra. Response of structures to ground motions due to earthquakes and nuclear explosions. Computational methods to evaluate structural response. Response analysis including evaluation of contemporary design standards. Limitations due to idealizations.

Mr. Duke (Sp)

M288A. Urban Transportation Planning Policy.

(Same as Architecture and Urban Planning M241A.) Prerequisite: Engineering 106A, 193A, or AUP 207, or equivalent. Historical over-view of urban transportation planning and the current political and administrative frameworks for planning; the economic and social basis for travel; measuring the performance of urban transportation systems; basic approaches to transportation systems evaluation.

Mr. Campbell (F)

M288B. Urban Travel Demand Analysis.

(Same as Architecture and Urban Planning M241B.) Prerequisite: Engineering 106A, 193A, M288A; or AUP 207 or equivalent; AUP 220A-B-C or equivalent; AUP M241A. Methods of modelling and forecasting travel in urban transportation systems; basic data collection methods; models of trip generation, distribution, modal split, traffic assignment; direction demand models; behavioral demand models; case studies of travel analysis in Los Angeles and elsewhere.

Mr. Campbell (W)

291A. Analytical Methods of Engineering I.

Prerequisite: Mathematics 131A and 132. Application of abstract mathematical methods to engineering problems. Review of elements of measure and integration L_2- theory — linear spaces and operators. Eigenvalue problems. Introduction to spectral theory — elementary distribution theory. Applications to problems in engineering.

Mr. Levan, Mr. Morgan (F,W,Sp)

291B. Analytical Methods of Engineering II.

Prerequisite: course 291A or consent of the instructor. Application of modern mathematical methods to engineering problems. Review of spectral theory. Green's functions and eigenvalue problems for second order ordinary differential equations and their adjoints. Discrete and continuous spectra for ordinary and partial differential equations. Initial and boundary value problems.

Mr. Cole, Mr. Levan (W,Sp)

291C. Integral Equations in Engineering.

Prerequisite: Mathematics 250B. Introduction to generalized function theory and Green's functions. Conversion of partial equations to integral equations and classification of integral equations. Solution to integral equations with degenerate kernels; discussions of successive approximations and Fredholm and Hilbert-Schmidt theory.

Mr. Westmann (Sp)

M292A. Asymptotic and Perturbation Methods I.

(Same as Mathematics M274A.) Prerequisite: course 192A or equivalent; Mathematics 132 or equivalent. The fundamental mathematics of asymptotic analysis, asymptotic expansions of Fourier integrals, method of stationary phase, Watson's lemma, method of steepest descent, uniform asymptotic expansions, elementary perturbation problems.

Mr. Cole, Mr. Muki (W)

M292B. Asymptotic and Perturbation Methods II.

(Same as Mathematics M274B.) Prerequisite: 192A or equivalent; Mathematics 132 or equivalent. The fundamental mathematics of asymptotic analysis, limit process expansions, regular and singular perturbation problems, matching of asymptotic expansions, multiple scale methods, application to partial differential equations, near and far fields.

Mr. Cole, Mr. Muki (Sp)

295A. Advanced Methods of Computer Aided Circuit Design.

Prerequisite: course 195A. A study of the latest advances in computer aided circuit design: analysis of nonlinear and distributed circuits, statistical tolerance analysis, constrained circuit optimization via linear and nonlinear programming, computer-aided synthesis, and on-line design techniques.

Mr. McNamee, Mr. Temes (Sp)

M296A. Biocybernetics I.

(Same as Medicine M296A.) Prerequisite: courses 171C or 122B or equivalent; M196B (may be taken concurrently). Development of modern systems/biocybernetic methods applicable to problems in life sciences and medicine. Emphasis on dynamical modeling, advanced analysis methods and their limitations, biological system quantification (identification), experimental design and hypothesis testing, the limitations of biological data, and computational methods.

Mr. Campfield, Mr. DiStefano (F)

M296B. Biocybernetics II.

(Same as Medicine M296B; formerly numbered M271E.) Prerequisite: course M296A. Physiology 100 or Biology 166 or equivalent is recommended. Continued development of modern systems/biocybernetics methodology and identification of biological systems. Critical survey of their application in the life sciences. The systems viewpoint of regulation in selected biological systems. Applications to human pathophysiology, diagnosis and therapy.

Mr. Campfield, Mr. DiStefano (W)

M296C. Seminar: Advanced Topics in Biocybernetics.

(Same as Medicine M296C; formerly numbered M271F.) Prerequisite: consent of the instructor. Interactive seminar on current research topics in biocybernetics. Dynamic systems modelling of physiological processes, with emphasis on specific applications in physiology and clinical medicine. Students will be involved in one or more class projects.

Mr. Campfield, Mr. DiStefano (Sp)

298. Seminar in Engineering. (½ to 1 course)

Prerequisite: graduate status in engineering; consent of the instructor. Seminars may be organized in advanced technical fields. Course may be repeated provided no duplication exists. If appropriate, field trips may be arranged.

The Staff

M299A. Elements of Planning Theory.

(Same as Architecture and Urban Planning M201B.) Lecture, three hours; discussion, two hours. Prerequisite: second year graduate standing. The course provides a broad overview of the history of planning theory and focuses on current theories concerning the linkage of a scientific-technical intelligence to organized social actions.

Mr. Friedmann (F)

M229C. Large-Scale Mathematical Programming.

(Same as Management M211B.) Prerequisite: knowledge of linear and nonlinear programming and consent of the instructor. Theory and computational methods for optimizing large-scale linear and nonlinear programs. Exploitation of special structures with combinatorial, dynamic, multidivisional, and stochastic aspects to obtain practical solution procedures in spite of large numbers of variable and/or constraints.

The Staff (Sp)

M299D. Network Flows and Combinatorial Programming.

(Same as Management M210C.) Prerequisite: consent of the instructor. Theory and techniques of discrete models in operations research. Integer programming, combinatorial programming, and network flows. Applications to various allocation, coordination, scheduling and sequencing problems.

The Staff (Sp)

†470A-470D. The Engineer in the Technical Environment.

Prerequisite: acceptance in the Engineering Executive Program. Theory and application of quantitative methods in the analysis and synthesis of engineering systems for the purpose of making management decisions. Optimization of outputs with respect to dollar costs, time, material, energy, information and manpower. Includes case studies and individual projects.

Mr. O'Neill

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†Open only to Engineering Executive Program students.

†471A-471B-471C. The Engineer in the General Environment. (1, ½, 1 course)

Prerequisite: acceptance in the Engineering Executive Program. Influences of human relations, laws, social sciences, humanities and fine arts on the development and utilization of natural and human resources. The interaction of technology and society past, present and future. Change agents and resistance to change. 471B-471C is offered on an In Progress basis, which requires students to complete the full 2-quarter sequence, at the end of which time a grade is given for all quarters of work.

Mr. Campbell

†472A-472B-472C-472D. The Engineer in the Business Environment. (1, 1, 1, ½ course)

Prerequisite: acceptance in the Engineering Executive Program. The language of business for the engineering executive. Accounting, finance, business economics, business law, and marketing. Laboratory in organization and management problem-solving. Analysis of actual business problems of the firm, the community, and the nation, provided through cooperation and participation with California business corporations and government agencies.

Mr. Ruskin

†473A-473B. Analysis and Synthesis of a Large-Scale System.

Prerequisite: acceptance in the Engineering Executive Program. Credit to be given only upon completion of 473B. A problem area of modern industry or government is selected as a class project and its solution is synthesized using quantitative tools and methods. The project also serves as a laboratory in organization for a goal oriented technical group.

Mr. Campbell

495. Teaching Assistant Training Seminar.

Prerequisite: graduate standing in Engineering. Techniques of teaching: preparation, organization of material, presentation, use of visual aids, use of engineering demonstration models, grading, advising and rapport with students. To be graded on a S/U basis only.

Mr. Viswanathan (F)

501. Cooperative Program. (½ to 2 courses)

Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

The Staff

596. Directed Individual or Tutorial Studies. (½ to 2 courses)

Prerequisite: graduate status in engineering, consent of the instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. Supervised investigation of advanced technical problems. To be graded on a S/U basis.

The Staff (F,W,Sp)

597A. Preparation for M.S. Comprehensive Examination. (½ to 3 courses)

Prerequisite: graduate status in engineering; consent of the instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. Reading and preparation for M.S. comprehensive examination. To be graded on a S/U basis.

The Staff (F,W,Sp)

597B. Preparation for Ph.D. Preliminary Examinations. (½ to 4 courses)

Prerequisite: graduate status in engineering; consent of the instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. To be graded on a S/U basis.

The Staff (F,W,Sp)

597C. Preparation for Ph.D. Oral Qualifying Examination. (½ to 4 courses)

Prerequisite: graduate status in engineering; consent of the instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. Preparation for Oral Qualifying Examination, including preliminary research on dissertation. To be graded on a S/U basis.

The Staff (F,W,Sp)

598. Research for and Preparation of the Master's Thesis. (½ to 3 courses.)

Prerequisite: graduate status in engineering; consent of the instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. Supervised independent research for M.S. candidates, including thesis prospectus. To be graded on a S/U basis.

The Staff (F,W,Sp)

599. Research for and Preparation of the Doctoral Dissertation. (½ to 4 courses)

Prerequisite: graduate status in engineering; consent of the instructor. Usually taken after student has been advanced to candidacy. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. To be graded on a S/U basis.

The Staff (F,W,Sp)

■ ENGLISH

(Department Office, 2225 Rolfe Hall)

Robert Martin Adams, Ph.D., *Professor of English.*

Vinton A. Dearing, Ph.D., *Professor of English.*

Robert William Dent, Ph.D., *Professor of English.*

Philip Calvin Durham, Ph.D., *Professor of English.*

Gerald Jay Goldberg, Ph.D., *Professor of English.*

George Robert Guffey, Ph.D., *Professor of English.*

Charles Bennett Gullans, Ph.D., *Professor of English.*

Paul Alfred Jorgensen, Ph.D., *Professor of English.*

Henry Ansgar Kelly, Ph.D., *Professor of English and of Medieval-Renaissance Studies.*

Jascha Kessler, Ph.D., *Professor of English.*

Robert Starr Kinsman, Ph.D., *Professor of English.*

Murray Krieger, Ph.D., *University Professor of English.*

Richard Alan Lanham, Ph.D., *Professor of English.*

Richard D. Lehan, Ph.D., *Professor of English.*

J. A. Leo Lemay, Ph.D., *Professor of English.*

Blake Reynolds Nevius, Ph.D., *Professor of English.*

Maximillian Erwin Novak, D.Phil., Ph.D., *Professor of English.*

James Emerson Phillips, Jr., Ph.D., *Professor of English.*

Joseph N. Riddel, Ph.D., *Professor of English.*

Florence Ridley, Ph.D., *Professor of English.*

Alan Henry Roper, Ph.D., *Professor of English.*

William David Schaefer, Ph.D., *Professor of English.*

Georg Bernhard Tennyson, Ph.D., *Professor of English.*

Peter Larsen Thorslev, Ph.D., *Professor of English (Chairman of the Department).*

Alexander Welsh, Ph.D., *Professor of English.*

D. K. Wilgus, Ph.D., *Professor of English and Anglo-American Folksong.*

Robert Paul Falk, Ph.D., *Emeritus Professor of English.*

John Jenkins Espey, B.Litt., M.A., (Oxon.), *Emeritus Professor of English.*

Charles V. Hartung, Ph.D., *Emeritus Professor of English.*

Leon Howard, Ph.D., L.H.D., *Emeritus Professor of English.*

Claude Jones, Ph.D., *Emeritus Professor of English.*

Alfred Edwin Longueil, Ph.D., *Emeritus Professor of English.*

Ada Blanche Nisbet, Ph.D., *Emeritus Professor of English.*

Franklin Prescott Rolfe, Ph.D., *Emeritus Professor of English.*

Hugh Thomas Swedenberg, Jr., Ph.D., Litt.D., *Emeritus Professor of English.*

Michael J. B. Allen, Ph.D., *Associate Professor of English.*

*Calvin Bernard Bedient, Ph.D., *Associate Professor of English.*

Charles Ashton Berst, Ph.D., *Associate Professor of English.*

Frederick Lorrain Burwick, Ph.D., *Associate Professor of English (Vice Chairman of the Department).*

Daniel G. Calder, Ph.D., *Associate Professor of English (Vice Chairman of the Department).*

Edward Ignatius Condren, Ph.D., *Associate Professor of English and of Medieval Studies.*

Richard Keith Cross, Ph.D., *Associate Professor of English.*

Patrick K. Ford, Ph.D., *Associate Professor of English and of Celtic Studies.*

Ronald E. Freeman, Ph.D., *Associate Professor of English.*

Robert A. Georges, Ph.D., *Associate Professor of English.*

Christopher Waldo Grose, Ph.D., *Associate Professor of English.*

Gordon L. Kipling, Ph.D., *Associate Professor of English.*

Robert M. Maniquis, Ph.D., *Associate Professor of English.*

George S. Rousseau, Ph.D., *Associate Professor of English and of Eighteenth-Century Studies.*

Paul Roland Sellin, Ph.D., *Associate Professor of English.*

Paul Douglas Sheats, Ph.D., *Associate Professor of English.*

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*Absent on leave, 1976-1977.

Thomas Richard Wortham, Ph.D., *Associate Professor of English.*
Stephen Irwin Yenser, Ph.D., *Associate Professor of English.*
Walter Eldon Anderson, Ph.D., *Assistant Professor of English.*
Joseph John Arpad, Ph.D., *Assistant Professor of English.*
Steven Latimer Bates, Ph.D., *Assistant Professor of English.*
Charles Linwood Batten, Jr., Ph.D., *Assistant Professor of English.*
Albert R. Braunmuller, Jr., Ph.D., *Assistant Professor of English.*
F. Douglass Fiero, Ph.D., *Assistant Professor of English.*
James Edward Goodwin, Ph.D., *Assistant Professor of English.*
Loyce Randel Helms, Ph.D., *Assistant Professor of English.*
Albert David Hutter, Ph.D., *Assistant Professor of English.*
Romey T. Keys, Ph.D., *Assistant Professor of English.*
G. Jackson Kolb, II, Ph.D., *Assistant Professor of English.*
Kenneth Robert Lincoln, Ph.D., *Assistant Professor of English.*
Raymond Arthur Paredes, Ph.D., *Assistant Professor of English.*
Joyce Elaine Peterson, Ph.D., *Assistant Professor of English.*
Karen Elizabeth Rowe, Ph.D., *Assistant Professor of English.*
Margaret Elizabeth Shaklee, Ph.D., *Assistant Professor of English.*
Ruth B. Yeazell, Ph.D., *Assistant Professor of English.*
_____, *Assistant Professor*
_____, *Assistant Professor*
_____, *Assistant Professor*

♦

Jerome Cushman, A.B., B.S.L.S., *Senior Lecturer in English and Library and Information Science.*
David Stuart Rodes, Ph.D., *Lecturer in English.*
Peter Ladefoged, Ph.D., *Professor of Phonetics.*
Robert Paul Stockwell, Ph.D., *Professor of Linguistics.*

ENGLISH AS A SECOND LANGUAGE

(Section Office, 3303 Rolfe Hall)

†J. Donald Bowen, Ph.D., *Professor of English.*
Russell Norman Campbell, Ph.D., *Professor of English (Vice Chairman of the Department).*
John Frederick Povey, Ph.D., *Professor of English.*
Clifford Holmes Prator, Ph.D., *Professor of English.*
Lois McIntosh, Ph.D., *Emeritus Professor of English.*
Evelyn R. Hatch, Ph.D., *Associate Professor of English.*
Earl James Rand, Ph.D., *Associate Professor of English.*
Robert D. Wilson, Ph.D., *Adjunct Associate Professor of English.*
Marianne Celce-Murcia, Ph.D., *Assistant Professor of English.*
Andrew David Cohen, Ph.D., *Assistant Professor of English.*
John H. Schumann, Ph.D., *Assistant Professor of English.*

♦

James T. Heaton, M.A., *Lecturer in English.*

♦

Peter Ladefoged, Ph.D., *Professor of Phonetics.*
Arlene I. Moskowitz, Ph.D., *Assistant Professor of Linguistics.*

Students must have passed Subject A (either examination or course) before taking any course in English. For regulations concerning Subject A, see Index.

Preparation for the Major

English 2, 10A, 10B, 10C taken in sequence, each course being a prerequisite for the next course; completion of English 2 satisfies the College of Letters and Science "D" requirement in English composition.

Foreign Language and Foreign Literature Requirement. All English majors must have completed either (1) the fifth course or its equivalent in any one foreign language or (2) any combination of five courses in foreign language and foreign literature, including Foreign Literature in Translation and Humanities (see Courses of Instruction). (High school language courses count toward this requirement in number 1 but not number 2.)

The Major

English 141A (Chaucer), 142A and 142B (Shakespeare), 143 (Milton), at least one "Specialized Study" course from the 180 series, and a minimum of seven additional upper division English courses, with the provision that (1) at least five of the seven courses must be chosen from courses numbered 150-190; (2) at least one of the seven courses must be in literature before 1800 (150 series).

All majors are encouraged to choose additional electives from the courses numbered 140 through 190. English 140 (Criticism) is especially recommended for students intending graduate work in literature.

Special Programs

The Department offers special programs in American Studies, General Literature, and Creative Writing, for all of which the regular "Preparation for the Major" courses as well as the departmental foreign language requirement apply. Because of the specialized nature of these programs, students planning to do graduate work in English should consult the departmental adviser before selecting any one of them.

American Studies: This program consists of nine upper division English courses and six related upper division courses taken in other Departments. The nine English courses must include 142A-142B (Shakespeare); three courses chosen from 170, 171, 172, 173, 174 (American Literature); one course pertaining to "American Studies" chosen from the 180 series (Specialized Studies) or the 190 offerings (Literature and Society), taken preferably in the senior year. The remaining three English courses and the six upper division courses from other departments must be chosen in consultation with the departmental adviser. A complete listing of acceptable courses arranged into possible emphases under this program (American Civilization, Popular Culture, Folklore, Ethnic Studies), as well as suggestions for fulfilling the College "Breadth Requirements," may be obtained from the Department of English (Rolfe Hall 2225).

General Literature: This program consists of nine upper division courses in English or American Literature, and six upper division courses in Foreign Literatures (at least one of which must be taught in the original language, not a study of works in translation). The nine English courses must include course 142A-142B (Shakespeare); 141A (Chaucer) or 143 (Milton); at least one course from the 150 series, one from the 160 series, and one from the 170 series; and three electives chosen from courses numbered 140 through 190 (those intending graduate study in literature are especially encouraged to take English 140). A listing of acceptable courses arranged into possible emphases under this program may be obtained from the Department of English (Rolfe Hall 2225).

Creative Writing: This program consists of course 142A-142B (Shakespeare), and a minimum of ten additional upper division English courses: three Creative Writing courses from the 133-135 series, taken in a single genre (poetry, short story, or drama); three literature courses paralleling the creative writing specialization (for example, three courses in the study of poetry for students pursuing the writing of poetry); and four electives chosen from courses numbered 140 through 190. Students will be admitted to this program only upon recommendation of their instructor after completing 133A or 134A or 135A; for further details see the Department of English (Rolfe Hall 2225).

Major for Foreign Students

The Department offers a special major in English open optionally to bona fide foreign students whose mother tongue was a language other than English. As preparation for this major, the requirements are: English 1A or 1B, 2, 10A, 10B, 10C in sequence. The following 12 courses are required for the major itself: English 103J, 106J, and 109J; two courses in the 100 series; 122K; 142A and 142B; and four additional courses from those numbered 140-199. The student may fulfill the department foreign language requirement with his native language. Students who complete this major and wish to pursue graduate study should consult with the department counselor about programs of study and requirements for admission.

Teaching Credential Candidates

Teaching of English. Students wishing to obtain a teaching credential should declare this intention at the beginning of their Junior Year

†Absent on leave, 1976-1977.

and seek the advice of the departmental adviser in planning a coherent program. The Department requires 120A or 120B and 130 as part of, or in addition to, the Major. Candidates must also complete 300 before they can be certified to begin student teaching. Students are encouraged to choose additional courses in language and in Children's Literature, Literature for Young Adults, American Literature and Literature for Minorities as some of their electives. Note: students who enter the School of Education seeking a credential to teach English must, before beginning their required practice teaching assignment, be certified by the Department of English as prepared to teach this subject; the Department will not certify any student who has not completed 120A or 120B, 130 and 300. For additional information on courses leading to the teaching credential, consult the Graduate School of Education (Moore Hall 201) and the Department of English (Rolfe Hall 2225).

The Honors Course in English

Majors with a 3.25 overall grade-point average and a 3.4 grade-point average in English courses are encouraged to enter the honors program in English. This program consists of two courses from the 180 series of Specialized Study courses and one Special Study tutorial (English 199H). Students must register for the program and be interviewed by the honors chairman during the second quarter of their junior year. Departmental honors will be awarded only to students who achieve at graduation at least 3.25 overall and 3.6 in upper division English courses.

Requirements for Admission to Graduate Courses

The requirement is ordinarily the undergraduate major in English (or its equivalent) in which a superior and clearly promising record has been achieved. Prospective students are required to take the Graduate Record Examination (both Aptitude and Advanced Test in literature) and to have their scores reported to the Department of English. A graduate student in another department who wishes to take a graduate course in English must secure the permission of the professor teaching the course.

Requirements for the Master's Degree

1. For the general requirements, see the Graduate Division. The master's degree program is directed primarily toward providing prospective junior college teachers with the knowledge and skills they will need as teachers of English. The Department follows the Comprehensive Examination Plan, see the Graduate Division. The comprehensive examinations for the M.A. are given three times a year.

2. *Foreign Language.* Students may fulfill the language requirement by demonstrating a reading knowledge of any foreign language. The reading test should be taken at the beginning of the first quarter of residence, but in any event no later than the mid-term of the quarter in which all degree requirements in either Plan A or Plan B are to be completed.

3. *Plan A.* This M.A. program includes four options suitable to the area in which the student plans to teach. Students must complete nine courses in one of the following: (a) *Literature:* 201 or 140; three courses numbered 220 to 259, one of which must be a seminar (240-259); 120; 270A-270B; elective in English; unrestricted elective. (Recommended electives: English 121, 123, 130, 190, 272, 274; Humanities 100 series; Linguistics 100, 123, 170, 190.) (b) *Language:* 201 or 140; two courses numbered 220-259; 121 or 122; 213; 240A or 241B; or 241A or 240B; 270A-270B; unrestricted elective. (Recommended electives: English 120, 130, 210, 211, 212, 250K, 272, 274; Linguistics 170, 225R.) (c) *Creative Writing:* 201 or 140; two courses numbered 220 to 259; three courses selected from English 133A-133B-133C; 134A-134B-134C; 135A-135B-135C; 120; 270A-270B; (d) *English for Minority Groups:* 201 or 140; two courses numbered 220-259; 120 or 122; 123; 270A-270B; 272 or 274; unrestricted elective. (Recommended electives: English 109K, 114, 130, 190; Education 102; Linguistics 100, 170; Sociology 124, 155.) In accordance with University requirements, at least five courses must be at the graduate level, that is, in the 200 series. Four courses may be in the 100 series. Students should consult the Department concerning recommended electives suitable to each of the four plans. *Plan B.* This M.A. program requires that the student successfully complete nine (9) courses, all at the graduate (or 200-) level, among which must be included the following sequences of courses: (1) one (1) course in Literary Criticism either 201 or 259; (2) one (1) course from either of the following series 210-213; or 240-242; (3) two (2) courses from *contiguous* periods in the series 220-258, or, depending on the student's preparation, 244-255; (4) at least one (1) seminar. (Although not required, the student is encouraged to take from one to three courses in literature offerings outside the department, these not to count toward the nine graduate English courses, except by special petition.)

4. Upon the completion of all requirements, the student will be given a comprehensive oral examination of no less than one hour designed to test his intellectual grasp of the major literary documents presented to him during his graduate study and his ability to analyze a work of literature.

(The M.A. degree is also granted to eligible students who have been admitted to the doctoral program and have passed the First Qualifying Examination. See Requirements for the Doctor's Degree, below.)

Statute of Limitations for Master's Candidates

Students must conform to the following schedule in proceeding toward the M.A. degree:

1. A maximum of three and one quarter calendar years from the time of entrance to taking the oral examination:

2. A maximum of twelve courses before taking the oral examination.

Requirements for the Doctor's Degree

1. For the general requirements, see the Graduate Division. The Ph.D. is primarily a research degree and the Department's program is designed for students intending to teach in college and universities. Qualifying examinations are given twice a year.

2. *Foreign Language.* In addition to fulfilling the departmental Philology requirements, students will normally be expected to have a reading knowledge of two foreign languages (e.g., French, German, Italian, Greek, or Latin). As an option to the two-language requirement, students may elect to pursue study of a single language in order to attain a superior proficiency. For details about this option and the possibility of offering a second language other than those named above, the student should consult Department advisers. One of the two languages must be satisfied prior to the second quarter of residence at UCLA, and the second language at least by the end of the seven of residence.

3. *Departmental Program, First Stage:* (a) In the first stage, which leads to the master's degree, the student must take a minimum of nine English courses from the 200 series. (Students entering with an MA from another institution are presumed to have fulfilled the nine-course requirement). Two courses, 200 and 210, are required. Upon successful completion of these courses (and the reading test in one foreign language), the student will take the First Qualifying Examination. This consists of four written examinations of four hours each. One of these may be taken in genre (novel, drama, folklore, or literary criticism) or an alternate field (proposed by the student and approved by the Department's Graduate Committee) and at least three of the examinations must be taken in any of the following chronological periods: the Middle Ages; the Renaissance; the Earlier Seventeenth Century; the Restoration-Eighteenth Century; the Romantic period; the Victorian period; American Literature to 1828; American Literature: 1828-1900; and either Twentieth-Century American Literature or Twentieth-Century British Literature. No student may write on more than two American fields, and those who elect a genre or literary criticism field may choose only one field in American literature. With the exception of courses 200 and 210, there are no specific course requirements in this first stage of the program, but students must take at least one course (200-259) in each of two chronological periods not chosen for the qualifying examination. These courses may be taken either before or after the First Qualifying Examination, but in no case later than the second quarter in residence following that examination. In lieu of taking these two courses, a student may request an oral examination in any two chronological fields not chosen for the qualifying examination; this oral must be passed within six months after the examination. In addition to English 210, the student is required to take two other courses from those numbered 211-215 and 240-242. This so-called philology requirement may be taken at any time during the first or second stage of the program, but before the Second Qualifying Exam. Students with an interest in the fields of Anglo-Saxon or Medieval literature should take the introductory courses in this area (211-215) as early as possible.

4. *Departmental Program, The Candidate Stage:* In this stage of the program the student must take six courses from the 200 series, and a minimum of three English seminars. The student is encouraged to take as many seminars as possible (any graduate seminar may be repeated for credit) as well as suitable courses in other departments, and at some time before the Second Qualifying Examination he must have taken one seminar in some field other than that of his specialization. When through course work and independent study the student is deemed sufficiently well prepared, and after he has passed the test in a second foreign language, he takes the Second Qualifying Examination. The Second Qualifying Examination consists of an oral examination of no less than two hours (and probably more) in length, to be administered by

a committee of five, including a chairman and two other members from the department, and two members from outside the department. (The student should seek out a chairman for his committee a dissertation director as soon as possible after passing the Firsts, so that his program of preparation for the Seconds will not drag on for too many quarters.) The examination will be based on a dissertation prospectus (a substantially researched document approved by the committee chairman) which must be made available to all members of the committee at least one week before the scheduled examination. The student must also submit, with the chairman's approval, a list of at least ten significant scholarly or critical works that bear on his field of specialization and are directly relevant to the method or subject matter of his dissertation. The chairman of the committee is responsible for defining, in conjunction with the candidate, the degree of comprehensiveness (the related literature) for which the student is answerable during the examination.

5. *Departmental Program, The Dissertation Stage:* When a student has passed the Second Qualifying Examination, he is advanced to Candidacy and proceeds with the writing of the dissertation which must be approved by the three Certifying Members of his Doctoral Committee (two from the English Department, one from another department). A final oral examination may also be required.

Statute of Limitations for Doctoral Candidates

Students must conform to the following schedule in proceeding toward the Ph.D.:

1. A maximum of two calendar years from time of entrance to taking the Part I qualifying examination.
2. A maximum of two calendar years between Part I and Part II qualifying examinations.
3. A maximum of three calendar years from advancement to candidacy to completion of the degree.

Lower Division Courses

1A. English Composition: Rhetoric and Language.
Class discussion, three hours; individual and group conferences, one hour. Prerequisite: completion of the Subject A requirement. Not open to students who have completed 1B. Principles and methods of expository writing with readings and analysis of expository prose. Minimum of six 3-5 page essays.

1B. English Composition: Contemporary Themes.
Class discussion, three hours; individual and group conferences, one hour. Prerequisite: completion of the Subject A requirement. Not open to students who have completed English 1A. Expository writing, with topics drawn from the discussion of selected reading, including expository prose and fiction. Minimum of six 3-5 page essays.

2. Critical Reading and Writing.
Prerequisite: either course 1A or 1B or its equivalent or proficiency demonstrated by examination (see Department counselor for details). An introduction to literary analysis, with close reading and careful written exposition of selections from one or more of the principle modes of literature: poetry, prose fiction, and drama. Minimum of six papers.

10A. English Literature to 1660.
Prerequisite: course 2. A study of selected works of the major writers of the period, beginning with selections from Old English poetry, and including Chaucer, Spenser, Shakespeare, Donne, and Milton. Minimum of three 3-5 page papers or equivalent.

10B. English Literature, 1660-1832.
Prerequisite: course 10A. A study of selected works by the major writers of the period, including Dryden, Pope, Swift, Wordsworth, and Keats. Minimum of three 3-5 page papers or equivalent.

10C. English Literature, 1832 to the Present.
Prerequisite: course 10B. A study of selected works by the major writers of the period, including Tennyson, Arnold, Browning, Yeats, Joyce, and Eliot. Minimum of three 3-5 page papers or equivalent.

70. Major British Authors before 1800.
(Formerly numbered 100.) Not open for credit to English majors or students who have had 10A or 10B. A study of selected masterpieces of English literature before 1800, including the works of such writers as Chaucer, Shakespeare, Milton, Swift, Pope, Johnson, and Fielding.

75. Major British Authors, 1800 to the Present.
(Formerly numbered 101.) Not open for credit to English majors or students who have had 10B or 10C. A study of selected masterpieces of English literature, 1800 to the present, including such writers as Wordsworth, Coleridge, Keats, Dickens, Tennyson, Browning, Arnold, Yeats, and T.S. Eliot.

80. Major American Authors.
(Formerly numbered 102.) Not open for credit to English majors or students who have had any courses in the 170 series. An introduction to the chief American men of letters, with emphasis upon the poetry, nonnarrative prose, and short fiction of such writers as Poe, Emerson, Whitman, Twain, Frost, and Hemingway.

85. The American Novel.
(Formerly numbered 104.) Not open for credit to English majors or students who have had 104. The development, with emphasis on form, of the American novel from its beginning to the present day. Included are works of such novelists as Hawthorne, James, Fitzgerald, and Faulkner.

90. Shakespeare.
(Formerly numbered 103.) Not open for credit to English majors or students who have had 142A or 142B. A survey of Shakespeare's plays, including comedies, histories, and tragedies selected to represent Shakespeare's breadth, artistic progress, and total dramatic achievement.

Upper Division Courses

Subject A is prerequisite for courses 100-123, except 104, 105, 106. Subject A and English 2 are prerequisite for courses 130-135; consent of the instructor following submission of samples of creative work is required for enrollment in courses 133-135. Subject A, English 2, and English 10A-10B-10C are prerequisite for courses 140-199.

100A. Introduction to Poetry.
(Formerly 110C.) Prerequisite: Subject A. (Not open to students who have had former English 110C). A study of critical issues (metrics, diction, figurative language, symbolism, irony and ambiguity, form and structure) and aesthetic issues, including evaluative criteria; followed by the close critical analysis of a selection of representative poems. This course is particularly recommended for teaching credential candidates.

100B. Introduction to Drama.
(Formerly 110B.) Prerequisite: Subject A. (Not open to students who have had former English 110B). Examination of representative plays; readings may range from Greek to modern drama. Emphasis on critical approaches to the dramatic text; study of issues such as plot construction, characterization, special uses of language in drama, methods of evaluation.

100C. Introduction to Fiction.
(Formerly 110A.) Prerequisite: Subject A. (Not open to students who have had former 110A.) An introduction to prose narrative, its techniques and forms. Analysis of short and long narratives, and of critical issues such as plot, characterization, setting, narrative voice, realistic and non-realistic forms.

100D. Introduction to Special Genres.
Prerequisite: Subject A. A study of a particular genre or sub-genre, such as Satire, Biography-Autobiography, Detective Fiction, or Science Fiction.
The Staff

101A. Recent British Literature.
(Formerly 116C.) Prerequisite: Subject A. (Not open to students who have had former 116C.) Recent trends and developments in British fiction and poetry since World War II.
Mr. Fiero

101B. Recent American Poetry.
(Formerly 116B.) Prerequisite: Subject A. (Not open to students who have had former 116B.) Recent trends and developments in American poetry since World War II.
Mr. Kessler

101C. Recent American Fiction.
(Formerly 116A.) Prerequisite: Subject A. (Not open to students who have had former 116A.) Recent trends and developments in American fiction since World War II.

102. The Short Story in England and America.
(Formerly 117.) (Not open to students who have had former 117.) A historical survey of the short story as a genre from the eighteenth century to the present day.
Mr. Anderson

103. Jewish-American Fiction.
Prerequisite: Subject A. The study of the fiction of Jewish writers in America such as Bellow, Malamud, and Roth dealing specifically with the encounter between Jewish ethical ideals and social values and the contemporary environment.
Mr. Novak

104. Afro-American Literature and Black Studies.
(Formerly 118.) The Black experience as reflected in the development of Black American literature and/or the portrayal of Blacks in relationship to salient cultural and social conditions. It may explore recurrent and characteristic attitudes, themes, techniques, and genres.
Mr. Keys

105. The Chicano Experience in Literature.
The study of literature in English by and about Chicanos. The course surveys the depiction of the Chicano experience in American literature generally and focuses on the development of Chicano literature itself, its cultural backgrounds, and distinctive uses of language.
Mr. Paredes

106. Native American Literary Studies.
The study of Native American oral cultures through translated documents (song-poems, life-stories, myths, tales, dream visions, speeches) and/or the images in writing about Native Americans (poetry, fiction, history, anthropology, sociology).
Mr. Lincoln

107. Women in Literature.
Prerequisite: Subject A. A survey of literary works by and about women which examines the delineation of women in English and American literature; studies in historical and contemporary themes, the evolution of forms and techniques in poetry, fiction, biography.
Ms. Rowe, Ms. Yeazell

108A-108B. The English Bible as Literature.
(Formerly numbered 113A-113B.) The principal literary monuments of the Old and New Testaments in the King James version.
Mr. Dearing

109. Interdisciplinary Approaches to Literature.
The study of British or American literature in relation to other disciplines, such as film, history, politics-psychology. May be repeated for credit.

110. Studies in Individual Authors.
The specialized study of a single poet, dramatist, or novelist.

M111A. The Literature of Myth and Oral Tradition.
(Same as Folklore M111.) A study of myth, dramatic origins, oral epic, folktale and ballad, emphasizing Indo-European and Semitic examples.
Mr. Arpad

M111B. Anglo-American Folk Song.
(Same as Folklore M106.) Prerequisite: junior standing. A survey of Anglo-American balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values.
Mr. Wilgus

M111C. British Folklore and Mythology.
(Same as Folklore M121.) Prerequisite: junior standing. A survey of the folklore of the peoples of Britain, with attention to their history, function, and regional differences.
Mr. Georges

M111D. Introduction to Celtic Folklore and Mythology.
(Same as Folklore M122.) A general course for the student in folklore, with emphasis on the types of folklore research currently practiced in Eire and the mythic traditions of the Irish and Welsh.
Mr. Ford

M111E. Survey of Medieval Celtic Literature.
(Same as Folklore M112.) A general course dealing with Celtic literature from the earliest times to the fourteenth century. No knowledge of Irish or Welsh is required.
Mr. Ford

112. Children's Literature.
A study of the historical backgrounds and development of types of children's literature, folklore and oral tradition, levels of interest, criticism and evaluation, illustration and bibliography.
Mr. Cushman

113. Literature for Adolescents and Young Adults.
Prerequisite: Subject A. This course will analyze and evaluate the literature intended mainly for students in junior and senior high schools. It will also review mature books that are popularly suggested for this age group, and study the interests and reading habits of young adults.
Mr. Cushman

114. World Literatures in English.
Prerequisite: consent of instructor. A survey of contemporary literature from English speaking regions of the world, reviewing the major genres from several countries and making cross comparisons with the literatures. Generalizations concerning the nature of the English used by such writers will be examined. May be repeated for credit.

115. American Popular Literature.
A study of the main currents of popular and cultural taste as reflected in such genres as dime novels, detective fiction, and Western stories.
Mr. Arpad, Mr. Pardes

120A. English Language Study for Teachers: Primary and Junior High School.
Prerequisite: Subject A. (Not open to students who have had former English 120.) A survey of areas of theoretical and applied English linguistics of special interest and importance for primary and junior high school teachers. Subjects include: approaches to the description of English grammar; regional and social dialects of American English; contributions of English language study to the teaching of reading, spelling, composition, and literature. (Not open to students who have had former English 120.)
Ms. Hatch

120B. English Language Study for Teachers: High School and Junior College.
Prerequisite: Subject A. A course for teachers in which standard rhetoric and the various grammatical systems are studied through application of their principles to the analysis and evaluation of student writing samples.
Ms. Shaklee

121. The History of the English Language.
A study directed toward English majors of the main features in the grammatical, lexical and phonetic condition of the English language from Indo-European up to the present time.
Mr. Calder

122. Introduction to the Structure of Present-Day English.
An introduction to the techniques of linguistic description as applied to the pronunciation, grammar and vocabulary of modern English.
Mr. Rand

123. Afro-American English.
Prerequisite: course 120 or Linguistics 100; pre- or co-requisite: English 122 or the equivalent. A detailed study, involving the analysis of tapes and documents, of the characteristics of urban Afro-American Speech and writing.

130. Composition for Teachers.
Prerequisite: Subject A, English 2. Preparation for future teachers of English composition in the writing and criticism of the kinds of prose discourse usually taught in primary and secondary schools and in junior college.

131. Exposition.
Prerequisite: Subject A, English 2. Further work in expository composition, designed especially to meet the needs of upper-division students, including transfers, who desire training beyond that offered in freshman composition.

133A-133B-133C. Creative Writing: Poetry.
Prerequisite: consent of the instructor required, following submission of samples of writing. Weekly exercises in the writing of poetry, with practice in the standard forms and metres and the study of techniques. Classroom discussion based on student work.
Mr. Gullans, Mr. Kessler

134A-134B-134C. Creative Writing: Short Story.
Prerequisite: consent of the instructor required, following submission of samples of writing. The completion of three stories of average length during each quarter. Some of these may, with the instructor's permission and the student's wish; be a substantial revision of one of the other stories presented. Classroom discussion based on student stories.
Mr. Goldberg, Mr. Kessler

135A-135B-135C. Creative Writing: Drama.
Prerequisite: consent of the instructor required, following submission of samples of writing. An exploration of the capacity of each student to write for the theater. Class discussion of student writing, individual conferences, rehearsed readings, and laboratory productions.
Mr. Kessler, Mr. Rodes

136A-136B-136C. Journal and Textbook Editing.
Prerequisite: consent of instructor. Editing in the field of humanistic approaches to professional problem-solving and in preparation of school texts and anthologies; including writing, soliciting contributors, evaluating and editing submissions, layout, and integration.

140. Criticism.
Prerequisite: course 10C. An introduction to some types of literary criticism. The student will study such matters as reader's response and rationales of literary description, analysis, and evaluation. He will read literary works in the context of both practical and theoretical criticism.

141A. Chaucer, The Canterbury Tales.
Prerequisites: Subject A, English 2, and English 10A-10B-10C. Introductory study of Chaucer's language, versification, historical and literary background, reading and discussion of his long major poem, *The Canterbury Tales.*
Mr. Calder, Mr. Condren, Ms. Ridley

141B. Chaucer, Troilus and Criseyde and Selected Minor Works.
Prerequisites: Subject A, English 2, and English 10A-10B-10C, 141A. Intensive study of *Troilus and Criseyde* and selected minor works of Chaucer, such as *The Book of the Duchess, The House of Fame, The Parliament of Fowls,* etc.
Mr. Condren, Mr. Kelly, Ms. Ridley

142A. Shakespeare: The Poems and Early Plays.
For English majors (and non-majors who have completed 10A-10B-10C). An intensive study of selected poems and representative comedies, histories, and tragedies through *Hamlet.*
Mr. Braunmuller, Mr. Kinsman, Mr. Rodes

142B. Shakespeare: The Later Plays.
Prerequisite: course 142A. For English majors (and non-majors who have completed 10A-10B-10C). An intensive study of representative problem plays, major tragedies, Roman plays and romances.
Mr. Allen, Mr. Dent, Mr. Jorgensen

142C. Shakespeare: Selected Topics.
Prerequisites: course 142A and 142B. This course is designed for students interested in further study of Shakespeare. Limits of investigation will be set by the individual instructor.
Mr. Allen, Mr. Jorgensen

143. Milton.
A study of the major works of Milton with emphasis on *Paradise Lost.*
Mr. Bates, Ms. Rowe, Mr. Sellin

150. Later Medieval Literature.
Reading and historical explication of the major writers of the fourteenth and fifteenth centuries; e.g., the Gawain-poet, Langland, Gower, Malory, miracle and morality plays, prose, lyrics, and the minor poems of Chaucer. The more difficult texts will be read in modernized form.
Mr. Condren, Mr. Kipling

151. Elizabethan Literature.
A study of English literature of the sixteenth century, with special emphasis on the development and interrelationships of poetry, prose, fiction, and literary theory and criticism during the reign of Elizabeth I.
Mr. Bates, Mr. Edinger, Mr. Lanham

152. The Drama to 1642.
A study of the English drama, excluding Shakespeare, from the beginning to the closing of the theaters, with special emphasis on plays of the Elizabethan and Jacobean periods.
Mr. Dent

153. Literature of the Earlier Seventeenth Century (1600-1660).
A study of the major works as literary documents and as products of seventeenth-century thought. The work of Milton is excluded.
Mr. Bates, Mr. Guffey, Mr. Grose

154. Literature of the Restoration and Earlier Eighteenth Century (1660-1730).
A study of major works as literary documents and as products of Restoration and earlier eighteenth-century thought.
Mr. Roper

155. Literature of the Later Eighteenth Century (1730-1798).
A study of major works as literary documents and as products of later eighteenth-century thought.
Mr. Battes, Mr. Rousseau

156. The Drama, 1660-1842.
A survey of the English drama from the Restoration to the Licensing Act.
Mr. Battes, Mr. Rodes

157. The Novel to 1832.
A survey of the major English novelists from Defoe through Scott.
Mr. Anderson, Mr. Rousseau

160. Earlier Romantic Poetry and Prose.
An intensive study of the poetry and prose of Blake, Wordsworth, and Coleridge, with collateral readings from such authors as Godwin, Burke, Paine, Burns, Southey, Lamb, DeQuincy, and Scott.
Mr. Burwick, Mr. Sheats

161. Later Romantic Poetry and Prose.
An intensive study of the poetry and prose of Keats, Shelley, and Bryon, with collateral readings from such authors as Hazlitt, Hunt, Landor, Clare, Moore, and Peacock.
Mr. Burwick, Mr. Maniquis, Mr. Sheats

162. Earlier Victorian Poetry and Prose.
A study of the Victorian age from the passage of the First Reform Bill through the high Victorian period, including Tennyson, Browning, Arnold, Carlyle, Mill, and Newman.
Mr. Freeman, Mr. Kolb, Mr. Tennyson

163. Later Victorian Poetry and Prose.
A study of the later Victorian age from Pre-Raphaelitism through the Aesthetic and Decadent Movements, along with other intellectual trends, including such authors as Ruskin, Swinburne, Pater, Hopkins, Hardy, Wilde, and Yeats.
Mr. Freeman, Mr. Kolb, Mr. Tennyson

164. The Novel, 1832-1900.
A survey of the major English novelists from Dickens through Hardy.
Mr. Anderson, Mr. Hutter, Mr. Lincoln

165. Twentieth-Century British Poetry and Prose.
A study of the dominant trends of the twentieth century, with emphasis on experimental work in short fiction, poetry, and the contemporary critical sensibility.
Mr. Bedient, Mr. Fiero

166. The Novel, 1900 to the Present.
A survey of the major English novelists from Conrad to the present.
Mr. Bedient, Mr. Berst

167. The Drama, 1842 to the Present.
A survey of British and American drama with its principal continental influences. For Theater Arts majors the prerequisite of courses 10A-10B-10C is waived.
Mr. Berst, Mr. Braunmuller, Mr. Goodwin

170. American Literature to 1800.
A historical survey of American literature through the Colonial and Early National Periods.
Mr. Lemay

171. American Literature, 1801-1865.
A historical survey of American literature, including fiction, from the beginning of the nineteenth century to the end of the Civil War.
Mr. Wortham, Ms. Yeazell

172. American Literature, 1866-1912.
A historical survey from Whitman to the founding of *Poetry* magazine.
Mr. Arpad, Mr. Wortham

173. Twentieth Century American Poetry.
The development of American poetry since 1912, including Frost, Eliot, Pound, and Stevens.

174. Twentieth Century American Fiction.
The development of the American novel and short story since 1912, including Hemingway, Fitzgerald, and Faulkner.
Mr. Goldberg, Mr. Goodwin

Specialized Studies. These courses (180 through 189) are designed to permit a small group of students (limit: 15) to specialize in a period which they find attractive, and in which they have taken adequate upper division background courses. For the author, group or genre to be studied, see the Schedule of Classes for any given quarter. Enrollments for each course are handled in the department office (Rolfe Hall 2225) at the time of preenrollment in the quarter preceding that in which the course is offered. May be repeated for credit.

180. Specialized Studies in Medieval Literature.

180X. Specialized Studies in Literature.
Studies in genres, themes, problems, relationships of literature with other disciplines.

181. Specialized Studies in Renaissance Literature.

182. Specialized Studies in Seventeenth-Century Literature.

183. Specialized Studies in Eighteenth-Century Literature.

184. Specialized Studies in Romantic Literature.

185. Specialized Studies in Victorian Literature.

186. Specialized Studies in Twentieth-Century British Literature.

187. Specialized Studies in Colonial American Literature.

188. Specialized Studies in Nineteenth-Century American Literature.

189. Specialized Studies in Twentieth-Century American Literature.

190. Literature and Society.
Prerequisites: courses 1, 2, 10A, 10B, 10C. A record of some aspect of the relationship between literature and social, economic or political history. May be repeated for credit.

199. Special Studies in English. (½ to 1 course)
Prerequisite: consent of the instructor required. An intensive directed research project. Enroll in the Department.

199H. Honors Tutorial.
A tutorial course for students enrolled in the Honors Program. Each student will be expected to prepare a long paper of a critical or research nature.
The Staff

Graduate Courses

200. Approaches to Literary Research.
The bibliographical tools of English and American literary scholarship; an introduction to descriptive bibliography, and basic methods of research.
Mr. Bates, Mr. Gallans, Mr. Wortham

201. Approaches to Literary Criticism.
The study of the various applications, approaches, and pre-suppositions of literary criticism as it relates to the interpretation and evaluation of texts.
Mr. Adams, Mr. Krieger

202. Enumerative and Descriptive Bibliography.
Problems in bibliography, texts, and editions, with practical application in compiling bibliographies, editing texts, and approaching literature through textual criticism.
Mr. Dearing

203. Computer and Literary Research.
Practice in writing and using computer programs for the analysis of literary style, content, and authorship. No previous knowledge in this area is necessary.
Mr. Dearing

M205. Perspectives in American Folklore Research.
(Same as Folklore and Mythology M205.) Prerequisite: Folklore 101 and one other upper-division folklore course. An examination of American folklore studies compared and contrasted with investigations in other countries, with emphases upon the principal conceptual schemes and research orientations employed in the study of folklore in American society.

210. History of the English Language.
A detailed study of the history, characteristics, and changing forms of the language from its origin until about 1900.
Mr. Condren, Ms. Shaklee

211. Old English.
Study of Old English grammar, lexicon, phonology, and pronunciation to enable the student to read the lit-

erature silently and aloud. Reading of as much of the more interesting Old English prose and poetry as can be read in a quarter.

Mr. Calder, Mr. Condren

212. Middle English.

Prerequisite: course 211. Detailed study of the linguistic aspects of Middle English and of representative examples of the better prose and poetry.

Ms. Ridley

213. Modern English.

Detailed study of the language's history and characteristics since 1500. Phonological, grammatical and lexicographical developments will be studied in relation to accompanying intellectual, political and social changes.

Ms. Shakelee

215. The Structure of Present-day English.

Prerequisite: course 122K or 122. Investigation in depth of the basic constructs and sub-systems of English structure as described by grammarians of various theoretical persuasions.

Ms. Celce-Murcia

216A-216B. Old Irish.

Prerequisite: consent of instructor. Studies in grammar. Readings in the glosses and other texts. Comparative considerations.

Mr. Ford

217A-217B. Medieval Welsh.

Prerequisite: consent of instructor. Studies in grammar. Readings in the Mabinogi and other texts. Comparative considerations.

Mr. Ford

218. Celtic Linguistics.

Prerequisite: consent of instructor. A survey of salient features of the Celtic linguistic stock in its Gaelic and British branches, with reference to the position of Celtic within Indo-European languages.

Mr. Ford

Graduate Readings

These courses stress wide reading in major works and their cultural background. Students with adequate undergraduate preparation in a period may proceed directly to a seminar.

220. Readings in Medievalism.

Mr. Kelly, Ms. Ridley

221. Readings in the Renaissance.

Mr. Dent, Mr. Phillips

222. Readings in the Earlier Seventeenth Century.

Mr. Guffey, Mr. Sellin

223. Readings in the Restoration and Eighteenth Century.

Mr. Dearing, Mr. Novak, Mr. Rousseau

224. Readings in Romanticism.

Mr. Burwick, Mr. Maniquis, Mr. Sheats

225. Readings in Victorianism.

Mr. Freeman, Mr. Tennyson, Mr. Welsh

226A. Readings in American Literature to 1828.

Mr. Lemay

226B. Readings in American Literature: 1828-1900.

Mr. Nevius

227. Readings in Twentieth Century American Literature: 1912 to the Present.

Mr. Durham, Mr. Lehan, Mr. Nevius

228. Readings in Twentieth Century British Literature.

Mr. Adams, Mr. Cross, Mr. Kessler

Graduate Seminars

Seminars are open to all graduate students with adequate preparations, and may be repeated for credit. Enrollment is by consent of the instructor, and continuing students must sign up for seminars before the end of the preceding quarter. A prospectus announcing topics for all seminars will be available in the department office by June 1 for the ensuing academic year.

240. Studies in the History of the English Language.

Individual seminars will deal with: any single historical period from the Old English period to the present; or the development of a particular linguistic characteristic, phonology, syntax, semantics, dialectology, through various periods.

Mr. Calder, Ms. Shaklee

241. Studies in the Structure of the English Language.

Prerequisite: consent of the instructor. Topics in various aspects of the structure of Modern English, especially syntax and semantics.

Mr. Stockwell

242. Language and Literature.

The application of linguistics to literary analysis. Individual seminars will deal with: an historical period, Medieval and Renaissance, Neo-classical, or Nineteenth century and modern; specific authors; or the contributions of specific groups of linguists to literary analysis.

Ms. Shaklee

M243A. The Ballad.

(Same as Folklore M243A.) Prerequisite: consent of the instructor. A study of the English and Scottish popular ballads and their American derivatives, with some attention to European analogues.

M243B. Problems in Ballad Scholarship.

(Same as Folklore M243B.) Prerequisites: course M243A or consent of the instructor. Intensive investigation of a problem or problems in the study of the popular ballad.

Mr. Wilgus

244. Old and Medieval English Literature.

Studies in the poetry and prose of Old and Medieval English Literature: limits of investigation to be set by the individual instructor.

Mr. Calder, Mr. Kelley, Ms. Ridley

245. Chaucer.

Mr. Condren, Ms. Ridley

246. Renaissance Literature.

Studies in the poetry and prose of Renaissance English Literature, exclusive of Shakespeare; limits of investigation to be set by the individual instructor.

Mr. Dent, Mr. Lanham, Mr. Phillips

247. Shakespeare.

Mr. Dent, Mr. Jorgensen, Mr. Phillips

248. Earlier Seventeenth-Century Literature.

Studies in the poetry and prose of seventeenth-century English Literature up to the Restoration; limits of investigation to be set by the individual instructor.

Mr. Guffey, Mr. Gallans, Mr. Sellin

249. Milton.

Studies in the poetry and prose of John Milton; particular emphases to be set by the individual instructor.

Mr. Grose

250. Restoration and Eighteenth-Century Literature.

Studies in English poetry and prose, 1660-1800; limits of investigation to be set by the individual instructor.

Mr. Novak, Mr. Roper, Mr. Rousseau

251. The Romantic Writers.

Mr. Burwick, Mr. Sheats, Mr. Thorslev

252. Victorian Literature.

Studies in English poetry and prose of the Victorian period; limits of investigation to be set by the individual instructor.

Mr. Freeman, Mr. Tennyson, Mr. Welsh

253. Contemporary British Literature.

Mr. Adams, Mr. Bedient, Mr. Kessler

254. American Literature to 1900.

Studies in colonial and nineteenth-century American Literature; limits of investigation to be set by the individual instructor.

Mr. LeMay, Mr. Nevius

255. Contemporary American Literature.

Studies in contemporary American poetry and prose; limits to be set by the individual instructor.

Mr. Durham, Mr. Lehan, Mr. Riddel

256. Studies in the Drama.

Studies in the drama as a genre from its beginnings to the present; limits of investigation to be set by the individual instructor.

Mr. Berst, Mr. Dent

257. Studies in Poetry.

Studies in various themes and forms of poetry from Old English to the present; limits of investigation to be set by the individual instructor.

Mr. Bedient, Mr. Kessler, Mr. Riddel

258. Studies in the Novel.

Studies in the evolution of the genre from its beginnings to the present; limits of investigation to be set by the individual instructor.

Mr. Lehan, Mr. Novak, Mr. Welsh

259. Studies in Criticism.

Mr. Adams, Mr. Krieger

Special Courses for the Master's Degree

270A-270B. The Teaching of College English.

Prerequisite: course 120. The courses will involve both discussion and practice of junior college instruction in reading and composition. They are offered on an "In Progress" basis which requires students to complete the full two quarter sequence, at the end of which time a grade is given for all quarters of work.

Ms. Peterson

271. Studies in African Literature in English.

Prerequisite: English 114 or consent of the instructor. Continuation of English 114. Special problems and trends of African literature in English.

Mr. Povey

272. Current Issues in the Teaching of English.

Prerequisite: course 120 or Linguistics 100. The course will focus each time on one of a variety of topics of special current interest.

Mr. Freeman

273. Studies in Afro-American Literature.

Intensive research and study of major themes, issues, and writers in Afro-American literature. Discussions and research on the esthetic, cultural, and social backgrounds of Afro-American writing.

274. Teaching English to Minority Groups.
Pre- or co-requisite: course 120 or Linguistics 100. The special cultural, social, psychological, and methodological considerations involved in the English instruction of minority groups in American schools and colleges.
Ms. Garcia

Professional Course in Method

300. The Teaching of English.

495. Supervised Teacher Preparation.
Prerequisite: Teaching assistant, involved in freshman composition program. Seminar for teaching assistants who are associated with the freshman composition program. Required for first quarter assistants. May be repeated for credit.

496. Directed Individual Study in Pedagogy. (½ course)
Prerequisite: must be teaching assistant working under member of the faculty. Supervised individual instruction in teaching, including monitoring of teaching assistant' pedagogical activities and regular consulation with assistant concerning all of his teaching responsibilities.

501. Cooperative Program. (½ to 2 courses)
Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman, and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

Individual Study and Research

596. Directed Individual Study.
May not be used to satisfy any course requirement for a degree. M.A. students may enroll by petition only; Ph.D. students restricted to one course (four units) before the First Qualifying Examination.
The Staff

597. Preparation for the Doctoral Examination.
Ph.D. Candidates restricted to one course (four units) before the Second Qualifying Examination.
The Staff

599. Dissertation Research. (1 or 2 courses)
Enrollment restricted to Ph.D. Candidates unable to enroll in seminars in their fields, or candidates concurrently enrolled in such seminars. (Exception to this rule must be requested by petition). To be graded S/U.
The Staff

ENGLISH AS A SECOND LANGUAGE

Undergraduate Courses

Courses 33A-33B-33C, 103J, 106J, and 109J are only for students whose first language was other than English. Courses 33A-33B-33C are not open to those who have received a satisfactory grade in English 1 at the University of California. Permission to enroll in these three courses is given on the basis of the Entrance Examination in English as a Second Language which students whose mother tongue is not English must take instead of the Subject A examination (see Subject A in this bulletin). Depending on the result of this examination, entering students are: (1) exempted from any special English requirement; (2) required to take course 33C; (3) required to take course 33B followed by course 33C; (4) required to take course 33A followed by courses 33B and 33C; or (5) required to spend a quarter studying elementary English exclusively.

Certificate in the Teaching of English as a Second Language (or Dialect)

To qualify for this certificate students must meet the following requirements: (1) All students, those educated in the United States, as well as those educated in other countries, must have an educational background sufficient to qualify them as teachers in their home state or country. They will normally be admitted to the University as graduate students. With the approval of the Dean of the Graduate Division and the Vice Chairman of the Department of English, graduate admission may be granted to students solely for the purpose of pursuing the courses leading to this certificate, provided they meet general graduate admission requirements. Students who do not meet these requirements may, upon recommendation of the Vice Chairman of the Department of English, be admitted to limited status to pursue the course of study leading to the certificate. (2) Courses normally taken in the fall quarter are English 370K, Linguistics 100 and an elective (appropriate courses in education, folklore, speech, and the structure of the student's mother tongue are especially recommended). Depending on the results of the Entrance Examination in English as a Second Language, nonnative speakers of English may be required to take English 33C in lieu of this elective. Courses normally completed in the winter quarter are English 250K, English 122K, and an elective (English 109K, 261K, 270K, or an appropriate course in English or American literature are recommended). Courses for the spring quarter are English 380K, English 103K (native and some nonnative speakers will be allowed to substitute Linguistics 103 or Linguistics 200A for this), and English 106K. By passing a proficiency examination in English composition, students may be exempted from course 106K, in which case they may choose any program-connected elective approved by their adviser (English 109K, 114, and 272, are recommended).

Special Language Requirement for Native Speakers of English

Students whose mother tongue is English will not be held for the first two electives. Instead they must fulfill a special requirement designed to help them acquire or perfect a knowledge of the native language or dialect of the pupils to whom they expect to teach English. This can be done by taking any one of five combinations of two courses: (1) two foreign-language courses; (2) one foreign-language course plus the corresponding course in the Linguistics 220 or 225 series; (3) one foreign-language course plus English 274; (4) English 123 plus English 274; (5) English 111K plus an unrestricted elective. Those particularly interested in working with Mexican-American, Oriental American, or American Indian pupils will normally choose the third of these alternatives; those interested in Afro-Americans will choose the fourth. In case there is doubt as to which foreign language will be most appropriate, a non-European language should be selected.

Students are urged to fulfill the language requirement by courses taken after admission to the Certificate Program. Exemption from the courses may be granted, however, to those who can demonstrate a strong need to take other electives and who have an unusually extensive background of previous foreign-language study. Information regarding the circumstances under which a petition for exemption may be approved can be obtained from the TESL Counselor.

Requirements for the Master's Degree

To be admitted to the M.A. program, students must have completed the requirements for the Certificate in the Teaching of English as a Second Language with a least a 3.25 grade-point average. Provisional admission can be obtained by a petition presented upon completion of six of the nine Certificate courses. If a student has completed the Certificate requirements while in limited status and has maintained a grade-point average of 3.25, he may, upon recommendation of the Vice Chairman of the Department of English, be simultaneously given graduate status, admitted to candidacy for the master's degree, and allowed graduate credit for the Certificate courses which are to be counted toward the M.A.: Linguistics 100, English 103K or Linguistics 103, English 122K, and English 250K. Limitations of staff and facilities make it necessary to restrict the number of applicants admitted each year to around 24. In the event that there are more than that number of eligible applicants in a given year, those with the highest grade-point average, the most promising informal statement of research intentions, and the best recommendations from professors with whom they have taken TESL Seminars will be selected. Thus no definite assurance can be given to students, at the time they are originally admitted to the Certificate Program, that they will be able to go on to complete the M.A. in TESL at UCLA. Plan I as established by the Graduate Division (see the Graduate Division), the thesis plan, will be followed for the M.A. in Teaching English as a Second Language. Nine upper division and graduate-level courses, of which at least five must be in the 200 and 500 series, and a thesis are required. These include the four Certificate courses mentioned above, English 215, English 400, 598K, and three electives. English 598K should be taken as soon as possible. The electives will be selected as a sequence of three courses related among themselves and relevant to the thesis topic. Among the recommended fields for subspecialization are: teaching English to minority groups, language policy, the teaching of literature (for students with an English major only), the structure of the English language, the linguistics of a particular geographical area, phonetics, dialectology, psycholinguistics and language learning, and sociolinguistics. There are no special language requirements for the M.A. other than those included among the Certificate requirements.

Except under the most extraordinary circumstances candidates will be expected to fulfill all the M.A. requirements, including the filing of the completed thesis, within three years of the beginning of the quarter in which, having completed the Certificate in TESL, they first enroll in courses required for the M.A.

Lower Division Courses

33A. Intermediate English as a Second Language. (2 courses)
Meets ten hours weekly. Intensive drill in pronunciation, structural patterns, vocabulary, conversation, and composition.
The Staff

33B. Intermediate English as a Second Language.
Meets five hours weekly. Continuation of 33A.
The Staff

33C. Intermediate English as a Second Language.
Meets five hours weekly. Continuation of 33B with emphasis on composition.
The Staff

Upper Division Courses

103J. Phonetics for Foreign Students.
Prerequisite: course 33C or the equivalent. 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 student's own accent. Language laboratory.
The Staff

103K. Phonetics for Teachers of English as a Second Language.
Prerequisite: consent of the instructor. Analysis of the phonological structure of contemporary English, with attention to the differences between British and American speech. Laboratory drill directed toward individual needs.
Ms. Celce-Murcia, Mr. Prator

106J. Advanced Composition for Foreign Students.
Prerequisite: course 33C or the equivalent. Exercises in writing based on readings dealing with American life and thought, with the aim of developing control of idiomatic expression.
Mr. Povey

106K. Advanced Composition for Teachers of English as a Second Language.
Prerequisite: consent of the instructor. Elements of English grammar as related to classroom instruction. Compositions based on the contrastive analysis of American and other cultures.
Mr. Povey

109J. Introduction to Literature (for Foreign Students).
Prerequisite: course 33C or the equivalent. Selections from English and American literature presented so as to make full allowance for the students' linguistic and cultural problems and to contribute to an increasing mastery of the English language.
Mr. Povey

109K. The Teaching of Literature in a Second-Language Situation.
Prerequisite: consent of the instructor. Special problems involved in teaching English literature to students whose mother tongue is a language other than English. Choice and preparation of teaching materials. Relationship of advanced reading and composition to literature.
Mr. Povey

111K. Background Language for Teachers of English as a Second Language.
Prerequisite: consent of the instructor. Fulfills the foreign-language requirement for the Certificate in the Teaching of English as a Second Language. Beginning course in a non-Indo-European language taught as a demonstration of recommended pedagogical techniques and designed to acquaint prospective language teachers with a wide variety of linguistic structures.
The Staff

122K. Introduction to the Structure of Present-Day English (for Teachers of English as a Second Language).
Prerequisites: course 120 or Linguistics 100 and consnet of the instructor. Introductory study of the phonological and grammatical structure of English leading to familiarization with the terminology and assumptions of traditional, structural, and transformational grammar.
Ms. Celce-Murcia

Graduate Courses

210K. Bilingual Education in Teaching English as a Second Language.
Prerequisites: Linguistics 100, course 370K or consent of professor. Research and study of major problems and issues in designing and evaluating bilingual, bi-cultural programs in the United States and abroad.
Mr. Cohen

250K. Contrastive Analysis of English and Other Languages. Seminar.
Prerequisites: Linguistics 100, course 370K. Theory and techniques of contrasting the phonological, grammatical, and lexical structures of English with those of other languages.
Mr. Bowen, Ms. Celce-Murcia, Ms. Hatch

251K. Bilingual Comparative Studies. Seminar.
Prerequisite: courses 215 and 250K. The relationship of two languages in an incipient bilingual speaker. Further study of the techniques of contrastive analysis as a means of predicting interference between linguistic systems with application to original research projects.
Mr. Bowen

260K. Psycholinguistics and Language Teaching. Seminar.
Prerequisite: courses 370K and 103K and Linguistics 100, or consent of the instructor. An exploration of those areas of psycholinguistics covering foreign language acquisition; types and theories of bilingualism; learning theories underlying the current methods of teaching foreign languages; basic experimental designs to test existing assumptions about learning and teaching foreign languages.
Ms. Hatch

261K. Language Testing for Teachers of English as a Second Language.
Prerequisites: Linguistics 100, course 370K. Theory of testing language competence and performance. Elementary statistical concepts. Functions of a testing program. Construction of various tests.
Mr. Rand

270K. Language Policy in Developing Countries. Seminar.
Prerequisite: consent of the instructor. Use of and need for English in countries such as Nigeria and the Philippines; factors affecting language policy in their school systems; applicability of research techniques of socio- and psycholinguistics to problems of language policy.
Mr. Prator

Professional Courses

370K. The Teaching of English as a Second Language.
Meets six hours weekly. Prerequisite: consent of the instructor. Bibliography, survey, and evaluation of methods and materials. The nature of language learning. Analysis of the differences between two languages as a basis of instruction.
Mr. Campbell, Mr. Prator, Mr. Schumann

375K. The Teaching of Standard English as a Second Dialect.
Prerequisite: consent of the instructor. Survey and evaluation of methods and bibliography of materials appropriate to subject. The nature of language learning, contrastive analysis, and dialect distribution and comparison.

380K. Supervised Teaching: English as a Second Language or Dialect.
Prerequisite: course 370K. Team teaching at the elementary, secondary, or adult level under the supervision of a senior staff member. Graded on a S/U basis for graduate students, and a Passed/Not Passed basis for undergraduate students.
Ms. Celce-Murcia, Ms. Hatch

400K. TESL Colloquium.
Prerequisite: consent of M.A. advisor. Candidates for the M.A. in Teaching English as a Second Language present and defend the results of their thesis research. Enrollment in course in spring quarter required of all candidates but does not count for credit toward degree. Graded Satisfactory/Unsatisfactory.
Mr. Prator, Mr. Rand

495KA-495KB. Training and Supervision of Teaching Assistants.
Prerequisite: concurrent appointment as a teaching assistant or Extension-Division instructor. Orientation, preparation, and supervision of graduate students who have the responsibility for teaching ESL courses at UCLA. Syllabus revision and materials preparation. Two or more hours per week for fall and winter quarters. Credit for a total of four units for the two quarters is given but does not count toward M.A. or Certificate in TESL. Graded Satisfactory/Unsatisfactory.
Mrs. Celce-Murcia

Individual Study and Research

596K. Directed Individual Study.
Prerequisite: graduate standing. Credit (one course) allowed only once. Independent study in an area related to English as a Second Language.
The Staff

598K. Research and Thesis Preparation for Candidates for M.A. in Teaching English as a Second Language. (1 to 2 courses)
Prerequisite: admission to M.A. program. Survey of research needs and thesis preparation. In fall includes optional section on experimental design and statistical methods. Credit (four units) toward degree allowed only once, but all M.A. candidates must enroll in the course each quarter they are registered and engaged in thesis preparation. Graded Satisfactory/Unsatisfactory.
Mr. Prator, Mr. Rand

■ ENVIRONMENTAL SCIENCE AND ENGINEERING (INTERDEPARTMENTAL)

(Office: 3677 Geology Building)

Undergraduate Study

Although no undergraduate major is offered encompassing the broad area of environmental science and engineering, studies which readily lead to advanced work or employment in these fields can be arranged along several routes. Students with majors in the natural sciences, public health, or engineering, and who have environmental problem-solving as a professional goal, may wish to supplement their course programs in consultation with the faculty of the Environmental Science and Engineering program. In preparation for graduate study, attention should be given to requirements for the doctoral degree in Environmental Science and Engineering.

Master's Program

Preparation for environmental science and engineering at the Master's level is provided through Master of Arts, Master of Science and Master of Public Health degree programs conducted by the participating academic departments. These departments include Biology, Chemistry, Geology, Geophysics and Space Physics, and Meterology within the College of

Letters and Science; the School of Public Health; and Energy and Kinetics, Engineering Systems, and Mechanics and Structures within the School of Engineering and Applied Science.

Master's students anticipating eventual progress toward a doctoral degree should plan their programs carefully in advance. Faculty members from the student's own participating department who are actively involved in the interdepartmental program should be consulted, and preferably should form the nucleus of the student's committee. It is recommended that the student's program be tentatively laid out to include course preparation through doctoral study. This will insure both adequate preparation and a smooth transition to more advanced studies.

The Doctor of Environmental Science and Engineering Program

The program of study for the D.Env. is supervised by the Interdepartmental Committee for Environmental Science and Engineering. Broadly stated, this program has as its objective the preparation at the highest level of competence of professionals who will evaluate, devise and implement solutions for complex, multidisciplinary environmental problems. As contrasted with environment-related research scientists, these individuals will be problem-solvers.

Formal entry to the D.Env. program is at the Master's level. The requirement that the entering student first obtain a Master's degree in a field within the natural sciences, public health or engineering is intended to insure that minimum competence within an established discipline is maintained at an appropriately high level. Approximately one year of course preparation beyond the Master's degree can be expected in order to provide the breadth and disciplinary depth required to solve major environmental problems. The student is guided in his preparation by his faculty committee. A further year of study will be required to complete the multidisciplinary, team-study Problems Course requirements. During this period satisfactory progress must be made in passing cumulative examinations.

An oral qualifying examination precedes the 1½ to 2-year internship. Internships are arranged with appropriately qualified institutions which deal with major environmental problems. Thus these institutions can provide D.Env. candidates with exposure to the kind and range of experiences needed to cement their professional abilities. During his internship the student is guided on a day-by-day basis by appropriate individuals within the host institution. His performance is also under continuous review by the Chairman of his faculty committee.

A final quarter in residence is required to complete requirements for award of the degree. During this period written and oral reports are prepared and submitted, and a final oral examination is completed.

Graduate Courses

400A. Environmental Science and Engineering Problems Course. (2 courses)

Prerequisite: consent of instructor and program chairman; primarily intended for students enrolled in the Environmental Science and Engineering doctoral program. Multidisciplinary technical and socio-economic analysis and prognosis of significant current environmental problems.

400B. Environmental Science and Engineering Problems Course. (2 courses)

Prerequisite: satisfactory completion of 400A, consent of instructor and program chairman. Continuation of 400A. Multidisciplinary technical and socio-economic analysis and prognosis of significant current environmental problems.

400C. Environmental Science and Engineering Problems Course. (2 courses)

Prerequisite: satisfactory completion of 400B; consent of instructor and program chairman. Continuation of 400B. Multidisciplinary technical and socio-economic analysis and prognosis of significant current environmental problems.

400D. Environmental Science and Engineering Problems Course. (2 courses)

Prerequisite: satisfactory completion of 400C and of an internship approved by the Environmental Science and Engineering Interdepartmental Committee. Multidisciplinary technical and socio-economic analysis and prognosis of significant current environmental problems.

410. Environmental Science and Engineering Workshop. (½ course)

Prerequisite: consent of instructor; primarily intended for students enrolled in the Environmental Science and Engineering doctoral program. Development of analytical or experimental skills essential to the solution of environmental problems studied within courses 400A, 400B, 400C and 400D.

501. Cooperative Program. (½ to 2 courses)

Prerequisite: approval of UCLA Graduate Advisor, Program Chairman, and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Individual or Tutorial Studies. (½ to 2 courses)

Prerequisite: consent of instructor and the Chairman, Environmental Science and Engineering Interdepartmental Committee. Supervised investigation of advanced environmental problems. To be graded on Satisfactory/Unsatisfactory basis.

■ ETHNIC ARTS (INTERDEPARTMENTAL)

Committee in Charge. Philip Newman, Anthropology; Arnold Rubin, Art; Alma Hawkins, Dance; Elsie Dunin, Dance; Judy Susilo, Dance; D. K. Wilgus, Folklore and Mythology; Robert Georges, Folklore and Mythology; Frank D'Accone, Music; William Hutchinson, Music; Max Harrell, Music; David Morton, Music; Mel Helstien, Theater Arts; John Young, Theater Arts; Allegra Fuller Snyder, Dance, (Coordinator).

The major provides a program of interdisciplinary studies designed to facilitate the cultural and cross-cultural investigation of man's artistic expression. The flexibility of the program allows the student to focus on a particular medium of expressive behavior after having been exposed to general problems and perspectives in the study of art forms of peoples throughout the world.

The major includes: a core of seven courses from Anthropology, Art, Dance, Folklore and Mythology, Music, and Theater Arts; a concentration consisting of nine courses in one of the disciplines; a senior colloquium; and five electives courses.

Foreign Language Requirement: At least three quarters in one foreign language are required of all students. All courses in foreign language, except foreign literature in English translation, may be applied to this requirement.

Without reducing the total number of units required for the bachelor's degree, high school foreign language work with grades of "C" or better and not duplicated by college work will count as follows: the first two years together equal two college courses, and the third and fourth years each equal one college course.

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.

Students who plan to take the "concentration" in music are advised to select French, German, or Italian.

Breadth Requirements: The student will satisfy the breadth requirements (other than foreign language) of his college (Fine Arts or Letters and Science) regardless of the department in which his concentration is located.

Requirements for the Bachelor of Arts Degree

1. A core of seven interdepartmental courses: Dance 46A-46B-46C, Folklore 101, Music 5A-5B-5C, Theater Arts 102E, Anthropology 5A, and one course from Art 114A-114B-114C, 118A-118B-118C.

2. A concentration of nine courses in one of the following areas: (The student will declare a "concentration" by the beginning of the Junior year.)

Anthropology 5C, 143, 144, 150, and any five upper division anthropology courses from group one through eight and including one area course from group one.

Art one course from 50, 51, 52, 53, 54; eight courses from 103A-103B-103C, 114A-114B-114C, 115A-115B-115C, 118A-118B-118C, 119A-119B-119C.

Dance 38B, 47A-47B-47C, 70A, 151A-151B; two courses from 140A-140B-140C; one course from 142, 143, 144, 145, 146; and three courses from 171A-171P.

Folklore and Mythology 190; one course from M106, M154A, M181; seven courses from M111, M121, M122, M123A-M123B, 124, M125, M126, M128, M129, 130, M149, M150; Classics 161; Indo-European 140.

Music 17A-17B-17C, 26A-26B-26C, 140A-140B-140C.

Theater Arts five courses from 140A-140B, 141A-141B, 142A-142B, 160A, 170; four courses from 5A, 5B, 102A, 103A-103B, 106C, 110, 117, Classics 142; English 103, 167; German 144, 145; Humanties 103, 111; Spanish 145.

3. Five courses selected from the following list (electives must include at least one upper division course in each of two areas other than the discipline of major concentration): The list of courses applicable to the major electives is in the process of revision. Students should consult the departmental adviser about courses. Anthropology 5C, 143, 144, 150; Art 101A-101B-101C, 103A-103B-103C, 104B-104C-

104D, 114A, 115A, 114B, 115B, 114C, 115C, 118A, 118B, 118C, 119A-119B-119C; Dance 35, 38A-38B, 47A-47B-47C, 71A-71P, 111A-111B, 140A-140B-140C, 142, 143, 144, 145, 146, 150A-150B-150C, 151A, 151B, 158A-158B, 159, 171A-171P; Kinesiology 145; Folklore and Mythology M105, M106, M111, 118, M121, M122, M123A, M123B, 124, M125, M126, M128, M129, 130, *Courses marked with an asterisk require knowledge of the language in which the folklore data is found.*M149, *M150, M154-154B, M180, M181, M183, 199; *German 134; Indo-European 140; *Spanish 151; Classics 161; Music Literature 130, 131A-131B, 132A-132B, 135A-135B-135C, 136, 137, 138, 139, 140A-140B-140C, 182, 184, 186; Ethnic and Folk Music 142, 143A-143B, M144, 147, M154A-154B, 157, M180, M181, M183; Theater Arts 5A, 5B, 102A, 103A-103B, 106C, 110, 117, 118A, 119, 120A-120B, 122, 140A-140B, 141A-141B, 142A-142B, 143A-143B, 144A-144B, 146B, 149A, 160A, 190A.

4. Senior Colloquium.

Lower and Upper Division Courses

The list of courses applicable to the major is in the process of revision. Students should consult departmental advisor about requirements.

Ethnic Arts 190. Senior Colloquium. Prerequisite: senior standing, Ethnic Arts major. Studies of a comparative and integrative nature in the ethnic arts.

Anthropology 5A, 5C. Introduction to Cultural Anthropology.
143. The Individual in Culture.
144. Aesthetic Anthropology.
150. Social Anthropology.

Art 50. Ancient art.
51. Medieval Art.
52. Renaissance Art.
53. Baroque Art.
54. Modern Art.
101A-101B-101C. Egyptian Art and Archaeology.
103A. Greek Art.
103B. Hellenistic Art.
103C. Roman Art.
104B-104C-104D. Architecture and the Minor Arts of Islam in the Middle Ages.
114A. The Early Art of India.
114B. Chinese Art.
114C. Japanese Art.
115A. Advanced Indian Art.
115B. Advanced Chinese Art.
115C. Advanced Japanese Art.
118A. The Arts of Oceania.
118B. The Arts of Pre-Columbian America.
118C. The Arts of Sub-Saharan Africa.
119A. Advanced Studies in African Art: The Western Sudan.
119B. Advanced Studies in African Art: The Guinea Coast.
119C. Advanced Studies in African Art: The Congo.

Classics 161. Introduction to Classical Mythology.

Dance 35. Music Analysis for Dance.
38A-38B. Dance Notation.
46A-46B-46C. Fundamentals of Movement.
47A-47B-47C. Dance Forms.
70A. Introduction to Performance in Ethnic Dance.
71A-71P. Performance Courses in Ethnic Dance: A-Bali; B-Africa; E-India; F-Israel; G-Japan; H-Java; J-Mexico; L-Scotland; M-Spain; P-Yugoslavia; Q-Korea.
111A-111B. Analysis of Human movement.
140A-140B-140C. Dance Cultures of the World.
142. Dance in the Balkans.
143. Dance in India.
144. Dance in Indonesia.
145. Dance in Japan.
146. Dance in Latin America.
150A-150B-150C. Advanced Dance
151A. History of Dance Primitive to Renaissance.
151B. History of Dance Baroque to 20th Century.
158A-158B. Philosophical Bases and Trends in Dance.
159. Advanced Dance Notation.
171A-171P. Performance Courses in Ethnic Dance: A-Bali; B-Ghana; E-India; F-Israel; G-Japan; H-Java; J-Mexico; L-Scotland; M-Spain; P-Yugoslavia.

Folklore and Mythology 101. Introduction to Folklore.
M106. Anglo-American Folksong. (English M111B.)
M111. Literature of Myth and Oral Tradition. (English M111A.)
M121. British Folklore and Mythology. (English M111C.)
M122. Celtic Folklore and Mythology. (English M111D.)
M123A. Introduction to Finnish Folklore and Mythology. (Scandinavian Languages M123A.)
M123B. Finnish Folksong and Ballad. (Scandinavian Languages M123B.)
124. Finnish Folk Art and Technology.
M125. Folklore and Mythology of the Lapps. (Scandinavian Languages M125.)
M126. Baltic and Slavic Folklore and Mythology. (Slavic Languages M179.)
M128. Introduction to Hungarian Folklore and Mythology. (Hungarian M135.)
M129. Folklore and Mythology of the Ugric Peoples. (Hungarian M136.)
130. North American Indian Folklore and Mythology Studies.
M149. Folk Literature of the Hispanic World. (Spanish M149.)
M150. Russian Folk Literature. (Russian M150.)
M154A-154B. The Afro-American Musical Heritage. (Music 154A-154B.)
M180. Transcription, Analysis, and Classification of Folk Music. (Music M180.)
M181. Folk Music of Central and Western Europe. (Music M181.)
M183. Ethnography of Blues. (Music M183.)
190. Selected topics in Folklore and Mythology Studies.
199. Special Studies in Folklore.

German 134. German Folklore.

Indo-European 140. Introduction to Indo-European Mythology.

Music 5A-5B-5C. Fundamentals of Sound and Music of the World.
17A-17B-17C. Theory of Music.
26A-26B-26C. History and Literature of Music I.
130. Music of the United States.
131A-131B. Music of Hispanic America.
132A-132B. Development of Jazz.
135A-135B-135C. History of Opera.
136. Music of Legitimate Drama and Dramatic Motion Pictures.
137. Political Influence on Music.
138. Aesthetics of Music.
139. History and Literature of Church Music.
140A-140B-140C. Musical Cultures of the World.
142A-142B. Music of the Balkans.
143A-143B. Music of Africa.
M144. American Folk and Popular Music.
147. Music of China.
M154A-154B. The Afro-American Musical Heritage.
157. Music of Brazil.
M180. Transcription, Analysis, and Classification of Folk Music.
M181. Folk Music of Central and Western Europe.
182. Sociology of Music.
M183. Ethnography of Blues.
184. Music in Culture and Education.
186. Music and Social Psychology.

Spanish 151. Folk Song in Spain and Spanish America.

Theater Arts 5A. History of the Theater from Primitive Times to 1640.
5B. History of the Theater from 1640 to 1900.
102A. History of European Theater.
102E. Theater of the Non-European World.
103A-103B. Black Peoples Theater in America.
106C. History of African, Asian and Latin American Film.
110. History of Television and Radio.
117. The Puppet Theater.
118A. Creative Dramatics.
119. Theater for the Child Audience.
120. Intermediate Acting for the Stage.
122. Makeup for the Stage.
140A. Scenic Techniques for the Stage.
140B. Advanced Scenery for the Stage.
141A. Lighting Techniques for the Stage.
141B. Advanced Lighting for the Stage.
142A. Theater Costuming Techniques.
142B. Advanced Costuming for the Stage.
143A. Scenic Design for the Theater.
143B. Advanced Scenic Design for the Theater.
144A. Theater Sound Techniques.
144B. Advanced Theater Sound.
146B. Scene Painting Techniques.
149A. Basic Drafting Techniques for the Stage.
160A. Fundamentals of Play Direction.
170. Theater Laboratory.
190A. The Role of Management in Theater.

■ FOLKLORE AND MYTHOLOGY (INTERDEPARTMENTAL)

(Department Office, 1041 Graduate School of Management)

Marija Gimbutas, Ph.D., *Professor of European Archaeology.*
Vladimir Markov, Ph.D., *Professor of Slavic Languages.*
Jaan Puhvel, Ph.D., *Professor of Classics and Indo-European Studies.*

Stanley L. Robe, Ph.D., *Professor of Spanish.*
Julio Rodriguez-Puertolas, Ph.D., *Professor of Spanish.*
Charles Speroni, Ph.D., *Professor of Italian.*
Robert M. Stevenson, Ph.D., *Professor of Music.*
Donald J. Ward, Ph.D., *Professor of German and Folklore.*
D. K. Wilgus, Ph.D., *Professor of English and Anglo-American Folksong (Chairman, Folklore and Mythology Committee).*
Johannes Wilbert, Ph.D., *Professor of Anthropology.*
Wayland D. Hand, Ph.D., *Emeritus Professor of German and Folklore.*
Walter F. Starkie, *Professor of Spanish and Folklore in Residence, Retired.*
Shirley L. Arora, Ph.D., *Associate Professor of Spanish.*
Margherita Cottino-Jones, Ph.D., *Associate Professor of Italian.*
Patrick K. Ford, Ph.D., *Associate Professor of English.*
Robert A. Georges, Ph.D., *Associate Professor of English and Folklore.*
Michael Owen Jones, Ph.D., *Associate Professor of History and Folklore.*
David Morton, Ph.D., *Associate Professor of Music.*
James Porter, M.A., *Associate Professor of Music and Folklore.*
Joseph J. Arpad, Ph.D., *Assistant Professor of English.*
Rodney N. Vlasak, B.A., *Assistant Professor of Music.*
William G. Carter, M.A., *Acting Assistant Professor of Music.*

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Marianna D. Birnbaum, Ph.D., *Lecturer in Hungarian.*
Inkeri Rank, M.A., M.Ed., *Lecturer in Finnish Studies.*

♦

Alexander Badawy, Ph.D., *Professor of Art.*
Henrik Birnbaum, Ph.D., *Professor of Slavic Languages.*
Kees W. Bolle, Ph.D., *Professor of History.*
Kenneth G. Chapman, Ph.D., *Professor of Scandinavian Languages.*
Jerome Cushman, B.S.L.S., *Senior Lecturer in English and Library and Information Science.*
Elsie Dunin, M.A., *Associate Professor of Dance.*
Robert B. Edgerton, Ph.D., *Professor of Anthropology and Psychiatry.*
David G. Epstein, Ph.D., *Assistant Professor of Anthropology.*
Alma Hawkins, Ph.D., *Emeritus Professor of Dance.*
Charlotte Heth, Ph.D., *Acting Assistant Professor of Music.*
Melvyn Helstien, Ph.D., *Professor of Theater Arts.*
Boris A. Kremenliev, Ph.D., *Professor of Music.*
Hilda Kuper, Ph.D., *Professor of Anthropology.*
Leo. J. Kuper, Ph.D., *Professor of Sociology.*
Steven Lattimore, Ph.D., *Associate Professor of Classics and Classical Archaeology.*
Wolf Leslau, Docteur-es-Lettres, *Emeritus Professor of Hebrew and Semitic Linguistics.*
James R. Massengale, Ph.D., *Assistant Professor of Scandinavian Languages.*
Michael Moerman, Ph.D., *Professor of Anthropology.*
Philip Newman, Ph.D., *Associate Professor of Anthropology.*
Wendell H. Oswalt, Ph.D., *Professor of Anthropology.*
Pier-Maria Pasinetti, Ph.D., *Professor of Italian and Comparative Literature.*
Douglas Price-Williams, Ph.D., *Professor of Anthropology and Psychiatry in Residence.*
Florence H. Ridley, Ph.D., *Professor of English.*
Arnold Rubin, Ph.D., *Associate Professor of Art.*
Georges Sabagh, Ph.D., *Professor of Sociology.*
Allegra Snyder, M.A., *Associate Professor of Dance.*
Eli Sobel, Ph.D., *Professor of German.*
Paul O. W. Tanner, M.A., *Lecturer in Music.*
Erik Wahlgren, Ph.D., *Professor of Scandinavian and Germanic Languages.*
Dean S. Worth, Ph.D., *Professor of Slavic Languages.*

Although no undergraduate degree program is offered in folklore and mythology, those majoring in the Ethnic Arts Interdisciplinary Studies program may select folklore and mythology as their area of concentration. A variety of undergraduate courses, offered by departments or by faculty participating in the interdepartmental program is also available to all university students. Those with undergraduate preparation in folklore and mythology studies may continue their work on the graduate level. For planning course work, students should consult departmental advisers and the Chairman of the Committee which administers the interdepartmental program.

M.A. in Folklore and Mythology

The program leading to the degree of Master of Arts in Folklore and Mythology is administered by the interdepartmental Committee on Folklore and Mythology. It is open to students desiring a knowledge of the materials of folklore and mythology and the theoretical bases and techniques of research. Students completing the degree may continue folklore study in conjunction with a program leading to a degree in an allied field.

Admission to the Program. In addition to meeting the requirements of the Graduate Division, the student should have (1) an A. B. Degree, preferably in a field of the humanities or social sciences, and (2) Folklore 101, Introduction to Folklore (or equivalent), and (3) another upper-division course in folklore. (These course requirements may be completed during the first quarter in residence at UCLA, following admission to the program.) Upon admission to graduate status, the student should consult with the Chairman of the Committee which administers the interdepartmental program.

Requirements for the Master's Degree

General Requirements. As throughout the Graduate Division; see Minimum Requirements.

Language Requirement. A reading knowledge of French or German. The ETS examination must be taken in or before the third quarter in residence and must be successfully completed by the end of the fourth quarter in residence.

Program. All candidates, whether electing the Thesis Plan or the Comprehensive Examination Plan, must complete the following: Folklore 200, 201A-201B, 216; and at least one course chosen from each of the following groups:

Group 1. Folklore M106, M123B, M154A-154B, M181; M183; Music 140A-140B-140C, 142A-142B, 143A-143B, 147, 153A-153B-153C, German 240B.

Group 2. Folklore 120, M121, M122, M123A, M125, M126, M128, M129, 130, M149, M150, 221, M230A-230B, M241, M249, M257; African Languages 150A-150B; German 134, 240A; Scandinavian 141.

Group 3. Anthropology 141, 266; Classics 161; German M245A (or Scandinavian M245); History 124D; Indo-European Studies 140; Indo-European Studies 260A-260B.

Group 4. Folklore 213, 217, M243A, M243B, 251, M258, 259, M286A-286B-286C; German 262; English 220, Music 255, 280; Spanish 262B.

Thesis Plan. The candidate must complete a mininimum of nine courses (five in the 200 series) and submit an acceptable thesis, prepared under the direction of a member of the Folklore and Mythology program. Submission of the thesis will be followed by an oral examination covering the fields of folklore and mythology studies.

Comprehensive Examination Plan. The candidate must complete a minimum of nine courses (five in the 200 series). After completion of the course work, the candidate will be expected to demonstrate competence in written examinations requiring a grasp of theoretical bases, major documents, and research methods and techniques of folklore and mythology studies; two forms of folklore and mythology; and the folklore and mythology of a specific country, continent, or geographical area. A final oral comprehensive examination will cover the fields of folklore and mythology studies.

Financial aid and research opportunities are available to qualified graduate students in the form of fellowships, research assistantships, teaching assistantships, and collecting stipendia. For further information, students should consult the Director of the Center for the Study of Comparative Folklore and Mythology.

Lower Division Course

15. Introduction to American Folklore Studies.

Lecture and discussion. A cultural-historical survey of the role of folklore in the development of American civ-

ilization and of the influence of the American experience in shaping folklore in American society; attention will also be given to representative areas of inquiry and analytical procedures.

Mr. Jones

Upper Division Courses

101. Introduction to Folklore.
Prerequisite: junior standing. A survey of the various forms of folklore and an examination of their historical and social significance.

The Staff

M106. Anglo-American Folk Song.
(Same as English M111B.) Prerequisite: junior standing. A survey of Anglo-American balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values.

Mr. Wilgus

M111. The Literature of Myth and Oral Tradition.
(Same as English M111A.) A study of myth, dramatic origins, oral epic, folktale, and ballad, including Indo-European and Semitic examples.

Mr. Arpad, Mr. Wilgus

M112. Survey of Medieval Celtic Literature.
(Same as English M111E.) A general course dealing with Celtic literature from the earliest times to the fourteenth century. No knowledge of Irish or Welsh is required.

Mr. Ford

118. Folk Art and Technology.
Prerequisite: junior standing. A general course concerned with the material manifestations of folk culture and the theoretical concepts and methodologies utilized in their analysis.

Mr. Jones

***120. Historical Survey of the Gypsies.**
Prerequisite: junior standing. Study of the history, ethnic origins, and linguistics of the Gypsies.

M121. British Folklore and Mythology.
(Same as English M111C.) Prerequisite: junior standing. A survey of the folklore of the people of Britain, with attention to their history, function, and regional differences.

Mr. Georges, Mr. Porter

M122. Celtic Folklore and Mythology.
(Same as English M111D.) A general course for the student in folklore, with emphasis on the types of folklore research currently practiced in Eire and the mythic traditions of the Irish and Welsh.

Mr. Ford

M123A. Finnish Folklore and Mythology.
(Same as Scandinavian Languages M123A.) The methods and results of Finnish folklore studies and the mythic traditions of the Finns. Special attention is paid to the oral epic, beliefs and legends.

Ms. Rank

M123B. Finnish Folksong and Ballad.
(Same as Scandinavian Languages M123B.) Course M123A is not prerequisite to M123B. A survey of Finnish balladry and folksong, with attention to historical development, ethnic background, and poetic and musical values.

Ms. Rank

124. Finnish Folk Art and Technology.
Material manifestations of Finnish folk culture: village layout and architecture, folk technology, arts, and crafts, textiles, costumes and design.

Ms. Rank

M125. Folklore and Mythology of the Lappe.
(Same as Scandinavian Languages M125.) Survey of Lappish beliefs, customs, and various genres of oral tradition including tales, legends, songs and music. Attention is also paid to the material manifestations of Lappish culture: arts and crafts, textiles, costume, folk technology.

Ms. Rank

M126. Baltic and Slavic Folklore and Mythology.
(Same as Slavic Languages M179.) A general course for students interested in folklore and mythology and for those interested in Indo-European mythic antiquities.

Ms. Gimbutas

M128. Hungarian Folklore and Mythology.
(Same as Hungarian M135.) A general course for the student in folklore and mythology, with emphasis on types of folklore and varieties of folklore research.

Ms. Birnbaum

M129. Folklore and Mythology of the Ugric Peoples.
(Same as Hungarian M136.) Survey of the traditions of the smaller Ugric nationalities (Voguls, Ostyaks).

Ms. Birnbaum

130. North American Indian Folklore and Mythology Studies.
Prerequisite: course 101 or consent of the instructor. An examination of folkloristic and mythological data recorded from various North American Indian peoples within the contexts of the principal ideological frameworks which have been evolved historically for the analysis of such data.

Mr. Georges

M140. From Boccaccio to Basile (in English).
(Same as Italian M140.) A study of the origins and the development of the Italian novella in its themes, in its structure, in its historical context, and in its European ramifications. The course is designed for students in other departments who wish to become acquainted with either the premises or the growth of similar literary genres. It is also intended for students majoring in Folklore and Mythology, who will be given an insight into Italian popular tales when these (as in the case of Boccaccio) were translated into highly sophisticated literary forms, as well as when (as in the case of Basile) they become embedded into the folk tradition of the Western world.

Ms. Cottino-Jones

M144. American Folk and Popular Music.
(Same as Music M144.) Prerequisite: Music 1 or consent of the instructor. A survey of the history and characteristics of the music developed in or for general American culture and various subcultures.

Mr. Morton, Mr. Stevenson

148. The Theory of Oral Literature.
The historical development of the study of oral literature among preliterate people; theoretical bases for the analysis of oral traditions.

M149. Folk Literature of the Hispanic World.
(Same as Spanish M149.) A study of the history and present dissemination of the principal forms of folk literature throughout the Hispanic countries.

Ms. Arora, Mr. Robe

M150. Russian Folk Literature.
(Same as Russian M150.) Four hours weekly. Lectures and readings in Russian.

Mr. Markov

M154A-154B. The Afro-American Musical Heritage.
(Same as Music M154A-154B.) Prerequisite: Music 1 or consent of the instructor. 154A is prerequisite to 154B. A study of Afro-American rhythm, dance, music, field hollers, work songs, spirituals, blues, and jazz; the contrast between West Africa, Afro-American and Afro-Brazilian musical traditions.

Mr. Carter

M180. Analytical Approaches to Folk Music.
(Same as Music M180.) Prerequisite: Music 1 or consent of the instructor. An examination of analytical techniques in the study of European and American folk music. Questions of function, structure, and musical behavior will be investigated, as well as technical and methodological systems for the transcription and classification of folk music.

Mr. Porter

M181. Folk Music of Central and Western Europe.
(Same as Music M181.) Prerequisite: Music 2A or consent of the instructor. An illustrated examination of the musical styles indigenous to the area between Ireland and Czechoslovakia; particular attention will be paid to the psychological function of folk music in its social and political context.

Mr. Porter

M183. Ethnography of Blues.
(Same as Music M183.) Prerequisite: consent of the instructor. The use of ethnographic methods for constructing a picture or model of a culture, viewing blues as a culture area, and including the analysis of blues forms and study of representative examples.

Mr. Vlasak

190. Selected Topics in Folklore and Mythology Studies.
Prerequisite: course 15 or course 101 and consent of instructor. A proseminar focusing upon selected problems, data, or themes in folklore and mythology studies.

The Staff

199. Special Studies in Folklore. (½ to 1 course)
Prerequisite: senior standing and the consent of the instructor.

The Staff

Graduate Courses

200. Folklore Bibliography, Theory and Research Methods.
Prerequisites: course 101 and one other folklore course in the 100 series.

Mr. Georges, Mr. Ward

201A-201B. Folklore Collecting and Field Research. (½ course each)
Prerequisite: course 200. One quarter of discussion-demonstration concerning the theoretical concepts, methods, and techniques of data gathering and field research in folklore, followed by one quarter of supervised fieldwork.

Mr. Jones, Mr. Wilgus

202A-202B. Folklore Archiving. (½ course each)
Prerequisite: course 200. One quarter of lecture-demonstration in the principles and techniques of the classification and preservation of folklore collectanea, followed by one quarter of directed experience in archiving.

Mr. Georges

M205. Perspective in American Folklore Research.
(Same as English M205.) Prerequisites: Folklore 101 and one other upper-division folklore course. An examination of American folklore studies compared and contrasted with investigation in other countries, with emphasis upon the principal conceptual schemes and research orientations employed in the study of folklore in American society.

Mr. Jones

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*Not to be given 1976-1977.

213. Folk Belief and Custom.
Prerequisites: course 101 and any one of the following courses: M105, 118, M121, M122, M123A-123B, 124, M125, M126, M128, M149, M150; Anthropology 102, 140; German 134, 240.
Mr. Jones, Mr. Ward

216. The Folktale.
Prerequisite: course 200 or consent of the instructor.
Mr. Georges

217. Folk Speech.
Prerequisites: course 101 and M105, M106, or M111; also recommended: Anthropology M146, English 121, or Linguistics 100. A study of the ethnography of communication and its relevance to the study of social and regional dialects, proverbs, riddles, onomastics, folk poetry and verse, and traditional humor.
Mr. Georges

***221. Gypsy Folklore.**
A survey of Gypsy folklore with attention to the special role of the Romany people as transmitters of folklore over wide geographical continua.

M230A-230B. Folk Tradition in Italian Literature.
(Same as Italian M230A-230B.)
Mr. Speroni

M241. Folklore and Mythology of the Near East.
(Same as Near Eastern Languages M241.)

M243A. The Ballad.
(Same as English M243A.) Prerequisite: consent of the instructor. A study of the English and Scottish popular ballads and their American derivatives, with some attention to European analogues.
Mr. Wilgus

M243B. Problems in Ballad Scholarship.
(Same as English M243B.) Prerequisite: course M243A or consent of the instructor. Intensive investigation of a problem or problems in the study of the popular ballad.
Mr. Wilgus

***248. Theory and Method in Latin American Folklore Studies.**
A historical survey of folklore scholarship in Latin America, with emphasis on the theoretical bases and methods and techniques employed in the study of and analysis of traditional tales, songs, music, linguistic expression.

M249. Hispanic Folk Literature.
(Same as Spanish and Portuguese M249.) Prerequisite: Graduate standing. An intensive study of folk literature as represented in a) ballad and poetry; b) narrative and drama; c) speech.
Ms. Arora, Mr. Robe

251. Seminar in Finno-Ugric Folklore and Mythology.

M257. South American Folklore and Mythology Studies.
(Same as Anthropology M257.) Prerequisite: Anthropology 105A or consent of the instructor. An examination of oral traditions and related ethnological data from various South American Indian societies against the background of the religious systems of these peoples.
Mr. Wilbert

M258. Seminar in Folk Music.
(Same as Music M258.) Prerequisite: consent of instructor.
Mr. Porter, Mr. Wilgus

*Not to be given, 1976-1977.

259. Seminar in Folklore.
Prerequisite: course 200 and consent of the instructor.
The Staff

M286A-286B-286C. Studies in Hispanic Folk Literature.
M286A. Studies in Hispanic Folk Literature—The Romancero. (Same as Spanish M286A.)
Mr. Rodriquez-Puertolas
M286B. Studies in Hispanic Folk Literature—Narrative and Drama. (Same as Spanish M286B.)
Ms. Arora, Mr. Robe
M286C. Studies in Hispanic Folk Literature—Ballad, Poetry, and Speech. (Same as Spanish M286C.)
Mr. Robe

Individual Study and Research

596. Directed Studies in Folklore. (½ to 1½ courses)
The Staff

597. Preparation for Comprehensive Examinations. (½ to 1½ courses)
This course may not be used in fulfillment of minimum course requirements for the M.A. degree.
The Staff

598. Master's Thesis Preparation. (½ to 1 course)
The Staff

Related Courses in Other Departments
Upper Division Courses

African Languages 150A-150B. African Literature in English Translation.

Anthropology 102. World Ethnography.
140. Comparative Religion.
141. Social and Psychological Aspects of Myth and Ritual.

Art 101D. Art of the Ancient Near East.
118A. The Arts of Oceania.
118B. The Arts of Pre-Columbian America.
118C. The Arts of Sub-Saharan Africa.
118D. The Arts of Native North America.
119A. Advanced Studies in African Art: The Western Sudan.
119B. Advanced Studies in African Art: The Guinea Coast.
119C. Advanced Studies in African Art: The Congo.

Classics 161. Introduction to Classical Mythology.
162. Classical Myth in Literature.
166A. Greek Religion.
166B. Roman Religion.

Dance 140A-140B-140C. Dance Cultures of the World.
142. Dance in the Balkans.
143. Dance in India.
144. Dance in Indonesia.
145. Dance in Japan.
146. Dance in Latin America.
151A. History of Dance.

English 112. Children's Literature.

French 115A-115B-115C. Medieval French Literature.

German 134. German Folklore.

History 124D. History of Religions: Myth.

Indo-European Studies 140. Introduction to Indo-European Mythology.

Music 132A-132B. Development of Jazz.
140A-140B-140C. Musical Cultures of the World.
142A-142B. Music of the Balkans.
143A-143B. Music of Africa.
147. Music of China.
153A-153B-153C. Music of the American Indians.
190A-190B. Proseminar in Ethnomusicology.

Scandinavian 141. Viking Civilization and Literature.

Slavic 99A-99B. Slavic Peoples and Cultures.

Sociology 124. Ethnic and Status Groups.
130. Social Processes in Africa.
131. Latin American Societies.
132. Population and Society in the Middle East.
133. Comparative Sociology of the Middle East.

Theater Arts 117. The Puppet Theater.

Spanish 151. Folk Song in Spain and Spanish America.

Graduate Courses

Anthropology 202. Ethnology.
203. Cultures of Asia.
204. Pacific Island Cultures.
205. North American Indians.
207. Indians of South America.
208. African Cultures.
253. Selected Topics in Cultures of Asia.
254. Selected Topics in Cultures of the Pacific Islands.
255A-255B. North American Indians.
256. Selected Topics in Arctic Cultures.
258. Selected Topics in African Cultures.
260. Selected Topics in African Arts.
261. Selected Topics in Ethnology.
M294A. Seminar in Ethnographic Film.
M294B-294C. Ethnographic Film Direction.
295. Seminar in Visual Anthropology.

Art 220. The Arts of Africa, Oceania and Pre-Columbian America.

Comparative Literature M229. Archetypal Heroes in Literature.

Dance 226A-226B-226C. Dance Expressions in Selected Cultures.

English 220. Readings in Medievalism.

French 215A-215E. The Medieval Language and Literature.

German 240A. Theories, Methods and History of Germanic Folklore.
240B. Folksong and Ballad.
240C. Oral Prose Genres.
M245A. Germanic Religions and Mythology.
245B. Germanic Antiquities.
262. Seminar in Germanic Folklore.

Indo-European Studies 260A-260B. Seminar in Indo-European Mythology.

Italian 214E. *The Decameron.*
217B. Commedia dell'arte and the Theatre.
218C. The Theater, Especially Metastasio, Goldoni, C. Gozzi.

Music 253. Seminar in Notation and Transcription in Ethnomusicology.
254A-254B. Seminar in Field and Laboratory Methods in Ethnomusicology.
255. Seminar in Musical Instruments of the Non-Western World.
280. Seminar in Ethnomusicology.

Russian 251A-251B. Old Russian Literature.
291A. Seminar in Old Russian Literature.

Spanish 262B. Epic Poetry.

■ 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:

African Languages 150A-150B. African Literature in English Translation.

Ancient Near Eastern 150A-150B-150C. Survey of Ancient Near Eastern Literatures in English.

Arabic 150A-150B. Survey of Arabic Literature in English.

Armenian 150A-150B. Survey of Armenian Literature in English.

Classics 141. A Survey of Greek Literature in English.
142. Ancient Drama.
143. A Survey of Latin Literature in English.

Czech 155A-155B. Survey of Czech Literature.

Dutch-Flemish and Afrikaans 112. Dutch, Flemish, Afrikaans Literature in Translation.

English 113A-113B. The English Bible as Literature.

French 142. Contemporary French Theater in Translation.
143. Modern French Thought.
144A-144C. The French Novel in Translation.
145. Topics in French Literature.

German 121A. Older German Literature in Translation.
121B. Classical German Literature in Translation.
121C. 19th Century German Literature in Translation.
121D. Modern German Literature in Translation-Narrative Prose I.
121E. Modern German Literature in Translation. Narrative Prose II.

Hebrew 150A-150B. Hebrew Literature in English.

Humanities 1A-1B. World Literature.

Italian 100A-100B-100C. Main Trends in Italian Literature and their Relation to Other European Literatures (in English).
110A-110B. The Divine Comedy in English.
M140. From Boccaccio to Basile (in English).
150. Modern Italian Fiction in Translation.

Jewish Studies 151A-151B. Modern Jewish Literature in English.

Oriental Languages 140A-140B. Chinese Literature in Translation.
141A-141B. Japanese Literature in Translation.

Persian 150A-150B. Survey of Persian Literature in English.

Polish 152A-152B. Survey of Polish Literature.

Russian 120A-120B. Survey of Russian Literature.
124A-124F. Studies in Russian Literature.
125. The Russian Novel in its European Setting.

Scandinavian 138. Survey of Finnish Literature.
141. Medieval Scandinavian Literature.
142. Scandinavian Literature of the 18th and 19th Centuries.
143. Modern Scandinavian Literature.
144. Ibsen.
145. Strindberg.
146. Kierkegaard.

Serbocroatian 154A-154B. Survey of Yugoslav Literature.

Spanish 160A-160B. Hispanic Literatures in Translation.
162. Cervantes in Translation.

Yiddish 121A-121B. 20th Century Yiddish Poetry and Prose in English Translation.

■ FRENCH

(Department Office, 160 Haines Hall)

Marc Bensimon, Ph.D., *Professor of French.*

Hassan el Nouty, *Docteur es Lettres, Professor of French.*

Oreste F. Pucciani, Ph.D., *Professor of French.*

Francis J. Crowley, Ph.D., *Emeritus Professor of French.*

Clinton C. Humiston, Ph.D., *Emeritus Professor of French.*

Milan S. La Du, Ph.D., *Emeritus Professor of French.*

L. Gardner Miller, Docteur de l'Universite de Strasbourg, *Emeritus Professor of French.*

Eric Gans, Ph.D., *Associate Professor of French (Chairman of the Department).*

Stephen D. Werner, Ph.D., *Associate Professor of French.*

Jean-Pierre Dens, Ph.D., *Assistant Professor of French.*

Laurence Morrissette, Ph.D., *Assistant Professor of French.*

Delphine Perret, Docteur IIIe,cycle, *Assistant Professor of French.*

Marius Ignace Biencourt, Docteur de l'Universite de Paris, *Assistant Professor of French, Emeritus.*

♦

Colette Brichant, Docteur de l'Universite de Paris, *Lecturer in French.*

Jacqueline Hamel, Licenciée-ès-Lettres, *Lecturer in French.*

Madeleine Korol Ward, Ph.D., *Lecturer in French.*

Padoue de Martini, B.A., *Lecturer in French.*

Patrick Coleman, M. Phil., *Acting Assistant Professor of French.*

Preparation for the Major

Required: French 1, 2, 3, 4, 5, 6 (or 7), 12, 15.

Before undertaking Upper Division work in *grammar, composition, advanced phonetics* or *civilization,* the student will be required to take French 1, 2, 3, 4, 5, 6 (or 7) and 15 or their equivalents. Students receiving less than a grade of B in French 6 will take French 7 (minimum grade for continuation C).

Before undertaking Upper Division work in *literature,* the student will, in addition to the above courses, be required to take French 12, "Introduction to the Study of French Literature." The student will normally take French 6 before undertaking French 12 or French 15; highly qualified students who have obtained the grade of A in French 5 may enroll in French 12 concurrently with French 6 *with the permission of the instructor.*

The Major

Four majors are offered by the Department.

Plan A: Leading to the Bachelor of Arts in French and subsequently to the Master's degree, Plan A, or to the standard elementary or secondary credential. Required: 15 full courses of upper division work, including French 100A-100B-100C, 103, 114A-114B-114C; two quarters from the offerings French 132-135*, 3 courses in French literature chosen from the offerings 115-120**; three elective courses normally to be chosen from upper division offerings in the Department of French in language, civilization or literature. A maximum of one upper division course outside the Department may be included in the major program with the approval of the major adviser.

Plan B: With emphasis on literature, leading to the Bachelor of Arts in French and subsequently to the Master's degree, Plan B. Required: 15 full courses of upper division work including French 100A-100B-100C, 103, 114A-114B-114C; 6 courses in French literature chosen from the 115-120 offerings**; 2 elective upper division courses to be chosen upon consultation with the major adviser, either from offerings of the Department of French, from the Humanities or Social Sciences Division of the College of Letters and Science, or from the College of Fine Arts.

Plan C: French Studies: A core program in French allowing, in addition, for individual selection of relevant courses in related fields in the Humanities, the Social Sciences, Linguistics, etc. Required: 15 full courses of upper division work, including French 100A-100B-100C, 103, 114A-114B-114C; 3 courses of French literature chosen from the offerings 115-120**; 5 upper division elective courses in the fields relevant to French Studies to be chosen in or out of the Department of French upon consultation with the major adviser. This program does not normally prepare admission to the Master's program in French at UCLA (see Plans A and B).

Plan D: French and Linguistics: In addition to the normal preparation for the major, students are required to complete the sixth quarter of

*A course in French History may be substituted for one of these with the permission of the major adviser.

**In all Major Plans one course from the 121 series and/or one undergraduate seminar (French 150-160-not including 157) may be substituted for courses in the 115-120 offerings.

work in one other foreign language or the third quarter in each of two other foreign languages. Required: French 100A, 100B, 100C, 103, 114A, 114B, 114C; two courses from French 105, 106, 107, 108A; Linguistics 100, 103, 110, 120A, 120B, 160.

It is strongly advised that students who intend to pursue advanced degrees begin preparation for the language requirements at the undergraduate level. Students whose knowledge of French exceeds the preparation usually received in courses preparing for the Major and who demonstrate the requisite attainment in French 100A, 100B, or 100C will substitute for those courses in grammar and composition an equivalent number of upper division courses in the Department of French upon consultation with the major adviser. All prospective French majors who are native or quasi-native speakers of French must see the Chairman of the Major Advisers before beginning upper division work in the Major.

All major students must complete a minimum of 9 courses of appropriate upper division work in the Department of French for a major.

Course work taken on a Passed/Not Passed basis is *not acceptable* in any area of the Major program.

Students who fail to maintain a C average or better in all upper division work undertaken in fulfillment of their French Major will, upon approval of the Dean of the College of Letters and Science, be excluded from the major in French.

Students intending to major in French must consult a Major Adviser before registering for upper division courses in fulfillment of the major.

The Honors Program in French

Majors with a 3.6 grade point average in the Department of French and a 3.3 overall grade point average will be eligible to apply for the Honors Program in French. Interested students should contact the Professor in charge of French 140A, 140B near the end of their Junior year and should make application at that time if they wish to enter the program. Applications should include: (1) a letter in French describing the student's field of interest in French literature and culture; (2) the student's final examination in French 100B, 100C, 103, or a final examination or term paper from a literature course. If these materials meet with approval, the student will be called for an interview. Students admitted to the program will enroll in French 140A-140B. French 140A is a seminar taught by a member of the professorial staff. 140B is to be devoted to the preparation of an individual project, normally related to the topic of 140A; this work will be undertaken under the guidance of a faculty member (not necessarily the instructor of 140A).

Teaching Credential Requirements

Students desiring a single-subject teaching credential in French must have the approval of the French Department in order to gain admission to student teaching. For the Single Subject Instruction Credential, this approval is contingent upon a major (or the equivalent) in French and the successful completion of French 370 and 495. French 370 and 495 should be taken prior to student teaching. Under exceptional circumstances, the Department may allow the student to enroll in these courses concurrently with a student teaching assignment.

Multiple subject instruction credential candidates who select French in partial fulfillment of the Special Program in Diversified Liberal Arts must complete 310A and 310B prior to student teaching.

For additional information, consult the Graduate School of Education (Moore Hall 201) and the Department of French (Haines Hall 160).

Graduate Programs

For the purposes of all graduate programs in the Department, the corpus of French literature is considered to be divided into three chronological periods: I Medieval-Renaissance; II Classical (roughly the 17th and 18th centuries); III Modern (since 1800) (with Franco-African literature as an option).

Requirements for the Master's Degree (M.A.)

The Department offers three Master's programs: Plan A, designed for teachers of French at the secondary and junior college levels; Plans B (comprehensive examination plan) and C (thesis plan), leading to the Ph.D. in French.

General requirements. (1) Language: For all candidates for the M.A. in French, the foreign language requirement will be fulfilled by passing a course of at least level 3 in either German, Latin, Spanish, or Italian (Plan A only), or by passing the University reading examination in one of these languages. In special cases, substitution of another foreign language will be accepted, if approved by the Chairman of the Department. Students are required to fulfill this foreign language requirement before taking the M.A. examination (Plans A or B). All candidates for the M.A. must satisfy the Department as to their proficiency in spoken French. (2) All entering graduate students will take a departmental examination to determine whether they will be required to take French 201D.

Plan A: *Course requirements:* At least 12 courses in French including normally 201D, and 310A/310B or 370/495 (or any combination of one theory and one observation course). Among these twelve courses, the student will take at least seven courses in literature including at least three courses in each of two periods (one of which must be the modern period). To meet general University requirements, at least six courses must be of graduate level.

Comprehensive Examination. Written examinations of three hours in length in each of the two periods prepared, a two-hour examination in translation and literary composition, a two-hour *explication de texte,* and an oral examination in French. At the discretion of the Department, a candidate may be permitted to take this examination a second (but not a third) time.

Plans B and C

Course requirements. At least 12 courses in French, including normally 201D, at least three courses in each of two periods, and at least one course from 202-207. At least eight of these courses must be of graduate level. Students in Plan C may include 4 units of 598 credit for work on the thesis.

Plan B — *Comprehensive Examination.* Written examinations of four hours in length in each of the two periods prepared, a two-hour *explication de texte,* and an oral examination in French. At the discretion of the Department a candidate may be permitted to take this examination a second (but not a third) time.

Plan C — *Admission Requirements and Oral Qualifying Examinations.* Students may apply to the Chairman of the Department for admission into Plan C after completion of at least six courses of graduate level (200 series), at least four of which must be literature courses in the French Department. The minimal admission requirements are: (1) 3.5 graduate G.P.A. in French (2) letters from two graduate professors in the Department specifically recommending admission into this plan.*

Final admission into Plan C (i.e., permission to write the thesis) is contingent upon passing the *Oral Qualifying Examination.* This is a one-hour oral examination in the two periods prepared, to be administered by a committee established by the candidate, consisting of three graduate professors in the French Department, including normally at least one specialist in each period. If the candidate fails this examination, the Committee will determine whether he be permitted another attempt, or whether he be advised to take the written comprehensive examination (Plan B).

Thesis. The thesis should demonstrate proficiency in the methods and concepts of literary research; a suitable length will normally be about 50 pages.

After passing the Oral Qualifying Examination the candidate should establish a three-member Thesis Committee (normally but not necessarily the same body that administered the Oral), to be appointed by the Dean of the Graduate Division. A tentative outline of the proposed thesis must be approved by all three members *in writing* before work on the thesis is begun. Final approval of the thesis by all three members is also required.

Requirements for the Ph.D.

Admission: Candidates will be considered for admission to the doctoral program upon completion of all requirements for the M.A. Plan B or C. The candidate's entire graduate record, as well as his performance on the examination or thesis will be taken into account.**

Language requirements. These have been modified; please consult the Department.

Doctoral Guidance Committee. Upon admission to the doctoral program, the student will establish a Doctoral Guidance Committee consisting of at least three graduate professors, including (1) the Chairman, normally in the student's proposed period of specialization and (2) a specialist in the period not covered at the M.A. level. This committee will administer the written Doctoral Qualifying Examinations.

Course requirements. (1) At least three courses from 202-207, including at least one from the 203 series (2) at least four seminars, two of which should be in the candidate's proposed area of specialization (3) at least two graduate courses in other departments related to his area of specialization. In addition, the candidate is expected to follow the Guidance Committee's suggestions in taking courses in preparation for the Doctoral Qualifying Examination.

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*Please consult the Department for possible changes.

**Please consult the Department for details.

Written Doctoral Qualifying Examination. (1) Four written examinations of four hours each as follows: (a) Focused specifically in the area of the prospective dissertation topic (e.g. an author, a specifically defined theme or genre over a limited period (one generation)). (b) Dealing with a more general subject related to the dissertation topic (i.e., the period of the author, the development of the theme or genre over one or more centuries). (c) In a cognate field related to the methodology or approach the candidate proposes to employ in the dissertation. (Please consult the Department for a list of suggested fields). (d) In the period not covered at the M.A. level.

It is understood that the topics to be dealt with in parts a, b, and c shall be determined by prior consultation of the candidate with the Doctoral Guidance Committee.

Upon passing the written examinations the candidate will be admitted to the *Oral Candidacy Examination,* where the Departmental members of his Doctoral Committee will be joined by two members from other departments. This examination, normally of two hours duration, will bear chiefly on parts (a) and (b) of the written examination, and on the proposed dissertation subject. The candidate is expected to submit a written outline of research plans before the oral examination.

Final Oral Examination: (Defense of dissertation): No longer required (this does not prevent individual Doctoral Committees from imposing this examination on a candidate.)

Candidates holding the M.A. or licence-ès-lettres from another institution should consult the Department concerning additional requirements and possible credit for work already accomplished.

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 or by recommendation of the instructor, be permitted a more advanced program. No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition.

1. Elementary French.
Sections meet five hours weekly.
Ms. Hamel in charge

1R. Introduction to the Reading of French. (¾ course)
Classes will meet three times a week. This course is intended to enable students to acquire basic reading skills in French. Attention will be given at an early stage to the specialized vocabulary of particular scientific and humanistic disciplines.
Ms. Brichant in charge

1G. Elementary French for Graduate Students. (No credit)
Sections meet three hours weekly.
Ms. Brichant in charge

2. Elementary French.
Sections meet five hours weekly. Prerequisite: course 1 or advanced placement standing.
Ms. Hamel in charge

2R. Intermediate Reading of French. (¾ course)
Classes will meet three times a week. This course will pursue the work begun in 1R. It will gradually introduce texts of a more specialized nature in the various disciplines.
Ms. Brichant in charge

2G. Elementary French for Graduate Students. (No credit)
Sections meet three hours weekly. Prerequisite: course 1G or the equivalent.
Ms. Brichant in charge

3. Elementary French.
Sections meet five hours weekly. Prerequisite: course 2 or two years of high school French or advanced placement standing.
Ms. Hamel in charge

3R. Advanced Reading of French. (¾ course)
Classes will meet three times a week. This course will pursue the work begun in 1R and 2R. It will be conducted in groups arranged according to field of study.
Ms. Brichant in charge

4. Intermediate French.
Sections meet five hours weekly. Prerequisite: course 3 or three years of high school French or advanced placement standing.
Ms. Hamel in charge

4G. Conversational French for Graduate Students. (No credit)
Classes meet three hours weekly.
The Staff

5. Intermediate French.
Sections meet five hours weekly. Prerequisite: course 4 or four years of high school French or advanced placement standing.
Ms. Hamel in charge

6. Intermediate French.
Sections meet five hours weekly. Prerequisite: course 5 or advanced placement standing.
Ms. Hamel in charge

7. Advanced French.
Sections meet five hours weekly. Prerequisite: course 6 or advanced placement standing.
Ms. Hamel in charge

10A-10D. French Conversation. (½ course each)
Sections meet three hours weekly. Prerequisite: course 3 with grade A or B or by permission of the Department.
Ms. Hamel in charge

12. Introduction to the Study of French Literature.
Classes meet three hours weekly. Prerequisite: course 6 (or 7) or the equivalent or permission of the instructor. Principles of literary analysis as applied to selected texts in poetry and prose.
The Staff

15. Theory and Correction of Diction.
Classes meet four hours weekly. Prerequisite: course 6 or consent of instructor. French pronunciation, diction, intonation in theory and practice; phonetic transcription, phonetic evolution of the modern language; remedial exercises; recordings.
Ms. Korol-Ward in charge

31A-31B-31C. France Trhough the Ages (in English.)
A survey of French civilization with emphasis on social, intellectual and artistic trends.
Ms. Brichant

31A. From the origins through the Renaissance.

31B. From the Renaissance to the 20th century.

31C. Contemporary France.

Upper Division Courses

The prerequisites to all upper division courses taken in partial fulfillment of the French Major are French 6 with a grade of B or better (otherwise French 7 with a grade of C or better), French 12, French 15 or their equivalents. All upper division courses except as otherwise indicated are conducted in French. Credit will ordinarily not be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition. French 104, 105, 106, 107 and 108A are not sequential and may be taken in any order, provided the prerequisites for each course are fulfilled.

100A. Advanced Grammar I.
Prerequisite; course 6 and (normally) course 15, or the equivalent. A placement examination will be administered and qualified students will be advanced to French 100B or 100C.
Ms. Hamel in charge

100B. Advanced Grammar II.
Prerequisite: course 100A or the equivalent. A placement examination will be administered and qualified students will be advanced to French 100C or to 103.
Ms. Hamel in charge

100C. Advanced Grammar III.
Prerequisite: course 100B or the equivalent. A placement examination will be administered and qualified students will be advanced to French 103.
Ms. Hamel in charge

103. Advanced Stylistics.
Classes meet three hours weekly. Prerequisite: course 100C or the equivalent. This course is required of all majors as well as of all candidates for the Standard Credential in Elementary or Secondary Teaching.
Ms. Korol-Ward in charge

104. Literary Composition.
Classes will meet once a week for two hours. Prerequisite: course 103 or the consent of the instructor.
The Staff

105. French Linguistics.
Classes will meet three hours weekly. Prerequisite: consent of the instructor.
Ms. Perret

106. Advanced French Phonetics.
Classes meet twice weekly. Prerequisite: consent of the instructor.
Ms. Korol-Ward

107. Contemporary Spoken French.
Classes will meet three hours weekly; laboratory sessions may be added as needed. Prerequisites: course 103 or consent of the instructor.
The Staff

108A-108C. Advanced Practical Translation.
108A. Classes will meet three hours weekly. Prerequisite: course 103 with a grade of B, or consent of instructor. An introduction to the translation of advanced texts of general interest, with work in the theory of translation.

108B. Classes will meet three hours weekly. Prerequisite: the former 108 course, or 108A, or consent of instructor. Practice in the translation of technical documents and texts; comparative stylistics of translation.

108C. Classes will meet three hours weekly. Prerequisite: course 108B or consent of instructor. Advanced work in areas of general and specialized interest to-

gether with exercises in consecutive and simultaneous translation.

The Staff

114A-114B-114C. Survey of French Literature I, II, III.

Prerequisite: course 12 or the equivalent. A survey of French literature from the Medieval period through the 20th century.

114A. Medieval and Renaissance Literature.

114B. Literature of the Classical Era (17th and 18th centuries.)

114C. Modern Literature (19th and 20th centuries.)

115A-115D. Medieval French Literature.

115A. The Medieval Epic. Classes meet two hours weekly.

115B. The Medieval Romance. Classes meet two hours weekly.

115C. The Medieval Theater. Classes meet two hours weekly.

115D. Medieval Lyric Poetry. Classes meet two hours weekly.

The Staff

116A-116D. The Renaissance.

116A. Rabelais and His Time. Classes meet two hours weekly.

116B. Ronsard and His Time. Classes meet two hours weekly.

116C. Montaigne and His Time. Classes meet two hours weekly.

116D. Renaissance Theater. Classes meet two hours weekly.

Mr. Bensimon

117A-117D. The Seventeenth Century.

117A. Corneille and the Baroque. Classes meet two hours weekly.

117B. The Classical Theatre: Racine and His Contemporaries. Classes meet two hours weekly.

117C. Moliere and the Comedy of the XVIIth Century. Classes meet two hours weekly.

117D. Philosophers, moralists and novelists of the XVIIth Century. Classes meet two hours weekly.

Mr. Dens

118A-118D. The Eighteenth Century.

118A. Comedy and Drama. Classes meet two hours weekly.

118B. Voltaire and the Encyclopedists. Classes meet two hours weekly.

118C. Diderot and Rousseau. Classes meet two hours weekly.

118D. The Novel. Classes meet two hours weekly.

Mr. Coleman, Mr. Werner

119A-119D. The Nineteenth Century.

119A. Romanticism. Classes meet two hours weekly.

119B. The Generation of 1848. Classes meet two hours weekly.

119C. Naturalism and Symbolism. Classes meet two hours weekly.

119D. The Turn of the Century. Classes meet two hours weekly.

Mr. el Nouty, Mr. Gans

120A-120D. The Twentieth Century.

120A. Gide, Proust and Their Time. Classes meet two hours weekly.

120B. Post World War I French Writers. Classes meet two hours weekly.

120C. Sartre, Camus and Their Time. Classes meet two hours weekly.

120D. Contemporary French Writers. Classes meet two hours weekly.

Mr. Morrissette, Mr. Pucciani

121A-121D. Contemporary Literature of French Expression.

121A. Franco-African Literature. Classes meet two hours weekly.

121B. Franco-Canadian Literature. Classes meet two hours weekly.

121C. Franco-Helvetian and Franco-Belgian Literature. Classes meet two hours weekly.

121D. Franco-Caribbean Literature. Classes meet two hours weekly.

Mr. el Nouty, Mr. Morrissette

122. French Folklore and Young People's Literature.

Classes meet two hours weekly.

Ms. Korol-Ward

123. French Popular Literature.

Classes meet two hours weekly. "Roman policiers," "Theatre des boulevards," "chansons-poemes," etc.

Mr. Morrissette

124. Dramatic Interpretation.

Study of the techniques of stage direction and interpretation of French Drama. A survey of some of the different theories and approaches used on the French stage. Each student will act or direct a scene from a play to be performed under rehearsal conditions.

Ms. Korol-Ward

132. Contemporary France.

Classes meet three hours weekly. A fourth hour may be required for the viewing of films and other laboratory activities.

Ms. Brichant

133. French Institutions from the Revolution to the Present.

Classes meet three hours weekly. A fourth hour may be required for the viewing of films and other laboratory activities.

Ms. Brichant

134. The "Ancien Regime."

Classes meet three hours weekly. A fourth hour may be required for the viewing of films and other laboratory activities.

Ms. Brichant

135. From Prehistoric Times to the Renaissance.

Classes meet three hours weekly. A fourth hour may be required for the viewing of films and other laboratory activities.

Ms. Brichant

138. Cinema and Literature in Contemporary France.

Classes meet two hours weekly. Additional hours may be required for the viewing of films and other laboratory activities. Course may be taken as an elective in partial fulfillment of French Majors Plans A, B and C.

The Staff

140A-140B. Honors Program in French.

Prerequisites: junior or senior standing in French with 3.6 grade-point average in the major, a 3.3 overall average and consent of the Department.

140A. Honors Seminar in French. Seminar on a specific topic in French literature. Readings, oral reports, discussion. Consult Department for class meetings.

140B. Honors Tutorial in French. Prerequisite: course 140A. Individual study on a topic related to that of 140A, leading to an essay to be written under the guidance of a faculty member.

The Staff

Undergraduate Seminars

Courses 150-157 may be repeated once for credit with the consent of the major adviser.

150. Studies in Medieval Literature.

The Staff

151. Studies in Sixteenth Century Literature.

The Staff

152. Studies in Seventeenth Century Literature.

The Staff

153. Studies in Eighteenth Century Literature.

The Staff

154. Studies in Nineteenth Century Literature.

The Staff

155. Studies in Twentieth Century Literature.

The Staff

156. Studies in Contemporary Literature of French Expression.

The Staff

157. Studies in the French Language.

The Staff

158. The Woman in French Literature.

This course will explore a selected aspect of the situation of woman in French literature as author, character, symbol, etc.

The Staff

160. Studies in the History of Ideas.

Specific themes will be chosen and developed which will address a particular problem of French literature, civilization or ideas. The course may be repeated for credit with the approval of the major adviser.

The Staff

199. Special Studies in French. (½ to 2 courses)

Prerequisite: junior or senior standing, consent of the instructor and consultation with Chairman of major advisers. Course may be taken twice.

Department Chairman in charge

Courses in English

The following courses may not be taken for graduate credit; they may be taken as out-of-department electives for the Undergraduate Majors.

141A-141B-141C. Masterpieces of French Literature.

Classes meet three hours weekly. All texts will be read in French. Classroom discussion, papers and examinations will be conducted in English. This course may not be taken for major or graduate credit but may be considered as an out-of-department elective for the purpose of satisfying major requirements.

The Staff

142. Contemporary French Theater in Translation.

Classes meet two hours weekly. This course may be considered as an out-of-department elective for the purpose of satisfying major requirements.

Ms. Korol-Ward

143. Modern French Thought.

Classes meet two hours weekly. Contemporary works will be read and discussed in translation. Course may be taken as an elective in partial fulfillment of French Major Plan C. Course may be considered as an out-of-department elective for the purpose of satisfying major requirements.

The Staff

144A-144C. The French Novel in Translation.

Classes meet two hours weekly. Authors to be studied will be announced quarterly. Course may be considered

as an out-of-department elective for the purpose of satisfying major requirements.

The Staff

145. Topics in French Literature.

To be announced each quarter. This course may not be taken for major or graduate credit but may be considered as an out-of-department elective for the purpose of satisfying major requirements.

The Staff

Graduate Courses

201A. Theme.

Course meets three times weekly. Advanced translation into French.

The Staff

201B. Version.

Course meets three times weekly. Advanced translation into English.

The Staff

201C. La Dissertation Francaise.

Course meets three times weekly. Advanced composition.

The Staff

201D. Problems of French Literary Composition.

Course meets three times weekly. Practical work of an advanced nature in the expression and presentation of literary research.

The Staff

202. Explication de Textes. Mr. Bensimon

203A-203B-203C. French Literary Criticism.

203A. Topics in Literary Criticism from Aristotle to Sainte-Beuve.

203B. Modern Theories of Criticism.

203C. The Techniques of Literary Criticism.

Mr. Coleman, Mr. Gans

204A. Phonology and Morphology from Vulgar Latin to French Classicism.

The evolution of the French language. Required of candidates for the Ph.D. in Romance Languages and Literatures who emphasize philology.

Ms. Perret

204B. Syntax and Semantics from Vulgar Latin to French Classicism.

The evolution of the French language. Required of candidates for the Ph.D. in Romance Languages and Literatures who emphasize philology.

Ms. Perret

205A-205B-205C. The Intellectual Background of French Literature.

Mr. Pucciani

205A. Scholasticism (with ancient sources); Humanism.

205B. Rationalism, Empiricism, Positivism.

205C. Idealism, Phenomenology, Existentialism.

206. French Linguistics.

Prerequisites: Linguistics 100 or French 105, or the equivalent. Discussion of modern linguistic theory in the area of French grammar, syntax and semantics.

Ms. Perret

207. Introduction to Stylistics.

Discussion of the basic stylistic devices of the French language.

Ms. Perret

215A-215E. The Medieval Language and Literature.

The Staff

215A. Old and Middle French. This course is prerequisite to courses 215B-215E. Phonology and morphology of the language. Introduction to Old French texts.

215B. The Chansons de geste.

215C. The Romance.

215D. Medieval Theater.

215E. Provencal Poetry.

216A-216H. The Renaissance.

Mr. Bensimon

216A. Topics in early sixteenth century French literature.

216B. Topics in the Pleiade.

216C. Topics in late sixteenth century French literature.

216D. Ronsard.

216E. Rabelais and Prose Writers.

216F. Baroque Poetry.

216G. Montaigne.

216H. Theater.

217A-217I. The Seventeenth Century.

Mr. Dens

217A. Topics in Classical Theater.

217B. Topics in Non-Dramatic Literary Genres.

217C. Topics in Classical Prose and Thought.

217D. Moliere.

217E. Corneille.

217F. Racine.

217G. The Novel.

217H. Moralists.

217I. Religious Thought.

218A-218D. The Eighteenth Century.

Mr. Coleman, Mr. Werner

218A. Topics in the Early Enlightenment. (1680-1747).

218B. Topics in the Enlightenment. (1748-1765).

218C. Topics in the Late Enlightenment. (1766-1791).

218D. The Theater.

219A-219K. The Nineteenth Century.

Mr. el Nouty, Mr. Gans

219A. Topics in Romanticism.

219B. Topics in Realism and Naturalism.

219C. Topics in Symbolism.

219D. Poetry.

219E. The Novel.

219F. The Theater.

219G. Historians and Critics.

219H. Victor Hugo.

219I. Balzac.

219J. Independent Novelists.

219K. Intellectual Trends.

220A-220P. The Twentieth Century.

Mr. Morrissette, Mr. Pucciani

220A. From Symbolism to Surrealism. Selected topics.

220B. From Surrealism to Existentialism. Selected topics.

220C. From Existentialism to the Present. Selected topics.

220D. Paul Valery.

220E. Marcel Proust.

220F. Andre Gide.

220G. Andre Malraux.

220H. The Theater.

220I. The Anti-Theater.

220J. The Novel.

220K. The Anti-Novel.

220L. Surrealism.

220M. Existentialism.

220O. Poetry.

220P. Cinema and Literature.

221A-221D. French-African Literature.

Mr. el Nouty

221A. Introduction to the Study of the French-African Literatures.

221B. French-African Literature of Madagascar and Bantu Africa.

221C. French-African Literature of Berbero-Sudanese and Arabo-Islamic Africa.

221D. Franco-Caribbean Literature.

Seminars

The following courses, 250A through 260B, may be repeated for credit.

250A-250B. Studies in Medieval Literature.

The Staff

251A-251B. Studies in the Renaissance.

Mr. Bensimon and the Staff

252A-252B. Studies in the Baroque.

Mr. Bensimon and the Staff

253A-253B. Studies in the Seventeenth Century.

Mr. Dens and the Staff

254A-254B. Studies in the Eighteenth Century.

Mr. Werner and the Staff

255A-255B. Studies in the Nineteenth Century.

Mr. el Nouty, Mr. Gans

256A-256B. Studies in Contemporary Literature.

Mr. Pucciani and the Staff

257A-257B. Studies in the French African Literature.

Mr. el Nouty and the Staff

258A-258B. Studies in Literary Criticism.

Mr. Gans and the Staff

259A-259B. Studies in Philosophy and Literature.

The Staff

260A-260B. Studies in the History of Ideas.

A particular problem of French literature and ideas.

The Staff

261. Studies in French Linguistics.

Ms. Perret and the Staff

262. Studies in Stylistics.

The Staff

270. Introduction to Methods of Literary Research.

Prerequisite: graduate status. The course will be made up of lectures on aspects of literary research. It will range from bibliography to new critical approaches, and will call on specialists in each field.

The Staff

Professional Courses

310A-310B. The Teaching of French in the Elementary School and at the Junior High Level.

310A. Prerequisite: consent of the instructor. Theory of French teaching in the elementary school and at the junior high level. Classes meet three hours weekly. Required for the Standard Elementary Credential.

310B. Observation of language teaching in the elementary school and at the junior high level. Classes will meet as announced. Required for the Standard Elementary Credential.

The Staff

370. The Teaching of French in the Secondary School and at the College Level: Observation.

Prerequisites: courses 103. Observation of language teaching in the secondary school and at the college level.

Ms. Hamel

372. The Language Laboratory. (½ course)

Prerequisite: consent of the instructor. New electronic techniques for language instruction. Pedagogical and practical problems of making tapes, installing and organizing a laboratory; control procedures.

Mr. de Martini

495. The Teaching of French in the Secondary Schools and at the College Level.

Prerequisite: course 370. Theory of language teaching. Letter grade.

Mr. Pucciani

Individual Study and Research

596. Directed Individual Studies or Research. (½ to 1 course)

The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. (½ to 2 courses)

The Staff

598. Research for and Preparation of Master's Thesis. (½ to 1 course)

Prerequisite: consent of the instructor. A maximum of 4 units may be applied toward the M.A. degree requirements. Graded S/U.

The Staff

599. Research for and Preparation of the Doctoral Dissertation. (½ to 2 courses)

The Staff

■ GENETICS

For courses in genetics, see under departments of Bacteriology and Biology.

■ GEOCHEMISTRY (INTERDEPARTMENTAL)

Interdepartmental Committee for Graduate Study in Geochemistry. O. L. Anderson, Geophysics; M. E. Baur, Chemistry; W. A. Dollase, Geology; W. G. Ernst, Geology and Geophysics; I. R. Kaplan, Geology and Geophysics; G. C. Kennedy, Geophysics and Geology; H. H. Kieffer, Geophysics and Space Physics; W. F. Libby, Chemistry and Geophysics; M. F. Nicol, Chemistry; W. E. Reed, Geology; J. W. Schopf, Geology and Geophysics; J. T. Wasson, Chemistry and Geophysics (chairman and graduate adviser).

Undergraduate Study

Undergraduate students who wish to prepare for graduate work in geochemistry are advised to complete an undergraduate major in chemistry or in geology with a strong preparation in chemistry. It is recommended that such students consult with the chairman of the curriculum.

Graduate Study

A program of graduate study leading to the degrees of M.S. and Ph.D. in Geochemistry is offered under the sponsorship of the interdepartmental committee. The curriculum is open to students having an outstanding undergraduate record in the basic sciences, physics, chemistry and mathematics. The bachelor's degree may be in chemistry, geology, physics or in some other field. Because of the diverse backgrounds of students entering this interdepartmental curriculum, individual programs of instruction and examinations will be arranged. Course offerings from the Departments of Chemistry, Geology and Geophysics and Space Physics will form a major portion of these recommended programs of study.

Research facilities in the Departments of Chemistry, Geology, Geophysics and Space Physics, and the Institute of Geophysics and Planetary Physics are available to students in this curriculum. Among these are an electron microprobe, facilities for neutron activation analysis, high pressure laboratories, mass spectrometric equipment, facilities for measurement of tritium and radiocarbon, X-ray fluorescence and diffraction apparatus, scanning and transmission electron microscopes, an atomic absorption spectrometer, and apparatus for mineral synthesis and the study of phase equilibria.

A program leading to the Ph.D. in Geology, with emphasis in Geochemistry, is also offered by the Department of Geology.

For further information regarding admission, financial support, and programs of study, consult the graduate adviser.

■ GEOGRAPHY

(Department Office, 1255 Bunche Hall)

Charles F. Bennett, Ph.D., *Professor of Biogeography.*

C. Rainer Berger, Ph.D., *Professor of Geography and Geophysics.*

Henry J. Bruman, Ph.D., *Professor of Geography.*

William A. V. Clark, Ph.D., *Professor of Geography.*

Gary S. Dunbar, Ph.D., *Professor of Geography.*

Huey L. Kostanick, Ph.D., *Professor of Geography.*

Richard F. Logan, Ph.D., *Professor of Geography.*

Tom L. McKnight, Ph.D., *Professor of Geography.*

Howard J. Nelson, Ph.D., *Professor of Geography.*

Antony R. Orme, Ph.D., *Professor of Geography (Chairman of the Department).*

Jonathan D. Sauer, Ph.D., *Professor of Geography.*

Benjamin E. Thomas, Ph.D., *Professor of Geography.*

Norman J. W. Thrower, Ph.D., *Professor of Geography.*

Robert M. Glendinning, Ph.D., *Emeritus Professor of Geography.*

Clifford H. MacFadden, Ph.D., *Emeritus Professor of Geography.*

Joseph E. Spencer, Ph.D., *Emeritus Professor of Geography.*

Clifford M. Zierer, Ph.D., *Emeritus Professor of Geography.*

Gerry A. Hale, Ph.D., *Associate Professor of Geography.*

Christopher L. Salter, Ph.D., *Associate Professor of Geography.*

Werner H. Terjung, Ph.D., *Associate Professor of Geography.*

Hartmut Walter, Ph.D., *Associate Professor of Biogeography.*

Nicholas J. Entrikin, Ph.D., *Assistant Professor of Geography.*

James O. Huff, Jr., Ph.D., *Assistant Professor of Geography.*

Stanley W. Trimble, Ph.D., *Assistant Professor of Geography.*

Geography as a Major

The Department of Geography offers a choice between two undergraduate majors: (1) the Major in Geography; and (2) the Major in Analysis and Conservation of Ecosystems. Prospective majors are urged to discuss the nature and opportunities of each program with the appropriate Undergraduate Advisor. In both programs, the Department is committed to effective quality education concerning the manifold interactions of environment and society. As such, all students are encouraged to work in close and frequent association with faculty members appropriate to their interests. Students are assured of a warm response from faculty members in whose fields of instruction and research they show enthusiasm.

The Major in Geography

Geography is a vital discipline that explores the interface between environment and society. But Geography is more than a discipline. It is also a method of study, a correlative science that seeks to establish relationships both within and between the many complex expressions of environment and society. In this guise, Geography embraces many other disciplines of the physical, biological, and social sciences, but in its use of data, its search for cause and effect, and its understanding of process and response, Geography offers a unique approach to the study of the character and problems of the world we live in.

In essence, Geography is concerned with three aggregate aspects of the world around us: 1) the physical and biological characteristics, processes and responses observable at or near the Earth's surface; 2) the activities by which men and women have modified this natural environment, both past and present; and 3) the order and disorder that these human activities have created in sculpturing the natural and artificial landscapes. Tools and concepts of the physical, biological, and social sciences are used to analyze and explain these varied phenomena.

A geographer is concerned with the origins, development, morphology and processes of the landscapes inherited from nature, and with the institutions and patterns associated with the human use of these landscapes. This information helps the geographer to predict the nature and direction of future landscape change. A geographer is a person who has eyes for the world around him or her, concern for the processes and

dynamics of the changes that shape that world, and interest in helping to chart future growth along lines of rational development and careful management of both human and non-human resources.

One or more of four general objectives may be recognized by those persons who select the Major in Geography, namely: (1) a broad understanding of the Earth's many environments and peoples as part of a liberal education; (2) preparation for employment in areas concerned with environment and society, for example in environmental impact studies and urban planning; (3) preparation for graduate study in the discipline leading to advanced degrees and professional occupation in both academic and non-academic areas; and (4) preparation for the student who desires a teaching credential with a specialty in Geography and the physical, biological, or social sciences.

Students majoring in Geography are encouraged to consult the Undergraduate Advisor (Geography) for the planning of a program suitable to the student's particular and individual objective. All faculty and other appropriate resources of the Department of Geography are available to Geography majors, though it is realized that students will work more closely with some faculty members than with others. The Undergraduate Advisor (Geography) advises majors concerning the faculty and other resources most pertinent to student needs.

Preparation required. Geography 1, 2, 3, 4; and Mathematics 50A or equivalent are required of all majors. A Mathematics background, such as Mathematics 3A-3B-3C or 4A-4B or 31A-31B-31C, is recommended. All prospective majors, including transfer students; should consult the Undergraduate Advisor (Geography) before arranging a program in Geography and its allied fields.

Foreign language or mathematics requirement. Every Geography major is required to pass five quarter courses in foreign language (in no more than two languages), or mathematics, in any combination. Each year of high school language (but not mathematics) will be accepted as equivalent to one quarter course. A score of 500 on an Educational Testing Service (ETS) language examination will also satisfy this requirement. In mathematics, only courses 2, 4A, 4B, 3A, 3B, 3C, 31A, 31B, 31C or 50B, or equivalent are acceptable. This requirement may be satisfied on a Pass-No Pass basis or by a letter grade, but Pass or at least a C grade is required in all courses intended to satisfy this departmental requirement. These courses may be used to meet the Breadth Requirements of the College of Letters and Science.

Major requirements. The major requires a minimum of 10 upper division courses in Geography chosen in consultation with a departmental advisor and taken for a letter grade. In meeting this minimum requirement, each major must take three courses from Group I — The Environment; three courses from Group II —Human Geography; one course from Group III — Procedures; and one course from Group IV — Regions; and two elective upper division courses in geography. Majors are encouraged to take more than ten upper division courses.

Allied Fields. Every Geography major shall develop some competence in one or two allied fields. This program consists of a group of at least *four* upper division courses chosen from at least one but not more than *two* of the following disciplines: Anthropology; Biology; Chemistry; Economics; Folklore; Geology; History; Management; Mathematics; Meteorology; Philosophy, Physics; Political Science; Psychology; Public Health; Sociology. Other disciplines require departmental approval on an individual case basis in order to be classified as acceptable.

All courses that are required for the undergraduate major in Geography must be taken for a letter grade. This includes all lower and upper division courses in Geography, and all four upper division courses in the Allied Fields.

Honors Program. Honors in the Geography major may be obtained through procedures described under courses 199HA-199HB.

The Major in Analysis and Conservation of Ecosystems

The Major in Analysis and Conservation of Ecosystems offers a choice between two plans, each of which has its foundations within the Department of Geography but is essentially interdisciplinary in scope.

Plan 1 is designed primarily for students seeking a general education that focuses on understanding the problems and issues related to past, present and future human manipulation and utilization of the world's ecosystems. It is also suited to those students who wish to lay the foundation for educational contributions to non-academic society via the principal communicative media. This Plan is also suitable as preparation for graduate school.

Plan 2 is designed primarily for students who wish to follow careers in the environmental area or who wish to pursue future work at the graduate level and beyond in various aspects of the analysis and conservation of ecosystems. Like Plan 1, Plan 2 is deliberately broad in scope but is more rigorous in terms of the preparation and course work required.

Both Plan 1 and Plan 2 have certain features of which students should be appraised. *First,* a high degree of emphasis is placed on student input and student-faculty interaction—particularly with respect to seminars. It is therefore essential that close liaison be developed and maintained between all persons involved. The faculty is particularly receptive to student enthusiasm. *Second,* students majoring in Analysis and Conservation of Ecosystems are encouraged to consult with the Undergraduate Advisor (Ecosystems) for the planning of a program suitable to the student's particular and individual objective. All faculty and other appropriate resources of the Department of Geography are available to Ecosystems majors, though it is realized that students will work more closely with some faculty members than with others. The Undergraduate Advisor (Ecosystems) advises majors concerning the faculty and other resources most pertinent to student needs. *Third,* both Plan 1 and Plan 2 require a Senior Thesis (Geography 196), a substantial though not necessarily lengthy contribution to ecosystems analysis that must be submitted to the principal faculty member concerned early in the student's final quarter. The topic is selected by the student in consultation with one or more faculty members, and a plan of work filed with the coordinator. Additional guidelines for the Senior Thesis are available from the Undergraduate Advisor (Ecosystems). *Fourth,* all courses that are required for the Major in Analysis and Conservation of Ecosystems, both within and beyond the Geography Department, must be taken for a letter grade. This includes all lower and upper division courses including electives chosen to complete the Major.

Plan 1

Preparation required. Biology 2; Geography 1, 2, 5; and Mathematics 50A, or equivalent are required of all majors. Geography 3 and 4 are recommended. A Mathematics background, such as Mathematics 3A-3B-3C or 4A-4B or 31A-31B-31C, is recommended. All prospective majors, including transfer students, should consult the Undergraduate Advisor (Ecosystems) before arranging a program in the Analysis and Conservation of Ecosystems.

Major requirements. Nine courses are required as follows: Economics 100; Geography 100, 129, 162, 196; two courses chosen from Geography Group Ia; and two courses chosen from Geography Group Ib.

Electives. Six courses should be chosen from the following list with the assistance of a faculty advisor: Anthropology 144, 145, 153, 160; Art 168A, 168B; Architecture M190; Economics 110, 111, 170; Geography: not more than three courses from 101 to 199; History 106B, Journalism 182A, 182B, 192; Political Science 141, M142, Public Health 110, 117, 142; Sociology 125, 126.

Although there is no foreign language requirement for Plan 1, students are encouraged to acquire some foreign language capability so as to gain access to pertinent literature written in languages other than English.

Plan 2 — The Honors Program

Honors will be awarded to students graduating with a GPA of 3.4 and above in Plan 2 of the Major.

Preparation required. Biology 1A-1B; Chemistry 1A; Geography 1, 2, 5; Mathematics 3A-3B-3C, or 11A-11B-11C, and 50A, and Engineering 10 or equivalent are required of all majors. Geography 3 and 4, Mathematics 50B, and Engineering 11 are recommended. A reading knowledge of a modern foreign language is required; this may be met by three years of language at High School or three quarters of language at College level.

Major requirements. Eleven courses are required as follows: Biology 119; Economics 100, Geography 100, 129, 162, 163, 196; two courses from Geography Group Ia; and two courses from Geography Group Ib.

Electives. Six courses should be chosen from the following list with the assistance of a faculty advisor: Anthropology 153, 160; Biology 122, 125, 126, 188; Economics 111, 140, 170; Engineering 107A, 180A, 181A, 184A, 184D; Geography: not more than three courses from 101 to 128 (Group I); Geology 139; Political Science 141, M142; Public Health 161, 142; Sociology 126, 141.

Admission to Graduate Status

Students are admitted to the Graduate Program of the Department of Geography in the fall quarter only. The applicant must, in addition to the application to the Graduate Admissions Office, send a complete set of transcripts to the Graduate Adviser, Department of Geography. These transcripts, and all other application materials, must be submitted by February 15 of the year in which the student wishes to enroll. Under exceptional circumstances applications at other times may be considered.

For admission to graduate status in the Geography Department a student should normally have completed the undergraduate major or its

equivalent; have received a bachelor's degree or its equivalent from an accredited college or university; and have maintained a high grade-point average in courses taken in the junior and senior years and in the major field. Prospective students are required to take the Graduate Record Aptitude Test and in addition, to provide the Department with three letters of evaluation from previous instructors. Students not meeting the grade-point average requirements may be admitted in exceptional cases if their letters of evaluation and their Graduate Record Examination scores or other evidence indicate that they have unusual promise. Students may be admitted with subject deficiencies, but such deficiencies will have to be made up.

Information and applications for the Graduate Record Examination may be obtained by writing to the Educational Testing Service, 1947 Center Street, Berkeley, California 94704 or Box 955, Princeton, New Jersey 18540.

Requirements for non-Geography majors entering the Geography graduate program: Non-Geography majors entering the Geography program from another field will be required to show proficiency in 6 Upper Division Geography courses (additional to those required for the M.A.) including 3 courses from Group I (The Environment) and 3 courses from Group II (Human Geography), embracing at least 1 course each from Groups Ia, Ib, IIa, and IIb.

Requirements for the General Secondary Teaching Credential

Consult the UCLA ANNOUNCEMENT OF THE GRADUATE SCHOOL OF EDUCATION.

Requirements for the Master's Degree

For general admission requirements, see Graduate Admissions.

The M.A. degree may be obtained either by the Thesis Plan or the Comprehensive Examination Plan.

Spring Quarter Review. The Department holds a review of all graduate students every Spring Quarter. To this end, all graduate students should have designated a committee chairman or interim advisor, and have completed a simple form detailing program and accomplishments prior to Spring Quarter. The results of this review will determine whether or not the student shall be permitted to proceed toward the M.A. degree.

Course requirements. The work in residence must include at least ten Geography courses, including a minimum of seven courses at the graduate level (Geography 200-292), of which Geography 200 and 201, and at least one seminar are required. The balance of each program must be worked out in consultation with the graduate student's committee. Geography 200 must be taken in the first (Fall) quarter of residence.

Research tool. At least one research tool is required for graduate study. This is a minimum requirement and is subject to approval by the graduate student's committee at both the M.A. and Ph.D. levels, prior to advancement to candidacy.

Interim Advisor, Informal Guidance Committee, and subsequent Thesis or Examination Committee. Early in the first quarter of residence each candidate is required to seek an informal guidance committee headed by an interim advisor from among the faculty, in consultation with the Graduate Advisor. The interim advisor may be changed as the candidate's plans and objectives change, subject to the normal courtesies of informing the Graduate Advisor and others involved. At a time agreed upon by the student and his informal guidance committee, an official three-person Graduate Division committee, including a Chairman, will be appointed. This committee is responsible for the candidate's course of study henceforth, and supervises the preparation of the Master's thesis or the Comprehensive Examination.

Thesis Plan. Under the Thesis plan, each student must present a thesis, based in whole or in part on original investigation. Selection of a thesis topic, creation of a scientific design, and conduct of the investigation, proceed initially under the supervision of the informal guidance committee, and later, under the official Graduate Division committee. The candidate should submit a written statement to all members of the Thesis Committee, describing in some detail the thesis proposal. This proposal should include the exact nature of the problem to be studied, an outline of the subject matter, the proposed methods of research, the degree of originality involved, and the anticipated time of completion of the study.

Comprehensive Examination Plan. All formal course work, including the completion of the research tool requirement, must be completed before the examination is attempted. The comprehensive examination normally is given in the final two-week period of the quarter in which the candidate completes his work for the degree. It will normally consist of three half-day written examinations embracing a general paper and two further papers drawn from the broad divisions of geography. The examination is designed to test for broad grasp of subject, as well as the more specialized abilities of the candidate. A student who fails any part of the Comprehensive Examination may be re-examined once. Such re-examination must take place within one calendar year of the failure. A student who completes the M.A. degree by the Comprehensive Examination plan may not continue for a Ph.D. degree in this department.

Advancement to Candidacy. A student must file an application for advancement to Candidacy no later than the second week of the quarter in which the degree will be awarded.

Individual Study Courses. The following rules pertaining to individual study courses (Geography 199, 596, 597, 598, 599) are applicable to all graduate students in this department:

(1) Only one 500-series course may be applied to the minimum course requirements for advanced degrees.

(2) All 500-series courses are to be taken on a S/U basis only.

(3) A student may not take Geography 199 or 596 in a given term unless he/she is also taking at least one formal course during that term.

(4) In any given term a student may not take more than 8 units of Geography 199/596.

(5) A student may enroll in Geography 597, 598 or 599 as many times as he or she wishes.

An M.A. degree must be completed within five calendar years of admission to graduate status at UCLA.

Requirements for the Doctor's Degree

For general admission requirements, see Graduate Admissions.

An M.A. or M.S. degree, with a geography specialty and a high grade-point average in graduate studies is recommended for all students undertaking work toward the Ph.D. degree. Any student entering the doctoral program who has not previously written a Master's thesis must, during his first quarter of residence, produce clear evidence of substantive research and writing ability, to the satisfaction of the faculty. Any student accepted for the Ph.D. program without having officially completed a Master's degree must complete the Master's degree within two quarters or be terminated as a Ph.D. candidate. Under exceptional circumstances a student may proceed directly toward the Ph.D. degree without taking a Master's degree if the following conditions are met:

(1) The student must be enrolled in the UCLA M.A. program in geography and have a superior (4.0) grade point average.

(2) The student must be recommended for a direct Ph.D. by the M.A. guidance committee who will bring the matter before the entire faculty.

(3) The student must have three letters of recommendation in addition to one from his interim advisor or chairman.

(4) The student must receive the approval of at least ⅔ of the current Geography faculty in residence by secret ballot.

Spring Quarter Review. The Department holds a review of all graduate students every Spring Quarter. To this end, all graduate students should have designated a committee chairman or interim advisor, and have completed a simple form detailing program and accomplishments prior to Spring Quarter. The results of this review will determine whether or not the student shall be permitted to proceed toward the Ph.D. degree.

Course requirements. Ph.D. students must satisfactorily complete Geography 200 and 201 if these have not already been taken at the M.A. level. Students are also required to take at least three graduate geography courses additional to their M.A. course work (excluding 200, 201, and the 500 series) and three upper division or graduate courses in one or two fields allied to their main field, subject to approval by their committee. Geography 200 must be taken in the first (Fall) quarter of residence. For regulations concerning Individual Study Courses (199 and 500 series), see Requirements for the Master of Arts degree.

Research tool. At least one research tool is required for graduate study. This is a minimum requirement and is subject to approval by the graduate student's committee at both the M.A. and Ph.D. levels, prior to advancement to candidacy.

Interim Advisor and Informal Guidance Committee. Early in the first quarter of residence each candidate is required to seek an informal guidance committee headed by an interim advisor from among the faculty, in consultation with the Graduate Advisor. The interim advisor may be changed as the candidate's plans and objectives change, subject to the normal courtesies of informing the Graduate Advisor and others involved.

Written Qualifying Examinations. The written qualifying examinations are administered by a student's informal guidance committee and consist of five written papers arranged as follows: three substantive fields of geography, one general paper covering the entire range of geography, and one small field research problem. The field problem will require one full day in the field, followed by one full day in which field results are prepared for presentation. All other

papers will be of four hours duration. The examination may be spread over a period of not more than two weeks. This examination should be taken no later than the end of the sixth quarter of the Ph.D. program. If the examination, or any portion thereof, is failed, the student may make one further attempt. This attempt may not be sooner than three months nor longer than one year from the first examination.

Oral Qualifying Examination. The oral qualifying examination is conducted by the candidate's official Ph.D. dissertation committee, appointed by the Dean of the Graduate Division upon satisfactory completion of the Written Qualifying Examinations. This committee will consist of at least five faculty members, three of whom will be from the Geography Department, of whom one will be chairman. The oral examination focuses on the dissertation research proposal prepared by the candidate and distributed to all committee members at least one month prior to the oral. This proposal should specify the objectives, methodology, and scientific background of the research envisaged. Successful completion of the oral qualifying examination implies acceptance by the committee of the student's qualifications for doctoral research and approval in principle of the dissertation proposal, subject to such minor modifications in design and methodology as the committee may recommend. A student who has successfully completed the oral qualifying examination is eligible for advancement to candidacy. At the end of the candidate's successful oral qualifying examination, the Chairman and members of the committee, in consultation with the student, shall determine which of its members will guide, read, approve and certify the dissertation. At least two members from the student's department and at least one outside member must be certifying members of the doctoral committee.

The Dissertation. The dissertation is the ultimate focus of each student's Ph.D. program and demonstrates an ability for independent investigation in a selected field of study. The dissertation should be designed and executed in such a way as to make a significant original contribution to geographic research, a contribution that is worthy of publication, in part or as a whole, in a reputable scientific medium.

Final Examination. A final oral defense of the dissertation may be required by the Dissertation Committee. This examination may be held at any time mutually agreed upon by the candidate and his committee, provided that the dissertation is essentially complete.

A Ph.D degree must be completed within seven calendar years from the initiation of work on the degree (for candidates from beyond UCLA), or within seven calendar years from admission to graduate status at UCLA (for candidates who obtained M.A. degrees from UCLA).

Lower Division Courses

Check with departmental office to learn of additional offerings, seminar topics, and specific instructors for the quarter you wish to enroll in courses in geography.

1. Physical Environment.
(Formerly numbered 1A.) Lecture, three hours; laboratory, one hour. A study of the Earth's physical environment with particular reference to the nature and distribution of landforms and climate.
The Staff

2. Biogeography.
Lecture, three hours; laboratory, one hour. Prerequisite: course 1 or equivalent. A presentation of the concepts and data needed to acquire an understanding of the nature and significance of the phenomena which influence the geography of soils, plants, and animals.
The Staff

3. Cultural Geography.
(Formerly numbered 1B.) Lecture, three hours; discussion, one hour. A broad examination of the basic cultural variables in the human occupance of the earth's surface. The approach is ecological, spatial, and historical.
The Staff

4. Human Location and Behavior.
(Formerly numbered 1C.) Lecture, three hours; laboratory, one hour. Introduction to the basic concepts used in modern urban and economic geography. Emphasis on giving a better understanding of the effects of location on human behavior. Discussion and practical exercises focus on the analysis of problems in the Los Angeles urban environment.
The Staff

5. Man and the Earth Ecosystem.
Lecture, three hours; laboratory, one hour. An examination of the historical and contemporary roles of man as a major agent of biological change in the earth ecosystem.
The Staff

10. Freshman Seminar in Geography.
Staff-student discussion, three hours; reading period, one hour. Prerequisites: course 1 or 2 or 3 or 4 or 5 as befits the theme. A seminar designed to explore various themes and issues pertinent to environment and people. Seminar topics will be advertised in the Department during previous quarter.
The Staff

Upper Division Courses

GROUP I: THE ENVIRONMENT

Ia. Basic Environmental Studies

100. Environmental Systems.
Lecture, three hours; reading period, one hour. Prerequisites: courses 1 and 2 or equivalent, or consent of instructor. An analysis of the energy and materials involved in environmental systems, relating the state of such systems to interdependent physical and biotic variables, and to disruptive human influences.
Mr. Orme, Mr. Walter

M102. Geomorphology.
(Same as Architecture and Urban Planning M196.)
Lecture, three hours; reading period, one hour. Prerequisites: course 1 or equivalent; or junior standing or consent of instructor. A study of the processes responsible for shaping the world's landforms with emphasis on the relationship between the energy and materials involved and the magnitude and organization of the surface forms produced.
Mr. Orme

104. Climate and Man.
Lecture, three hours; reading period, one hour. Prerequisites: courses 1 or 100 or Meteorology 3, or equivalent, or consent of instructor. A study of climatic phenomena at the earth's surface in terms of the transfers of energy, mass and momentum, with special emphasis on biological and urban ecosystems.
Mr. Terjung

105. Hydrology.
Lecture, three hours; reading period, one hour. Prerequisite: course 1 or equivalent. The role of water in geographic systems: hydrologic phenomena in relation to climate, landforms, soils, vegetation, and cultural processes and impacts on the landscape. Field projects required.
Mr. Trimble

106. Soils.
Lecture, three hours; reading period, one hour. Prerequisites: course 1 or equivalent; Chemistry 1A or 2A, or consent of instructor. A study of the origins, evolution, properties and utilization of soils, with special emphasis on the world's major soil groups.
The Staff

108. World Vegetation.
(Formerly numbered 110.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2 or equivalent, or consent of instructor. Characteristics, distribution, environmental and cultural relationships of the world's principal vegetation patterns.
Mr. Sauer

110. Plant Migration.
(Formerly numbered 112.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2 and Biology 2, or equivalent, or consent of instructor. Mechanisms of geographic patterning of natural and artificially modified vegetation. Emphasis on range changes for which there is direct fossil or documentary evidence.
Mr. Sauer

112. Animal Geography: Biophysical Aspects.
(Formerly numbered 116A.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1 and 2; Biology 2. A study of the factors and principles of animal distribution and dispersal on continents and islands of the earth in time and space.
Mr. Bennett, Mr. Walter

Ib. Applied Environmental Studies

116. Origins and Histories of Crop Plants.
(Formerly numbered 114.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2 and Biology 2, or equivalent, or consent of instructor. Geographic patterns of domestication and diffusion of useful plants from antiquity to the present, based on detailed case histories of selected species.
Mr. Sauer

117. Animal Geography: Cultural Aspects.
(Formerly numbered 116B.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, 5; Biology 2 or the equivalent. A study of human cultural factors influencing animal distributions; the roles of animals in human societies; origins and diffusion of domesticated animals.
Mr. Bennett, Mr. Walter

118. Medical Geography.
Lecture, three hours; reading period, one hour. Prerequisite: course 5, or consent of instructor. An examination of patterns of population-place-disease interactions and some effects of change and development on disease etiology and problems of health care.
The Staff

119. Agricultural and Pastoral Ecosystems.
(Formerly numbered 107.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, 5, 100, 116, and 112 or 117 or the equivalent. Geography 120 and 121 recommended. Students who do not meet the prerequisites should not attempt this course. A geographical, ecological and historical analysis of the world's agricultural and pastoral systems. Emphasis is on energy flows, nutrient cycles and ecological and social problems associated with the various systems.
Mr. Bennett

120. Conservation of Resources: North America.
Lecture, four hours. Prerequisites: courses 1, 2, or equivalent, or upper division standing. An analysis of the basic principles and problems associated with the conservation of natural resources in the United States and Canada.
Mr. McKnight, Mr. Trimble

121. Conservation of Resources: Underdeveloped World.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, or equivalent, or upper division standing. An analysis of the principles and problems of the conservation of natural resources of the underdeveloped world.

Mr. Bennett

122. Man and Environment in East Africa.

(Formerly numbered 119.) Lecture, three hours; discussion, one hour. Prerequisites: courses 1, 2, and 5. An analysis of the unique ecosystems of East Africa and traditional and modern man's impact on wildlife and other renewable natural resources followed by a discussion of environmental conservation in relation to socio-economic policies and Africa's environmental heritage.

Mr. Walter

125. Marine Ecosystems.

(Formerly numbered 108.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, 5, 100; Biology 1A-1B or equivalent. Description and analysis of the principal marine ecosystems with particular emphasis upon those which are chiefly affected by human activity. Further, there will be a detailed evaluation of the ecological and conservation problems associated with human use of marine ecosystems.

The Staff

M127. Soil, Plants, and Society.

(Same as Biology M127.) Prerequisite: Chemistry 1A, 1B, 1C or equivalent or consent of the instructor. A general treatment of: soil development and morphology and the physical and chemical properties of soils as they relate to plant growth and distribution; soil resources, management, conservation and cultural aspects. Soil profiles examined on the field trip are used to explain developmental phenomena.

The Staff

128. The World's Ecosystems: Problems and Issues.

(Formerly numbered 123.) Lecture, three hours; discussion, one hour. Prerequisites: courses 100, 120 or 121. Principal objectives are (1) to identify past, current, and projected problems associated with man-induced ecological disturbances and (2) to identify and evaluate the societal and biophysical factors which have contributed to the identified ecological disequilibria.

The Staff

129. Problems of the Environment: Seminar.

Lecture, three hours; reading period, two hours. Prerequisites: senior standing; four courses from Group I; Math 152A highly recommended. Class enrollment limited. Qualitative-quantitative analysis of problems associated with rational protection and use of selected environmental systems (urban, rural, forest, desert, coastal, water, soil or others).

The Staff

GROUP II: HUMAN GEOGRAPHY

IIa. Cultural and Historical Geography

130. Geographical Discovery and Exploration.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3 or equivalent, or upper division standing. A survey of the history of exploration, from earliest times to modern, with emphasis on the period from Marco Polo to the present.

Mr. Dunbar, Mr. Thrower

132. Evolutionary Cultural Geography I.

Lecture, three hours; reading period, one hour. Prerequisite: course 3 or equivalent. Discussions of primary perception and behavior systems affecting the earth, and the culture processes creating cultural institutions and traditional cultural landscapes of the pre-industrial and non-industrial regions of the earth.

Mr. Hale, Mr. Salter

133. Evolutionary Cultural Geography II.

Lecture, three hours; reading period, one hour. Prerequisite: course 3 or equivalent; Geography 132 recommended. Discussions of themes in the modernization of traditional cultural systems bringing about the increasing urbanization and industrialization of cultural landscapes around the earth.

Mr. Hale, Mr. Salter

136. Historical Geography of the United States.

(Formerly numbered 144.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of the evolution of the cultural landscapes of the area that is now the United States. Examination of past geographies and of geographical change through time.

Mr. Dunbar

140. Political Geography.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. 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.

Mr. Kostanick

142. Population Geography.

Lecture, three hours; reading period, one hour. A study of the social and behavioral perspectives influencing people in their patterns of demographic change, migration and mobility with special emphasis on spatial relationships and selected case studies.

The Staff

IIb. Economic and Urban Geography

145. Spatial Organization of Society I.

Lecture, three hours; reading period, one hour. Prerequisites: course 4, Elementary Statistics, or consent of instructor. A study of the spatial structure of society as an expression of human decisions. Emphasis is on the processes affecting city size and distribution, the internal structure of cities, rural land use, and industrial location.

Mr. Clark, Mr. Entrikin

146. Spatial Organization of Society II.

Lecture, three hours; reading period, one hour. Prerequisite: course 145. A study of human behavior within the spatial context. Discusses regularities in patterns of trade, consumer behavior, migration, mobility, communication, and diffusion.

Mr. Clark, Mr. Entrikin

148. Economic Geography.

(Formerly numbered 160.) Lecture, three hours; reading period, one hour. Prerequisite; course 4 or consent of instructor. An analysis of those principal economic production systems especially involved with agriculture, foodstuffs, resources and industrialization in the underdeveloped world.

Mr. Huff

150. Urban Geography.

Lecture, three hours; reading period, one hour. Prerequisites; courses 1, 3, or equivalent, or upper division standing. An analysis of the development, functions, spatial patterns and geographic problems of American Cities.

Mr. Clark, Mr. Nelson

156. Metropolitan Los Angeles.

Lecture, three hours; reading period, one hour. Prerequisites; upper division standing. A study of the origins, growth processes, internal structure and pattern, interactions, environmental and spatial problems of the Los Angeles Metropolitan area.

Mr. Nelson

159. Problems in Human Geography.

Staff-student discussion, three hours; reading period, one hour. Prerequisites; two courses from Group II, Senior standing. Class enrollment limited to fifteen students. A seminar type course in which students carry on intensive research projects. Designed as a "capstone" to courses in this group, the subjects of research will grow out of the previous work.

The Staff

GROUP III: PROCEDURES

160. Field Analysis: Physical Geography.

(Formerly numbered 170.) Saturday field trips, 8-5. Prerequisites: courses 1, 2, 100, or equivalent, and consent of the instructor. A student desiring to take this course must notify department chairman of his wish, in writing, at least two quarters in advance of enrolling in this course. The basic methods of geographic analysis of small areas, embracing a variety of physical environments in southern California and including consideration of related human activities. Chiefly field training.

Mr. Logan

161. Field Analysis: Cultural Geography.

(Formerly numbered 179). Prerequisites: courses 1, 3, 4, 132, 133, at least two upper division courses in geography and consent of instructor. Enrollment priority is given to students majoring in geography. The class meets once a week from 8:00-5:00. The observation, analysis and mapping of landscape phenomena of human origin. Techniques of data collection will be examined for such topics as settlement form and pattern, environmental change, historical and demographic change, and land use.

Mr. Salter

162. Field Analysis: Ecosystems I.

(Formerly numbered 173.) Field, eight hours per week. Prerequisites: courses 1, 2, 5, 100; Biology 1A or 2. Enrollment priority will be given to students majoring in analysis and conservation of ecosystems. Course meets on Saturdays. Intensive field study and analysis of urban and non-urban environments with major attention being focused on the identification and evaluation of human modifications of the ecosystems selected for study.

The Staff

163. Field Analysis: Ecosystems II.

Field, eight hours per week. Prerequisites: course 162. Students will carry out specific research tasks in order to apply and test basic field methods and concepts in ecosystem analysis.

The Staff

164. Environmental Impact Analysis.

Lecture, four hours; field, two hours. Prerequisites: course 100, at least two courses from among Geography 101-127; Math 50A. Geography 4 recommended. Limited to 30 students. Practice-oriented introduction to the interdisciplinary analysis of local and regional impacts on environmental systems. Includes evaluation of state and federal concepts for the analysis of environmental impact.

The Staff

166. Map Analysis.

(Formerly numbered 171.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3 or equivalent, or upper division standing. The analysis of maps, with the aim of deducing the physical, cultural and economic aspects of the region portrayed, including such elements as geomorphic history, hydrography, settlement history, forms of economic livelihood, transportation problems and toponomy.

Mr. Logan

167. Cartography.

(Formerly numbered 172.) Laboratory, four hours; independent work, two hours. Prerequisites: courses 1, 3, or equivalent, or consent of instructor. Survey of the field of cartography. Includes theory and construction of map projections, compilation procedures, principles

of generalization, symbolization, terrain representation, lettering, drafting and scribing, and map reproduction methods.

The Staff

168. Computer Cartography.

(Formerly numbered 175.) Lecture, one hour; laboratory, three hours; independent study, two hours. Prerequisites: course 167 or consent of instructor. Theory and methods of mapping quantitative information with a computer. Includes problems of surface representation, advanced topics of symbolism and pattern recognition, and special problems of photoreduction for publication.

The Staff

170. Presentation and Analysis of Geographic Data.

Lecture, two hours; laboratory, one hour. An introduction to the basic techniques that are used in organising, measuring, and displaying data from field, map, interview and government sources.

Mr. Clark

171. Quantitative Analysis.

(Formerly numbered 176). Lecture, three hours; laboratory, one hour. Prerequisites: Mathematics 50B or consent of instructor. An introduction to the methods of measurement and interpretation of geographic distributions and associations.

Mr. Clark

M178. Dating Techniques in Environmental Sciences and Archaeology.

(Same as Anthropology M175C.) Lecture, three hours; reading period, one hour. Prerequisites: consent of instructor. Introduction to scientific dating methods such as radiocarbon dating, radiation damage methods, biological dating techniques, and magnetic dating, and applications in environmental sciences, archaeology and physical anthropology.

Mr. Berger

GROUP IV. REGIONS

180. Anglo-America.

Lecture, four hours. Prerequisites: courses 1, 3, or equivalent, or upper division standing. Delimitation and analysis of the principal geographic regions of the United States and Canada.

Mr. McKnight, Mr. Nelson

181. Middle America.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. 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 cultural geography of Mexico and the countries of Central America and the West Indies.

Mr. Bennett, Mr. Bruman

182A. Spanish South America.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of the geographic factors, physical and cultural, that are basic to an understanding of the historical development of Spanish South America and of the contemporary economic and cultural geography of the individual Spanish-speaking countries.

Mr. Bruman

182B. Brazil.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of the geographic factors, physical and cultural, that are basic to an understanding of the historical development of Portuguese South America and of the contemporary economic and cultural geography of Brazil.

Mr. Bruman

183. Europe.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of geographic conditions and their relation to economic, social and political problems in Europe.

Mr. Kostanick, Mr. Thrower

184. Soviet Union.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of geographic conditions and their relation to economic, social, and political problems in the Soviet Union.

Mr. Kostanick

185. South and South East Asia.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A regional synthesis with varying emphases upon the people of South or Southeast Asia in their physical, biotic, and cultural environment and its dynamic transformation. Consult department about term emphasis.

The Staff

186. Eastern Asia.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A regional survey of the physical and cultural features which characterize the economic, social, and political geography of eastern Asia (China, Korea, and Japan).

Mr. Salter

187. Middle East.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. An analysis of the economic, social, and political geography of the area extending from Iran to Morocco and from Turkey to Sudan. Emphasis on geographical themes and problems during historical and modern times.

Mr. Hale

188. Northern Africa.

Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. An analysis of the economic, social, and political geography of the area including Mediterranean Africa, the Sahara, the Sudanic belt, and the eastern Horn. Emphasis on geographical themes and problems during historical and modern times.

Mr. Hale, Mr. Thomas

189. Middle and Southern Africa.

Lecture, four hours. Prerequisites: courses 1, 3, or equivalent, or upper division standing. The regions of Africa south of the Sahara (middle and south Africa) in terms of physical features, human settlement, economic production, and political patterns.

Mr. Thomas

190. Australasia.

Lecture four hours. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A regional synthesis of the physical and cultural features which characterize Australia, New Zealand, and the islands of the South Pacific.

Mr. McKnight

191. California.

Lecture, four hours. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A systematic and regional treatment of the geography of California including the physical, cultural, and economic aspects and detailed studies of the various regions.

Mr. Logan, Mr. McKnight

UNGROUPED

196. Senior Thesis in Ecosystems Analysis.

Study schedule to be arranged individually. Prerequisites: courses 129, 162 and senior standing. Preparation and data collection and analysis for a senior thesis under the guidance and assistance of a faculty sponsor.

The Staff

199. Special Study. (½ to 2 courses)

Study schedule to be arranged individually with the instructor. Prerequisites: senior standing and consent of instructor.

The Staff

199HA-199HB. Honors in Geography: I & II.

Study schedule to be arranged individually with instructors. Prerequisites: to be eligible a student must have completed at least five (5) upper division courses in geography, have attained a 3.5 GPA for such work, and have a 3.25 overall GPA. 199HA will be an independent study course taught by a team of two faculty members who will assist an enrolled student with bibliographic research and/or field research into a topic of mutual interest to the student and the faculty members. Successful completion of 199HA will entail the preparation of a detailed bibliography and outline for the writing of a substantial paper during the course of 199HB. The two faculty members will evaluate the bibliographic and/or field preparation of the student in 199HA. If that work is determined to be of A quality, the student will be allowed to continue in the Honor's program. If that work is B or below, credit will be awarded to the student, but he or she will not be permitted to continue in the Honor's program. 199HB will be devoted to the writing of the substantial paper researched and outlined in 199HA. The two faculty members will evaluate the paper. If the paper is determined to be an A, the student will graduate with Honors in Geography. If the paper is determined to be a B or lower, credit will be given the student, but there will be no Honors.

Graduate Courses

COURSES REQUIRED OF ALL ENTERING GRADUATE STUDENTS

200. Trends in Contemporary Geography.

Lecture, three hours. Prerequisite: graduate status. An analysis and interpretation of contemporary geography with emphasis on research trends in major subfields of the discipline, each subfield being examined by a faculty expert.

The Staff

201. Growth of Geographic Thought.

(Formerly numbered 200.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: consent of instructor. Lectures and discussions on the comparative development of the philosophy and operative thought of geographers in different countries, stressing the origins and foundations of American Geographic thought.

Mr. Dunbar, Mr. Thomas

GROUP I: THE ENVIRONMENT

202. Advanced Geomorphology.

(Formerly numbered 212.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 102 or equivalent, or consent of instructor. An extended study of selected geomorphic processes and landforms.

Mr. Logan, Mr. Orme

203. Seminar: Geomorphology.

(Formerly numbered 213.) Discussion, three hours; reading period, one hour. Prerequisites: course 202 or equivalent and consent of instructor. Selected geomorphic topics with emphasis on current research frontiers and techniques. May be repeated for credit.

Mr. Orme

204. Advanced Climatology.

(Formerly numbered 214.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 104 or equivalent, or consent of instructor. A survey of the major literature of climatology: dynamic, energy balance, bio-climatic, urban.

Mr. Terjung

205. Seminar: Climatology.
(Formerly numbered 215.) Discussion, three hours; reading period, one hour. Prerequisites: course 204 or equivalent and consent of instructor. Selected topics. May be repeated for credit.
Mr. Terjung

208. Advanced Biogeography: Plants.
(Formerly numbered 262.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: courses 108, 110 or 116, or equivalent, or consent of instructor. An intensive review and analysis of physical and cultural factors influencing plant distributions.
Mr. Sauer

212. Advanced Biogeography: Animals.
(Formerly numbered 260.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: courses 112, 117, or equivalent, or consent of instructor. An intensive review and analysis of biophysical and cultural factors influencing animal distributions.
Mr. Bennett, Mr. Walter

213. Seminar: Biogeography.
(Formerly numbered 265.) Discussion, three hours; reading period, two hours. Prerequisites: courses 208, 212 or equivalent and consent of instructor. Research projects related to or growing out of course 208 or 212. May be repeated for credit.
The Staff

215. Seminar: Quaternary Studies.
(Formerly numbered 216.) Discussion, three hours; reading period, two hours. Prerequisites: courses 202 or 204 or 208 or 212; or appropriate graduate course in anthropology, botany, geology or zoology; or consent of instructor. An analysis of the changing environment of the Quaternary Period. May be repeated for credit.
Mr. Orme

218. Advanced Medical Geography.
Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 118 or consent of instructor. An in-depth study of selected topics in medical geography and an intense review of recent research.
The Staff

223. Seminar: Humid Topics.
(Formerly numbered 292.) Discussion, three hours; reading period, two hours. Prerequisites: consent of instructor. Selected topics. Biophysical and cultural complexes of the humid tropics with emphasis on problems related to human settlement and livelihood. May be repeated for credit.
Mr. Bennett

229. Seminar: Man and Environment.
(Formerly numberd 266.) Discussion, three hours; reading period, two hours. Prerequisites: course 128 or equivalent. An analysis of man's perception of the environment throughout history and in different parts of the world and its impact on past, present and future ecosystems.
Mr. Walter

GROUP II: HUMAN GEOGRAPHY

232. Advanced Cultural Geography.
(Formerly numbered 220.) Lecture, two hours; discusion, one hour; reading period, one hour. Prerequisites: course 132, or 133 or equivalent, or consent of instructor. Lectures and discussions around specific aspects of the development of cultural landscape in different geographic environments.
Mr. Salter

233. Seminar: Cultural Geography.
(Formerly numbered 225.) Discussion, three hours; reading period, two hours. Prerequisites: course 232, 236, or equivalent and consent of instructor. Discussions centered around particular topics in cultural geography; topics may vary from year to year. May be repeated for credit.
The Staff

236. Advanced Historical Geography of the United States.
(Formerly numbered 222.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 136 and consent of instructor. Some major themes in American historical geography.
Mr. Dunbar

237. Seminar: Historical Geography.
(Formerly numbered 223.) Discussion, three hours; reading period, two hours. Prerequisites: course 236 and consent of instructor. Theory and practice of historical geography in North America and Europe. May be repeated for credit.
Mr. Dunbar

240. Advanced Political Geography.
Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 140 or equivalent or consent of instructor. Intensive study of the theories and principles of political geography and German geopolitics. Selected regions will be used as specific examples of differing techniques of study in geopolitics.
Mr. Kostanick

241. Seminar: Political Geography.
(Formerly numbered 245.) Discussion, three hours; reading period, two hours. Prerequisites: course 240 or equivalent and consent of instructor. Related research projects growing out of course 240. May be repeated for credit.
Mr. Kostanick

242. Advanced Population Geography.
Lecture, three hours; reading period, one hour. Prerequisites: course 142 or equivalent, or consent of instructor. A study of population dynamics and migration, spatial variation in population composition, and population resource problems, diffusion and epidemiology.
The Staff

248. Advanced Economic Geography.
(Formerly numbered 230.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 148, or consent of the instructor. An analysis of the geographic problems of economic development in selected regions of the world.
The Staff

249. Seminar: Economic Geography.
(Formerly numbered 235.) Discussion, three hours; reading period, two hours. Prerequisites: course 248 or equivalent, and consent of instructor. Related research projects growing out of course 248. May be repeated for credit.
The Staff

250. Advanced Urban Geography.
Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: consent of instructor. Treatment of the evolution, morphology, and function of cities with emphasis on theory and methods of analysis.
Mr. Clark, Mr. Nelson

251. Seminar: Urban Geography.
(Formerly numbered 255.) Discussion, three hours; reading period, two hours. Prerequisites: course 250 or equivalent, and consent of instructor. Related research projects growing out of course 250. May be repeated for credit.
The Staff

GROUP III: PROCEDURES

260. Advanced Field Analysis: Physical Elements. (2 courses)
Class meets once a week from 8-5. Prerequisites: one or more courses from 202, 203, 204, 205, 215. Field methods and analysis applied to the physical environment, especially in southern California and with particular reference to various aspects of geomorphology, hydrology, climatology, and associated human activities.
Mr. Trimble

261. Advanced Field Analysis: Cultural Geography. (2 courses)
Class meets once weekly from 8-5, mainly in the field. Prerequisites: one or more courses from 232, 233, 250, 251. Field methods and analysis applied to the cultural landscape, especially in southern California and particular reference to settlement, agriculture, and environmental modification.
Mr. Salter

262. Advanced Field Analysis: Biogeography. (2 courses)
Field, ten hours per week. Prerequisite: consent of instructor. Observation, measurement, and analysis of biogeographic phenomena including identification and evaluation of biotic populations and communities and their modifications resulting from the impact of human activity.
The Staff

265. Geographical Bibliography.
(Formerly numbered 201.) Lecture, one hour; discussion, two hours; reading period, one hour. Prerequisite: consent of instructor. A survey of the literature of geography with special reference to periodicals. Intended for beginning graduate students.
Mr. Dunbar

267. Advanced Cartography.
(Formerly numbered 272.) Laboratory, three hours; independent work, two hours. Prerequisites: course 167 or equivalent, or consent of instructor. Advanced work in the theory and practical application of modern cartographic principles. Special emphasis is placed on terrain representation, quantitative and computer mapping, scribing, color separation, and reproduction of maps.
Mr. Thrower

269. Remote Sensing of Environment.
(Formerly numbered 274.) Laboratory, three hours; independent work, two hours. Prerequisites: course 167 or equivalent or consent of instructor. The study of aerial photographs and other remote sensing images as tools for geographical research. Particular attention is placed on the analysis of landscapes and the interpretation of interrelationships of individual features in their physical and cultural complex.
Mr. Thrower

M270. Advanced Quantitative Analysis.
(Formerly numbered M276; same as Architecture and Urban Planning M232A.) Lecture, two hours; laboratory, two hours. Prerequisites: course 171 or equivalent or consent of instructor. Advanced topics in the utilization of mathematical and statistical techniques for geographic research. Emphasis on linear models, factor analysis and grouping procedures as applied to geographic data bases.
Mr. Clark

M272. Spatial Statistics.
(Formerly numbered M277; same as Architecture and Urban Planning M232B.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisites: Mathematics 50B or course 171 and consent of instructor. Specific techniques useful in the analysis of spatial distributions, including both point and areal patterns; and emphasizing spatial descriptive statistics, probability models of spatial distributions, and statistical surfaces.
Mr. Clark

273. Seminar: Model Building for Spatial Analysis.
(Formerly numbered 279.) Discussion, three hours. Prerequisites: course M270 or consent of instructor. Discussions of the philosophy and methodology of

model building. The focus will be on the problems unique to models of spatial structure. Individual research topics will be emphasized. May be repeated for credit.

Mr. Clark, Mr. Huff

M278. Seminar: Dating Techniques in Environmental Sciences and Archaeology.

(Formerly numbered M271; same as Anthropology M296.) Discussion, three hours. Prerequisites: consent of instructor. A colloquium devoted to topics in dating techniques in environmental sciences and archaeology as well as laboratory instruction and experimental work. May be repeated for credit.

Mr. Berger

GROUP IV: SEMINARS IN REGIONAL GEOGRAPHY

280-291. Selected topics for each seminar. Each may be repeated for credit.

Lecture, two hours; discussion, two hours.

280. Anglo-America.

(Formerly numbered 290A.) Prerequisite: course 180 or consent of instructor.

Mr. McKnight, Mr. Nelson

281. Middle America.

(Formerly numbered 290B.) Prerequisites: course 181 and consent of instructor.

Mr. Bennett, Mr. Bruman

282. South America.

(Formerly numbered 290C.) Prerequisites: course 182 and consent of instructor.

Mr. Bennett, Mr. Bruman

283. Europe.

(Formerly numbered 290D.) Prerequisites: course 183 and consent of instructor.

Mr. Kostanick, Mr. Thrower

284. Soviet Union.

(Formerly numbered 290E.) Prerequisites: course 184 and consent of instructor.

Mr. Kostanick

285. South and South East Asia.

(Formerly numbered 290F.) Prerequisites: course 185 and consent of instructor.

The Staff

286. Eastern Asia.

(Formerly numbered 290G.) Prerequisites: course 186 and consent of instructor.

Mr. Salter

287. Middle East.

(Formerly numbered 290H.) Prerequisites: course 187 and consent of instructor.

Mr. Hale

288. Northern Africa.

(Formerly numbered 290I.) Prerequisites: course 188 and consent of instructor.

Mr. Hale, Mr. Thomas

289. Middle and Southern Africa.

(Formerly numbered 290J.) Prerequisites: course 189 and consent of instructor.

Mr. Thomas

290. Australasia.

(Formerly numbered 290K.) Prerequisites: course 190 and consent of instructor.

Mr. McKnight

291. The Arid Lands.

Prerequisites: courses 102, 104, 106, 108, 116, 120, 148, or equivalent and 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 occupance, including future possibilities for human utilization.

The Staff

292. Advanced Regional Geography: Selected Regions.

Lecture, three hours; discussion, one hour. Prerequisites: appropriate upper division regional course. A lecture series devoted to a specific region at the discretion of the instructor. May be repeated for credit.

The Staff

495. Teaching of College Geography. (½ course)

Discussion, one hour; laboratory, three hours. Prerequisite: consent of instructor. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. May be repeated for credit.

Mr. McKnight

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses)

Prerequisite: consent of the instructor.

The Staff

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examination. (½ to 2 courses)

Special individual study. Prerequisite: consent of the instructor.

The Staff

598. Research for and Preparation of the Master's Thesis. (½ to 2 courses)

Independent study. Prerequisite: consent of the instructor.

The Staff

599. Research for and Preparation of the Doctoral Dissertation. (½ to 2 courses)

Independent study. Prerequisite: consent of the instructor.

The Staff

■ GEOLOGY

(Department Office, 3806 Geology Building)

Donald Carlisle, Ph.D., *Professor of Geology.*

John M. Christie, Ph.D., *Professor of Geology.*

Wayne A. Dollase, Ph.D., *Professor of Geology.*

**W. Gary Ernst, Ph.D., *Professor of Geology and Geophysics.*

Clarence A. Hall, Jr., Ph.D., *Professor of Geology (Chairman of the Department).*

**Isaac R. Kaplan, Ph.D., *Professor of Geology and Geophysics.*

George C. Kennedy, Ph.D., *Professor of Geochemistry and Geology.*

Helen Tappan Loeblich, Ph.D., *Professor of Geology.*

Clemens A. Nelson, Ph.D., *Professor of Geology (Vice Chairman of the Department).*

Gerhard Oertel, Dr.rer.nat., *Professor of Geology.*

John L. Rosenfeld, Ph.D., *Professor of Geology (Vice Chairman of the Department).*

**J. William Schopf, Ph.D., *Professor of Geology and Geophysics.*

**Ronald L. Shreve, Ph.D., *Professor of Geology and Geophysics.*

Kenneth D. Watson, Ph.D., *Professor of Geology.*

U. S. Grant IV, Ph.D., *Emeritus Professor of Geology.*

Willis P. Popenoe, Ph.D., *Emeritus Professor of Geology.*

George Peter Bird, Ph.D., *Assistant Professor of Geology.*

Susan Werner Kieffer, Ph.D., *Assistant Professor of Geology.*

Douglas M. Lorenz, Ph.D., *Assistant Professor of Geology.*

Walter E. Reed, Ph.D., *Assistant Professor of Geology.*

♦

**Orson L. Anderson, Ph.D., *Professor of Geophysics.*

Charles T. Foster, Ph.D., *Acting Assistant Professor of Geology.*

David D. Jackson, Ph.D., *Assistant Professor of Planetary Physics.*

Robert E. Jones, B.S., *Lecturer in Geology.*

**Willard F. Libby, Ph.D., *Professor of Chemistry.*

Alfred R. Loeblich, Ph.D., *Adjunct Professor of Geology.*

Paul M. Merifield, Ph.D., *Lecturer in Engineering and Environmental Geology.*

Everett C. Olson, Ph.D., *Professor of Zoology.*

Thomas E. Ronan, Ph.D., *Acting Assistant Professor of Geology.*

LouElla R. Saul, M.A., *Senior Museum Scientist.*

Takeo Susuki, M.A., *Senior Museum Scientist.*

Peter P. Vaughn, Ph.D., *Professor of Zoology.*

**John Wasson, Ph.D., *Professor of Chemistry and Geophysics.*

Edward C. Wilson, Ph.D., *Research Associate in Geology.*

The programs described below are designed to provide the student majoring in earth sciences with broad training in curricula leading to the Bachelor of Science degree in Geology, Applied Geophysics, or Engineering Geology.

Students majoring in the Department must confer with the Undergraduate Adviser at or before the beginning of each quarter. Sample undergraduate programs for the major in Geology, Applied Geophysics, and Engineering Geology, are available in the departmental office.

GEOLOGY MAJOR

Preparation for the Major

Geology 1, 2, 51A, 51B, 51C; Biology 1A, 1B, or 2, 13; Chemistry 11A, 11B, 11BL, 11C, 11CL, or 13A and 13B; Mathematics 31A-31B-

**Member of the Institute of Geophysics and Planetary Physics.

31C or 3A-3B-3C, 31C; Physics 6A, 6B, 6C or 8A, 8B and 8C; *four* additional courses from other fields with approval of the Undergraduate Adviser.

The Major

Geology 111A, 111B, 111C, 112, 115, or 120B, 121A, 121B, M136, 141; two additional upper division courses in geology, other than 100 or 199.

APPLIED GEOPHYSICS MAJOR

Preparation for the Major

Geology 1, 51A, 51B, 51C; Biology 1A, 1B or 2, 13; Chemistry 11A, 11B, 11BL, 11C, 11CL or 13A and 13B; Mathematics 31A-31B-31C or 3A-3B-3C, 31C; 32A-32B-32C; Physics 8A-8D.

The Major

Geology 111A, 111B, 111C, M136, two courses from Geology 103, 112, M119, 137, 138, 139; Physics 105A, 110A, 114; Physics 131A or Mathematics 145A; three courses from Chemistry 110A, 110B, Mathematics 140A, 140B, 140C, 152A, 152B, Physics 105B, 110B, 115A, 116, Physics 131B or Mathematics 145B, Geophysics and Space Physics 101, 120.

ENGINEERING GEOLOGY

Preparation for the Major

Geology 1, 15, 51A, 51B, 51C; Biology 1A-1B or 2, 13; Chemistry 11A, 11B, 11BL, 11C, 11CL or 13A and 13B; Mathematics 31A-31B-31C or 3A-3B-3C, 31C; 32A; Physics 8A-8B-8C.

The Major

Geology 111A-111B-111C, 112, 121A-121B, 139; Engineering 108, 184A, 184B, 185A-185B; two courses from: Geology 128, M136, 137, 138, 141, Geography 102.

Students planning to do graduate work in specialized careers in earth science should aim to take, when possible, appropriate courses in departments outside the major in addition to those already specified. Suggested graduate programs for various fields of emphasis are available in the departmental office and will provide guidelines in choosing upper divison courses.

Qualified undergraduate students may, upon consent of their advisers and the instructor, take Geology graduate courses numbered from 200 to 250.

Honors in Geology

The honors program in Geology is intended to provide exceptional students an opportunity for advanced research and study under the tutorial guidance of a member of the faculty. Requirements for admission to candidacy are the same as those required for admission to the Honors Program of the College of Letters and Science. Qualified students wishing to enter the program must submit a completed application form to the Departmental Honors Committee near the end of their junior year. Honors in Geology are awarded upon graduation to those students who have a cumulative gpa of 3.25, who have completed at least 20 graded courses in the University of California, and who have completed a minimum of two quarters (8 units) of course 199H leading to the preparation of a satisfactory honors thesis. Students demonstrating exceptional ability will be awarded Highest Honors.

Graduate Study

Students must have a B.S. or B.A. degree in any subject. *All entering graduate students are required to take the General Preliminary Examination early in the Fall Quarter of their first year of residence.* This examination is general in scope, is based upon undergraduate courses only, and is used only for guidance. It has no bearing on admission to graduate status.

Master of Science Degree

General University requirements. See the Graduate Division.

Departmental requirements. The basic requirement is the completion of a minimum of *nine* upper division and graduate courses from any physical and/or life science department, of which at least six courses must be at the graduate level, subject to approval by a guidance committee. Of the six graduate level courses, at least one must be a seminar and one may be a 500-series course.

The Thesis Plan is required for those students for whom the M.S. degree is terminal. For those students proceeding to the Ph.D degree, the Comprehensive Examination Plan is recommended.

Students with differing degree objectives (i.e., physical geology, geophysics, mineralogy, petrology, geochemistry, engineering geology, sedimentology-stratigraphy, paleontology, mineral deposits) will be expected to take appropriate courses in departments outside the major.

Doctor of Philosophy Degree

General University requirements. See Doctoral Degrees.

Students may proceed directly from the B.A. or B.S. degree toward the Ph.D. degree without receiving the M.S. degree. There is no fixed number of courses required for the Ph.D. degree. It is awarded primarily on the ability to do original research and on an understanding of the science as demonstrated by the completion of a dissertation and passing a series of examinations.

As the specific requirements for the degree will depend upon a student's area of interest and prior training, individual programs will be designed in consultation with a guidance committee. It is expected that the student will satisfy the minimum formal course program for the M.S. degree and a further program of intensive study and research, including where appropriate, courses from physical and/or life science departments outside the major. Each student in the Ph.D. program is required to enroll in at least one geology seminar course (Geology 251-260) each year of residence.

In addition to the General Preliminary Examination, the required examinations include: a departmental written and oral examination including the area of specialization of the candidate; an Oral Qualifying Examination; and the Defense of Dissertation.

Foreign languages are not a specific requirement for the Ph.D. degree. Each student's guidance committee will determine: (a) whether or not there will be foreign language requirements for their advisee, (b) what the requirements, if any, will be, (c) how the requirements, if any, may be fulfilled.

Lower Divison Courses

1. Fundamentals of Earth Science.

Lecture, three hours; laboratory; two hours. Prerequisite: none. Elements of earth science; study of earth materials; the nature and interpretation of geologic evidence; study of geologic processes; historical aspects of geology.

The Staff (F,W,Sp)

2. Earth History.

Discussion, three hours; laboratory and field work, three hours. Prerequisite: course 1. Methods of historical science; consideration of special problems relating to the physical and biological evolution of the earth from earliest time to the present.

Mrs. Loeblich (W)

5. Earth Science and Society: Geological Ecological Interactions.

Lecture, three hours; discussion, two hours; field trips. Prerequisite: none. Geologic aspects of major environmental problems with emphasis on lithosphere-biosphere interactions. Problems of exploration and exploitation of fossil fuel resources. Comparison of society-produced materials and natural cycles.

Mr. Reed (F)

10. Geology of California.

Lecture, two hours; field excursions — three weekends (ten days); laboratory, two hours (alternate weeks). Prerequisite: course 1. General survey of major geologic features and geologic history of California; its relationship to large scale crustal motions of Western North America and the Eastern Pacific. Environmental Geology; study of geologic hazards such as earthquakes, landslides; aspects of urban geology.

Mr. Nelson (Sp)

15. Introduction to Oceanography.

Lecture, three hours; discussion, one hour. Not open for credit to students who have taken Biology 25. Processes responsible for the chemical composition of the ocean, and current circulation patterns. Sea floor spreading and morphology of the ocean floor. Biological productivity, marine ecology, and minerals forming in the ocean.

Mr. Kaplan, Mr. Ronan (F,W,Sp)

20. Natural History of Southern California.

Lecture, one hour; laboratory, three hours; seven field weekends. Prerequisite: none. Identification, distribution, diversity of plants, animals, and communities; environmental factors influencing distribution in alpine to lower desert life zones. Identification, interpretation, and physical history of rocks, landforms, and structural geologic features within the physiographic regions of southern California. Emphasis is on field based learning related to integrated aspects of natural history.

Mr. Hall (Sp)

51A. Mineralogy-Petrology.

Lecture, three hours; laboratory, six hours. Prerequisites: course 1, Chemistry 11C, 11CL or consent of instructor. Mineralogic crystal chemistry; relation of physical properties to structure. Structural classification and petrogenesis of the main rock-forming minerals. Laboratory study of crystallography and identification of minerals in igneous, sedimentary and metamorphic rocks.

Mr. Dollase (F)

51B. Mineralogy-Petrology.

Lecture, three hours; laboratory, six hours. Prerequisites: course 51A and an introductory course in high school or college physics or the consent of the instructor. Principles of optical crystallography. Utilization of optical properties to identify non-opaque minerals in immersion media and in thin section. Sufficient theory is presented to understand the operations performed in the laboratory.

Mr. Dollase (W)

51C. Mineralogy-Petrology.
Lecture: three hours; laboratory, six hours. Prerequisite: course 51B. Composition, occurrence, and origin of igneous, sedimentary, and metamorphic rocks; megascopic and microscopic study of rocks.
Mr. Watson (Sp)

Upper Division Courses

100. Principles of Earth Science.
Lecture, three hours. Designed for non-majors. Fundamentals of physical geology and earth history; major problems of geology, such as continental drift and development of large scale features of the earth; physical and biological evolution. Not open to students who have taken Geology 1.
Mr. Oertel (Sp)

103. Intermediate Petrology.
Lecture, two hours; laboratory, six hours. Prerequisite: course 51C. Microscopic and megascopic study of selected suites of igneous, sedimentary, and metamorphic rocks; their composition, occurrence, and origin.
Mr. Watson (F)

105. Earth Science and Society: Nonrenewable Resources and Geological Hazards.
Lecture, three hours; discussion, demonstrations and Seminars, two hours; field trip. Prerequisite: course 1 or consent of instructor. An enquiry into the alternatives, opportunities and constraints imposed upon the activities and aspirations of mankind by geological processes and by the characteristics of earth materials. Topics include the nature of non-petroleum mineral resources, mineral and environmental depletions and conservation, the recognition of geological hazards and possible responses. Open to non-majors.
Mr. Carlisle (Sp)

111A. Elements of Field Geology.
Prerequisite: course 1 or consent of instructor; majors must have completed course 51C or be enrolled concurrently in course 51A; course 112 normally is taken concurrently. Techniques of geologic mapping; preparation of geologic reports; methods of mapping faults and folds, sedimentary, igneous, and metamorphic terrains, and Quarternary deposits; introduction to field methods in engineering and environmental geology, petroleum geology, and mining geology and mineral exploration; interpretation of geologic maps; field exercises in pace-and-compass topographic and geologic mapping.
Mr. Shreve (F)

111B. Stratigraphic and Field Geology.
Prerequisite: course 111A or consent of instructor. Principles of stratigraphy; geologic mapping of a selected area; preparation of a geologic report.
Mr. Hall (W)

111C. Field Geology.
Prerequisite: course 111B or consent of instructor. Interpretation of geologic maps and aerial photographs; plane table mapping; geologic mapping of a selected area; preparation of a geologic report.
Mr. Nelson (Sp)

111AG-111BG-111CG. Field Geology. (½ to 1 course)
Prerequisite: graduate standing and consent of instructor. Geologic mapping, principles of stratigraphy, structural Geology and map interpretation.
The Staff (F,W,Sp)

112. Structural Geology.
Lecture, three hours; laboratory, three hours. Prerequisite: course 111A (must be taken concurrently), or consent of instructor. Planar and linear structures at different scales in sedimentary, metamorphic, and igneous rocks. Faults and folds, their description, classification, and dynamic analysis. Deformation, strength, fracture, and rheological properties of rocks.
Mr. Christie, Mr. Oertel (F)

114. Intermediate Structural Geology.
Lecture, two hours; laboratory, three hours; field trips. Prerequisite: course 112 or consent of instructor. Large scale tectonics. The major structural features of the continental and oceanic crust of the earth; their geometry, geological and geophysical characteristics and theories as to their mode of origin. Orogenesis, continental drift, sea-floor spreading and plate tectonics. Methods of structural analysis and interpretation of geological structures.
Mr. Christie, Mr. Oertel (W)

115. Principles of Paleontology.
Lecture, three hours; laboratory, two hours; field trips. Prerequisite: none. Principles governing the evolution and distribution of fossils; the geologic history of plants, invertebrates and vertebrates.
Mr. Hall, Mr. Lorenz, Mr. Schopf (F,Sp)

116. Intermediate Paleontology.
Lecture, two hours; laboratory, six hours; field trips. Prerequisite: course 115, or advanced standing in biological sciences, or consent of the instructor. The detailed study of selected groups of fossils, including emphasis on evolution, classification, paleoecology, and stratigraphic utility.
Mr. Hall, Mrs. Loeblich, Mr. Lorenz (W)

M117. Vertebrate Palentology.
(Same as Biology M117.) Lecture three hours; laboratory, three hours. Prerequisite: Biology 110. Recommended: a course in general geology. Limited enrollment. The fossil record of the evolution of the vertebrates, with emphasis on the morphology of primitive forms in the series from fish to mammal.
Mr. Vaughn

***M118. Paleobotany.**
(Formerly numbered 218). (Same as Biology M118). Lecture, three hours; laboratory, three hours. Prerequisites: one course in biological science or consent of instructor. Recommended: course 2 or equivalent. Survey of morphology, paleobiology, and evolution of vascular and non-vascular plants during geologic time, with particular emphasis on major evolutionary events.
Mr. Schopf

M119. Continental Drift and Sea Floor Spreading.
(Same as Geophysics and Space Physics M119.) Prerequisite: senior standing in Geology, Physics or Mathematics. Evidence for continental drift and sea floor spreading from age-dating of marine sediments and continents and from seismic, magnetic and heat-flow data. Description of sea floor topography and sediments. Processes at mid-ocean rises and edges of plates. Description of events on the continental margins. Biological and biostratigraphic implications. Field work at option of instructors.
Mr. Ernst (Sp)

***120A. Rubey Colloquim: Major Advances in Earth Science.**
Lecture, three hours. Prerequisites: upper division standing. Lectures on major advances in earth science. Series of lectures to be offered by distinguished authorities (including regular faculty). Supervision of continuity and assessment of student performance by a faculty member. Series of lectures or short courses to cover topics such as continental drift or plate tectonics, nonrenewable natural resources, geologic hazards, geophysics, geochemistry, i.e., aspects of physical or chemical geology. Students should consult the Department prior to enrolling in order to ascertain course content. Content or subjects will vary from year to year.
The Staff (F)

120B. Rubey Colloquium: Major Advances in Earth Science.
Lecture, three hours. Prerequisite: upper division standing. Lectures on major advances in earth science. Series of lectures to be offered by distinguished authorities (including regular faculty). Supervision of continuity and assessment of student performance by a faculty member. Series of lectures of short courses to cover topics such as major events in the evolution of life, paleoecologic interpretation, paleobiologic aspects of continental drift, origin of life, etc., i.e., aspects of biogeology. Students should consult Department prior to enrolling in order to ascertain course content. Content or subjects to vary. Laboratory work may be required. When required, students also will register for course 199 (Special Studies in Geology), ½ course.
The Staff (F).

121A. Advanced Field Geology. (2 courses)
Summer, all day, eight weeks. Prerequisite: course 111C or consent of instructor; course 121B must be taken concurrently. Problems in field geology; preparation of geologic maps and structure sections of selected areas.
Mr. Ernst, Mr. Hall, Mr. Nelson

121B. Advanced Geologic Report Writing.
Summer, eight weeks. Prerequisite: must be taken concurrently with course 121A. Preparation of geologic reports in the field and a final summary report on region mapped in course 121A.
Mr. Ernst, Mr. Hall, Mr. Nelson

128A. Mineral Deposits.
Lecture, three hours; laboratory, three hours. Prerequisite: course 51C. Origin and occurrence of important mineral deposits with emphasis on chalcophile elements and sulfide ores. (Alternates yearly with course 128B.)
Mr. Carlisle (F)

***128B. Mineral Deposits**
Lecture, three hours; laboratory, three hours. Prerequisite: course 51C. Origin and occurrence of important mineral deposits with emphasis on siderophile and lithophile elements and their minerals. (Alternates yearly with course 128A.)
Mr. Carlisle (F)

M129. Geothermics.
(Same as Geophysics and Space Physics M129.) Lecture, three hours. Heat flow on the surface of the earth. Origin and distribution of heat sources. Heat transfer in minerals and in the earth. The geothermal gradient, geobarometry and geothermometry. Geology and geochemistry of geothermal areas. Drilling for geothermal power.
Mr. Anderson, Ms. Kieffer

***M130. Isotope Geochemistry.**
(Same as Geophysics M130.) Lecture, three hours; discussion, one hour. Prerequisites: junior or senior standing in physical or biological science and consent of instructor. Theoretical aspects of geochronology, particularly Carbon-14 dating. Applications of radioisotopes to the hydrologic cycle and to atmospheric circulation. Stable isotope distribution in nature. Exchange mechanisms and their applications to paleotemperatures, hydrology, mineral formation and origin of biological deposits. (Alternates yearly with Geology and Geophysics M131.)
Mr. Kaplan, Mr. Libby (W)

M131. Geochemistry.
(Same as Geophysics M131 and Geophysics and Space Physics M131.) Lecture, three hours; discussion, one hour. Prerequisite: junior or senior standing in chemistry, physics, or geology, or consent of instructor. Origin and abundance of the elements in the earth, oceans, and atmosphere; chemistry of the earth's interior, phase transformations at high pressure and temperature. (Alternates yearly with Geology and Geophysics M130.)
Mr. Kennedy, Mr. Wasson (W)

132. Principles of Biogeochemistry.
Lecture, three hours; laboratory, four hours. Prerequisite: Chemistry 21. Organic substances as evidence for origin and biochemical evolution of life; origin and development of petroleum; comparative properties of

*Not to be given, 1976-1977.

recent and ancient sediments, and application of molecular stratigraphy to modern and ancient sediemnts.
Mr. Kaplan, Mr. Reed, Mr. Schopf (F)

133. Regional Geology.
Lecture, three hours; discussion, two hours. Prerequisite: course 111C or consent of the instructor. Application of geologic, stratigraphic, paleontologic, biologic, and climatic principles to a specific province or provinces. Emphasis on tectonic evolution of selected regions.
Mr. Ernst, Mr. Nelson, Mr. Rosenfeld (F)

M136. Geophysical Exploration.
(Same as Geophysics M136 and Geophysics and Space Physics M136.) Lecture, three hours. Prerequisite: consent of instructor. Principles and techniques of gravimetric, seismic, magnetic, and other geophysical methods of exploration for ores, petroleum, and other economic minerals.
Mr. Jackson (Sp)

137. Petroleum and Ground-Water Geology.
Lecture, two and a half hours. Prerequisite: course 111C, or consent of the instructor. Geology applied to exploration for and production of natural gas, petroleum, and water; techniques of surface and subsurface geology; problems of petroleum and ground-water geology.
Mr. Johnson (F)

***138. Mining and Exploration Geology.**
Lecture, three hours; field trips. Prerequisite: course 51C. Geological principles applied to the exploration for and evaluation of mineral deposits; geological techniques at operating mines; mine economics; exploration geology and mineral resource economics.
Mr. Carlisle, Mr. Watson (Sp)

M139. Engineering and Environmental Geology.
(Same as Architecture and Urban Planning M195.) Lecture, two and a half hours, field trips. Prerequisite: course 1 or 100; 111A recommended. Principles and practice of soil mechanics and foundation engineering in light of geologic conditions, recognition, prediction and control or abatement of subsidence, landslides, earthquakes and other geologic aspects of urban planning and subsurface disposal of liquids and solid wastes.
Mr. Merifield (W)

141. Sedimentology.
Lecture, two hours; laboratory, six hours. Prerequisite: course 111B taken concurrently or consent of instructor. Characteristics of sediment particles, dynamics of sedimentary processes and process-significance of sedimentary features. Interpretation of depositional environments is strongly emphasized.
Mr. Reed (W)

144. Marine Geology.
Lecture, three hours; laboratory, six hours; field trips. Prerequisite: senior standing. Recent marine sedimentology, and geochemistry; oceanography morphology, structure and geologic history of the ocean basins.
Mr. Kaplan (F)

150. Remote Sensing for Earth Sciences.
Prerequisite: open to upper division and graduate students. Remote sensing related to the development of natural resources. Characteristics of the electromagnetic spectrum and review of remote sensing devices. Applicability to land use classification, soil survey, urban studies, vegetation classification; emphasis on geologic interpretation of imagery.
Mr. Sabins (F)

***M160. Astrogeology.**
(Same as Geophysics and Space Physics M160.) Lecture, three hours. Prerequisites: basic geology and calculus, or consent of instructor. Surface modification processes on the planets; meteorite impact and volcanism; field, laboratory and theoretical concepts of impact cratering and shock waves; volcanic landforms and processes; Lunar and Martian impact and volcanic features; field trip to Meteor Crater, Arizona.
Mrs. Kieffer (Sp)

190. Geology Seminar. (½ course)
Discussion and lecture, two hours. Prerequisite: junior or senior standing. Limited to undergraduate students. Current topics of geologic research. To be given on pass/not pass basis. May be repeated more than once for credit.
The Staff (W)

195G. Field Geology for Graduate Students (½ course)
Field mapping; preparation of a geologic report.
Mr. Hall (F)

199. Special Studies in Geology. (½ to 1 course)
Students may be allowed to take course more than once for credit.
The Staff

199H. Honors Research in Geology.
Prerequisites: senior standing and permission of the departmental honors committee. Individual research designed to broaden and deepen the student's knowledge of some phase of geology.
The Staff

Graduate Courses

***200. Geology Colloquium. (½ course)**
Lecture, one to two hours. Reading and discussion in the frontiers of earth science. (1) mineralogy-petrology-geochemistry; (2) paleontology-sedimentology-oceanography; or (3) tectonics-structural geology-physical geology.
The Staff

210. Advanced Paleontology.
Lecture, two hours; laboratory, six hours; field trips. Prerequisite: course 115 or advanced standing in biological science. Lectures will emphasize evolutionary, ecological, stratigraphic and taxonomic aspects of fossil invertebrates. Field work and laboratory will be devoted to a research project and written report.
Mr. Hall, Mr. Lorenz (F)

212. Paleoecology.
Lecture, two hours; laboratory, six hours; field trips. Prerequisites: course 115 and 111C or graduate standing in biological science. How and where animals and plants lived in the past; study of habits and habitats of animals, changes in habits and habitats, and the distribution of animals through time and space.
Mr. Hall, Mrs. Loeblich, Mr. Ronan (W)

215. Paleobiology of Plant Microorganisms.
Lecture, two hours; laboratory, six hours. Prerequisite: course 115 or advanced standing in biological science. Survey of morphology, evolution and diversification, environmental interactions, and stratigraphic value of bacteria, algae and fungi, with emphasis on dinoflagellates and acritarchs, chrysomonads, silicoflagellates, ebridians and diatoms, discoasters and coccolithophorids. (Alternates yearly with course 216.)
Mr. Loeblich (F)

***216. Micropaleontology.**
Lecture, two hours; laboratory, six hours. Prerequisite: course 115 or advanced standing in biological science. Survey of microfossils of the animal kingdom, their systematics, morphology, ecology, evolutionary history and stratigraphic use, with emphasis on foraminiferans, radiolarians, chitinozoans, tintinnids, ostracods, scolecodonts and conodonts. (Alternates yearly with course 215.)
Mrs. Loeblich

220. Principles of Paleobiology.
Lecture and discussion, three hours; laboratory, field or library research leading to a term paper. Prerequisite: graduate standing in science; qualified undergraduates in biological and physical sciences admitted with consent of instructor. Current and classic problems in paleobiology, with emphasis on interdisciplinary problems involving aspects of biology, geology, organic geochemistry and cosmology. Course content to vary from year to year.
Mr. Schopf (F)

***225. Theoretical Geomorphology.**
Lecture, three hours. Prerequisite: Mathematics 32C and one course in elementary probability theory, or consent of instructor; recommended, Geography 102. Analysis of the intellectual foundations and objectives of modern geomorphology, illuminated by selected past and present theories of river profiles, slope processes, and channel networks. Reading and discussion of original sources. Preparation of term paper. (Offered approximately every third year.)
Mr. Shreve (W)

***230. X-Ray Crystallography.**
Lecture, three hours; laboratory, three hours. Prerequisite: course 51C. Point, translation, and space group symmetry, diffraction of x-rays, reciprocal lattice theory, single crystal x-ray methods, diffraction symmetry and elementary crystal structure analysis. (Alternates yearly with course 231.)
Mr. Dollase

***231. Crystal Chemistry and Structure of Minerals.**
Lecture, three hours; laboratory, three hours. Prerequisite: course 51C. Bonding, interatomic configurations, polymorphic transformations, isotypism, thermal and positional disorder; survey of the structures of the common minerals, and relation of physical and chemical properties to crystal structure. (Alternates yearly with course 230.)
Mr. Dollase

***232. Thermodynamics of Crystals.**
Lecture, three hours, discussion, one hour. Prerequisite: Physical Chemistry (including thermodynamics and some chemical quantum mechanics) and course M134; or consent of instructor. Application of fundamentals of methods for approximating lattice vibrational spectra. Calculation of thermodynamic functions of silicates. Interpretation of experimental data. Systematic variations in thermodynamic functions with crystal structure. Given alternate years.
Mrs. Kieffer

M233. Mineral Physics and Equation of State.
(Formerly numbered M134 and same as Geophysics and Space Physics M233). Lecture, three hours. Prerequisite: consent of instructor. Interrelationship of the physical properties of rock-forming minerals: optical reflectivity, refraction index, sound velocity, elastic constants, specific heat, and thermal expansivity. Determination of pressure, volume, and temperature relationships in planet-forming compounds. Variation of elastic constants with temperature and pressure. Application of shock-wave experiments to equations of space.
Mr. Anderson

234. Phase Equilibria.
Lecture, three hours; discussion, two hours. Prerequisites: course 51C, Chemistry 110B or consent of instructor. Principles governing homogeneous and heterogeneous equilibria, with selected applications to mineral stability relations in igneous and metamorphic rocks (fractional crystallization, partial melting, hydrothermal solutions, element partitioning in coexisting phases).
Mr. Ernst

M235A-235B-235C. Current Research in Geochemistry. (¼ course each)
(Same as Geophysics M235A-235B-235C.) Seminars presented by staff, outside speakers and graduate stu-

*Not to be given, 1976-1977.

dents stressing current research in earth and planetary chemistry. Grading on satisfactory/unsatisfactory basis. May be repeated for credit.

The Staff

***236A. Igneous Petrology.**

Lecture, two hours; laboratory, six hours. Prerequisites: course 234 (may be taken concurrently) and a knowledge of differential equations. Solutions of the heat flow equation for specific examples of cooling magmatic bodies; the nature and origin of batholiths and associated rocks. (Alternates yearly with course 236B).

The Staff

***236B. Igneous Petrology.**

Lecture, two hours; laboratory, six hours. Prerequisite: course 234 or consent of instructor. Occurrence and origin of mafic and ultamafic rocks. (Alternates yearly with course 236A.)

Mr. Watson

238. Metamorphic Petrology.

Lecture, three hours; laboratory, six hours. Prerequisite: course 103 or consent of the instructor. Interpretation of metamorphic rocks in the light of observation, theory, and experiment. Geological relations, petrographic evidence, metamorphic zoning, thermodynamics of phase equilibria, projections, chemographic relationships, use of piezobirefringent haloes, Rayleigh depletion model, isotopic fractionation, environmental factors of metamorphism. Laboratory study of representative metamorphic rocks and suites of rocks selected to illustrate topics discussed in lectures.

Mr. Rosenfeld

***239. Structural Petrology of Deformed Rocks.**

Lecture and discussion, three hours; laboratory, three hours. Prerequisite: courses 51C, 111; 114 or 248 recommended, or consent of instructor. Use of universal stage. Microscopic study of textures, structures and preferred orientations of minerals in tectonites. Deformation mechanisms in crystals and aggregates. Theories of development of preferred orientation. Application of experimental data to the interpretation of microfabrics. (Alternates yearly with course 249.)

Mr. Christie

***241. Sedimentary Petrology.**

Lecture, two hours; laboratory, six hours. Prerequisite: course 51C, recommended course 141. Texture, composition, structure, and modes of origin of the sedimentary rocks. Content varies from year to year.

Mr. Reed

246A-246B. Stress and Deformation.

Lecture, three hours. Prerequisites: Physics 8A, 8B, Mathematics 31C, 32A, 32B, or consent of instructor. Scalars, vectors, tensors; subscript notation; rotation and inversion of axes, transformation matrix; stress; finite homogeneous strain, rotation; infinitesimal strain, strain rate; Mohr's circle construction and other graphical methods; flow laws. (Offered every third year.)

Mr. Oertel (F,W)

***247. Glaciology.**

Lecture, three hours. Prerequisites: course 246A or similar course, or consent of instructor. Occurrence and classification of glaciers; accumulation and ablation; glacier budget; mechanical properties of ice; glacier flow; crevasses; textural and structural features; thermal relationships; bed slip; climatic response; catastrophic advances. (Offered every third year.)

Mr. Shreve

***248. Advanced Structural Geology.**

Lecture, three hours; discussion, two hours. Prerequisite: course 111C. Principles governing fracture, folding, and flow of rocks; solution of structural problems at various scales; regional tectonic problems.

Mr. Christie, Mr. Oertel

***249. Structural Analysis of Deformed Rocks**

Lecture and discussion, three hours; laboratory, three hours. Prerequisite: courses 111; 114 or 248 recommended, or consent of instructor. Geometrical analysis of megascopic structures in terranes with complex or multiple deformations. Analysis of strain from deformed primary features. Interpretation of structural history in metamorphic terranes. (Alternates yearly with course 239.)

Mr. Christie, Mr. Oertel

Graduate Seminars

All seminars and Geology 297, 298, 596, 597, 598, 599 are to be arranged, all require consent of instructor. Seminars vary in content and instructor according to interests of staff and students. The range of subject matter is indicated by the descriptions following each of the seminar headings. In some, two or more staff members offer a cooperative seminar or sequence of seminars. Students are allowed to take a specifically numbered seminar as often as desired because of changing course content.

251. Seminar in Mineralogy.

Examination of groups of rock-forming minerals (e.g., feldspars) integrating such aspects as crystal structure, crystal chemistry, phase equilibria, and petrogenesis.

Mr. Dollase (Sp)

M252. Seminar in Geochemistry.

(Same as Geophysics and Space Physics M252.) Phase equilibria under crustal conditions, chemistry of ocean waters, recent and ancient sediments, structure and chemistry of the upper mantle, geochronology, cosmochronology, and cosmochemistry.

The Staff

253. Seminar in Petrology.

Problems of igneous or metamorphic petrology: methods of evaluating physical conditions of metamorphism; diffusion in mineralogic systems; origin of ultramafic rocks and problems of the mantle; element fractionation among coexisting phases; other current subjects in the field.

Mr. Rosenfeld (W)

254. Seminar in Sedimentology.

Processes of sediment transport and deposition; deep sea sediments; deltas and estuaries; petrology of carbonates, sanstones, and lutites; stratigraphy; paleoenvironmental studies.

Mr. Ronan (F)

255. Seminar in Structural Geology and Tectonics.

Flow and fracture in the earth's crust from microscopic to continental scale and in experiments. Examples may include metamorphic terranes, glaciers, plutons, volcanoes, and consolidated or unconsolidated sediments. Modern concepts of the oceanic basins; processes leading to segregation of continental-type rocks.

Mr. Christie (Sp)

256. Seminar in Glaciology and Geomorphology.

Glacier physics, theoretical geomorphology, river mechanics, statistical models.

Mr. Shreve (W)

257. Seminar in Paleontology.

Current biogeologic literature and research on: evolution of selected groups of animals and plants, numerical taxonomy, organism-environmental relationships, origin and development of life, biostratigraphy, paleoecology, biogeography, and biostatistics.

Mrs. Loeblich (W)

*Not to be given, 1976-1977.

258. Seminar in Mineral Deposits.

Problems of distribution, composition, and formation of mineral deposits; mineral economics; investigations of opaque minerals by microscopic or other techniques.

Mr. Carlisle (W)

259. Seminar in Advance Topics in Geology. (½ to 1 course)

Topics to vary. May be repeated for credit.

The Staff

260. Seminar in Geological Physics. (½ to 1 course)

Problems of current interest in geological physics, including topics related to impact cratering processes, mechanisms of volcano eruption, high pressure properties of materials, and thermodynamics of crystals.

Mrs. Kieffer (F)

M283. Seminar in Environmental Science and Engineering.

(Same as Geophysics and Space Physics M283.) Problems of current interest concerning the interaction of man, technology, and the environment, such as: regional water and energy allocation; earthquake mechanism; geochemistry of pollution environmental fluid dynamics; engineering geology; environmental geology.

297. Advanced Techniques in Geological Research. (½ to 1 course)

Graded S/U.

298. Advanced Topics in Geology. (½ to 1 course) The Staff

501. Cooperative Program. (½ to 2 courses)

Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

Individual Study and Research

596. Directed Individual Study and/or Research. (½ to 2 courses) The Staff

597. Preparation for Master's Comprehensive Examination or Doctoral Qualifying Examination. (½ to 2 courses) The Staff

598. Master's Research and Thesis Preparation. (½ to 2 courses) The Staff

599. Doctoral Research and Dissertation Preparation. (½ to 2 courses) The Staff

Related Courses in Other Departments

Biology 262. Seminar in Vertebrate Paleontology.

Geophysics and Planetary Physics 250. Seminar in Geophysics.
260. Experimental Geology.

Geophysics and Space Science 200A. Fundamentals of Planetary and Space Physics 1: The Solid Earth.

200B. Fundamentals of Planetary and Space Physics 2: The Earth's Ocean and Atmosphere.

■ GEOPHYSICS AND PLANETARY PHYSICS

(Institute Office, 3871 Slichter Hall)

Orson L. Anderson, Ph.D., *Professor of Geophysics.*
C. Rainer Berger, Ph.D., *Professor of Geophysics, Geography and Anthropology.*
Friedrich H. Busse, Ph.D., *Professor of Planetary Physics.*
Paul J. Coleman, Jr., Ph.D., *Professor of Planetary Physics.*
W. Gary Ernst, Ph.D., *Professor of Geology and Geophysics.*
Isaac R. Kaplan, Ph.D., *Professor of Geology and Geochemistry.*
William M. Kaula, M.S., *Professor of Geophysics.*
George C. Kennedy, Ph.D., *Professor of Geochemistry and Geology.*
Charles F. Kennel, Ph.D., *Professor of Physics and Geophysics.*
Leon Knopoff, Ph.D., *Professor of Geophysics and Physics and Associate Director of the Institute of Geophysics and Planetary Physics.*
Willard F. Libby, Ph.D., *Professor of Chemistry and Director of the Institute of Geophysics and Planetary Physics.*
Richard Lingenfelter, B.A., *Professor of Geophysics and Planetary Physics in Residence.*
J. William Schopf, Ph.D., *Professor of Geology and Geophysics.*
Ronald L. Shreve, Ph.D., *Professor of Geology and Geophysics.*
John T. Wasson, Ph.D., *Professor of Geochemistry and Chemistry.*
Robert E. Holzer, Ph.D., *Emeritus Professor of Geophysics.*
Louis B. Slichter, Ph.D., *Emeritus Professor of Geophysics.*
R. L. McPherron, Ph.D., *Associate Professor of Planetary Physics and Geophysics.*

The Institute of Geophysics and Planetary Physics was established to encourage fundamental research in geophysics, geochemistry and space physics and to provide graduate instruction for qualified students. Members of the staff and associated departments are prepared to supervise graduate work in a variety of fields: atmospheric physics, physics of the radiation belts, interplanetary physics and solar physics, geophysical fluid dynamics, high pressure physics, tectonophysics, geochemistry, nuclear geophysics, age determination, gravitation, physical oceanography and marine geophysics, seismology, physics of the deep interior, and exploration geophysics. The bachelor's degree may be in any field; however, a thorough undergraduate preparation in one or more of the basic sciences, physics, mathematics or chemistry is expected of students pursuing graduate research. The student who elects to pursue research in geophysics, geochemistry or space physics may do so by enrolling in one of the following departments: geology, physics, meteorology, mathematics, astronomy, chemistry, geophysics and space physics or by entering the Geochemistry Interdepartmental Curriculum. An individual program of instruction will be worked out for each student, since the requirements for the M.S. or Ph.D. degree are not the same for all students. For further information, contact the Institute of Geophysics and Planetary Physics.

Undergraduate Study

Undergraduate students with an interest in graduate study in Geophysics are advised to complete a major in physics, mathematics or chemistry. Attention is also drawn to opportunities to complete an undergraduate course of studies in Geophysics and Space Physics and in Applied Geophysics. For information concerning these programs consult the catalog listings for the Department of Geophysics and Space Physics and the Department of Geology.

Upper Division Courses

M130. Isotope Geochemistry.
(Same as Geology M130.) Lecture, three hours; discussion, one hour. Prerequisites: upper division standing in physical or biological sciences and consent of instructor. Theoretical aspects of geochronology, particularly Carbon-14 dating. Application of radioisotopes to the hydrologic cycle and to atmospheric circulation. Stable isotope distribution in nature. Exchange mechanisms and their applications to paleotemperatures, hydrology, mineral formation and origin of biological deposits. (Alternates yearly with course M131).
Mr. Kaplan, Mr. Libby

M131. Geochemistry.
(Same as Geology and Geophysics and Space Physics M131.) Lecture, three hours; discussion, one hour. Prerequisites: junior or senior standing in chemistry, physics, or geology, or consent of instructor. Origin and abundance of the elements in the earth, oceans, and atmosphere; chemistry of the earth's interior, phase transformations at high pressure and temperature. (Alternates yearly with Geology and Geophysics course M130).
Mr. Kennedy, Mr. Wasson

M136. Geophysical Exploration.
(Same as Geology M136 and Geophysics and Space Physics M136.) Lecture, three hours. Prerequisite: consent of the instructor. Principles and techniques of gravimetric, seismic, magnetic, and other geophysical methods of exploration for ores, petroleum, and other economic minerals.

Graduate Courses

M235A-235B-235C. Current Research in Geochemistry. (¼ course each)
(Same as Geology M235A-235B-235C.) Lecture, one hour. Prerequisite: graduate standing in the Department of Geology or in the Interdepartmental Curriculum in Geochemistry. Seminars will be presented by staff, outside speakers and graduate students. Current research in earth and planetary chemistry will be stressed.
The Staff in Geochemistry

249. Experimental Petrology.
Prerequisite: consent of the instructor.
Mr. Kennedy

250. Seminar in Geophysics.
Prerequisite: consent of the instructor. Seismology, geophysical prospecting, electromagnetic prospecting. Selected topics in earth physics. The content will vary from year to year.

260. Experimental Geology. (¾ to 1½ courses)
Seminar, two hours; laboratory, optional. Prerequisite: consent of the instructor. The mechanics of rock deformation. Dimensional analysis and model theory applied to geological problems.

Individual Study and Research

596. Directed Individual Study or Research in Geophysics. (¼ to 1½ courses)
Prerequisite: consent of the instructor. Directed individual study or research in: theoretical and experimental studies relative to seismology and geophysics of the earth's interior (Mr. Knopoff); gravity, earth's free modes and earthtides (Mr. Slichter); space-plasma physics (Mr. Holzer); space and astrophysical plasmas (Mr. Kennel); cosmic ray physics and lunar and martian surface studies (Mr. Lingenfelter); mineral physics, elastic properties and shear instabilities of rocks and rock-forming materials (Mr. Anderson); volcanology, physics of high pressure, phase equilibria in geologically important chemical systems (Mr. Kennedy); radioactive dating and nuclear geophysics (Mr. Libby); orbital dynamics and planetary interiors (Mr. Kaula); geophysical fluid dynamics (Mr. Busse).
The Staff

596A. Directed Individual Study or Research in Geochemistry. (¼ to 1½ courses)
Prerequisite: consent of the instructor. Cosmochemistry, trace element abundances in meteorites, natural radioactivity (Mr. Wasson); radiocarbon dating, tritium hydrology and water and moisture circulation, radioactive fallout circulation and precipitation and assimilation into the biosphere, high pressure chemistry particularly as applied to planetary interiors, chemistry of ionizing radiation particularly as applied to planetary atmospheres (Mr. Libby); experimental investigation of phase equilibrium at high temperatures and pressures with emphasis on geochemically important systems (Mr. Kennedy); experimental and theoretical investigation of phase equilibrium relations involving crustal conditions (Mr. Ernst); sedimentary geochemistry, geochemistry of stable isotopes, geological microbiology, origin and diagenesis of marine and nonmarine sediments, chemical history of the oceans, organic compounds in meteorites and biochemistry of early evolutionary processes (Mr. Kaplan).
The Staff

597A. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. (¼ to 1½ courses)
For course content and staff see course 596.

597B. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. in Geochemistry. (¼ to 1½ courses)
For course content and staff see course 596A.

598. Research for and Preparation of the Master's Thesis in Geochemistry. (¼ to 1½ courses)
For course content and staff see course 596A.

599A. Research for and Preparation of the Doctoral Dissertation. (¼ to 1½ courses)
For course content and staff see course 596.

599B. Research for and Preparation of the Doctoral Dissertation in Geochemistry. (¼ to 1½ courses)
For course content and staff see course 596A.

■ GEOPHYSICS AND SPACE PHYSICS

(Department Office: 3687 Geology)

Orson L. Anderson, Ph.D., *Professor of Geophysics.*
Friedrich H. Busse, Ph.D., *Professor of Planetary Physics.*
Paul J. Coleman, Jr., Ph.D., *Professor of Planetary Physics.*
William M. Kaula, D.Sc., *Professor of Geophysics (Chairman of the Department).*
Leon Knopoff, Ph.D., *Professor of Geophysics and Physics.*
Richard E. Lingenfelter, B.A., *Professor of Geophysics in Residence.*
Gerald Schubert, Ph.D., *Professor of Geophysics and Planetary Physics (Vice Chairman of the Department).*
John T. Wasson, Ph.D., *Professor of Geochemistry and Chemistry.*
Robert E. Holzer, Ph.D., *Emeritus Professor of Geophysics.*
Ferdinand V. Coroniti, Ph.D., *Associate Professor of Physics and Space Physics.*
David D. Jackson, Ph.D., *Associate Professor of Geophysics.*
Hugh H. Kieffer, Ph.D., *Associate Professor of Planetary Physics.*
Margaret G. Kivelson, Ph.D., *Associate Professor of Space Physics in Residence.*
Robert L. McPherron, Ph.D., *Associate Professor of Space Physics and Geophysics.*

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W. Gary Ernst, Ph.D., *Professor of Geology.*
George C. Kennedy, Ph.D., *Professor of Geochemistry and Geology.*
Susan Werner Kieffer, Ph.D., *Assistant Professor of Geology.*
Ajit K. Mal, Ph.D., *Associate Professor of Engineering and Applied Science.*
George L. Siscoe, Ph.D., *Professor of Meteorology.*
Richard M. Thorne, Ph.D., *Associate Professor of Meteorology.*
Sekharipuram V. Venkateswaran, Ph.D., *Professor of Meteorology.*

Preparation for the Major

Chemistry 1A, 1B, 1C; Mathematics 31A, 31B, 31C and 32A, 32B, 32C; Physics 8A, 8B, 8C, 8D.

The Major

Physics 105A, 105B; 110A, 110B; 112A, 131A or Mathematics 145A; Geophysics and Space Physics M109A, 120, M154. Three courses selected from Geophysics and Space Physics 101, M119, M131, M134, M136, M160, 265. Three electives selected from upper division courses with the approval of the adviser.

Admission to Graduate Status

Students entering the Department should have bachelor's or master's degree in physics, or degree in astronomy, geophysics, chemistry, engineering, geology, mathematics or meteorology with a strong emphasis on appropriate courses in physics.

Program of Study

The program of study is designed to provide students with a firm background in physics and mathematics, together with basic knowledge in one or more fields of concentration. Appropriate fields of concentration are: the earth's interior, including gravity, tectonics, and seismology; geophysical fluid dynamics, including turbulence, rotating systems, and hydromagnetism; space physics, including the magnetosphere, solar wind, and cosmic rays; the moon and planets, including dynamics, surfaces, and atmospheres. The program for the individual student will be developed through consultation with the graduate adviser.

Requirements for the Degree of Master of Science

For general University requirements see the Graduate Division.

Prescribed Courses. The University requires nine courses for the M.S. Degree. The Department requires a minimum of five courses in the 200 series, no less than half of which are in the student's field of specialization. The remaining courses must include Geophysics and Space Physics 200A-200B-200C and may include additional 100 series courses approved by the student's graduate adviser.

Examination or Thesis. The candidate must either (1) write a thesis to be approved by a committee of at least three faculty members; or (2) pass a written comprehensive examination. The examination must be taken not later than the eighth quarter of residence.

Residence Requirements. The minimum residence requirement is three quarters.

Requirements for the Degree of Doctor of Philosophy

For the general University requirements, see the Graduate Division.

Each student seeking candidacy for a Ph.D. degree will be required to meet the following departmental requirements. (1) Final examinations in at least three of the five fundamental physics courses: Physics 215A, Physics 231A, Geophysics and Space Physics 201 (or Physics 220A), Geophysics and Space Physics 202, and Geophysics and Space Physics 203 (or Physics 210A). It is also recommended that first-year graduate students take the introductory course in geophysics and space physics, 200A-200B-200C. (2) The comprehensive written examination of the Department of Geophysics and Space Physics. (3) The written and oral field examination, on the student's major field of concentration.

Each student seeking a Ph.D. degree is required to fulfill the following University requirements. A qualifying oral examination. A dissertation on a subject chosen by the candidate with the approval of his doctoral committee. A final oral examination conducted by the doctoral committee.

Lower Division Course

8. Earthquakes.

The causes and effects of earthquakes, with special emphasis on the problems of living with earthquakes in Southern California. Topics include the relationship between earthquakes and local and regional geology, types of earthquakes, past and future earthquakes in California, earthquake engineering, disaster preparedness, and prospects for predicting or controlling earthquakes.

Mr. Jackson

Upper Division Courses

101. Introduction to Geophysics and Space Physics.

Prerequisites: Physics 8A-8B-8C-8D and Mathematics 31A-31B-31C, or their equivalents. A survey of geophysics, the physics of the planets, their atmospheres, and the interplanetary medium, with emphasis on topics of current research interest. The course is designed primarily for students majoring in a physical science or mathematics.

Mr. Coleman

M109A. Geophysical Fluid Dynamics.

(Same as Meteorology M109A.) Lecture, three hours; discussion, two hours. Prerequisites: Mathematics 12C, Physics 8D. Together with Meteorology 109B, an introduction to fluid dynamics as applied to geophysical problems. Kinematics. Equations of fluid motion. Irrotational flow. Circulation theorems. Vorticity and vortices. Acoustic and gravity waves. Viscous flow.

Mr. Siscoe

M119. Continental Drift and Sea Floor Spreading.

(Same as Geology M119.) Lecture, three hours. Prerequisite: senior standing in Geology. Physics or Mathematics. Evidence for continental drift and sea floor spreading from age-dating of marine sediments and continents and from seismic, magnetic and heat-flow data. Description of sea floor topography and sediments. Processes of mid-ocean rises and edges of plates. Description of events on the continental margins. Biological and biostratigraphic implications. Field work at option of instructors.

Mr. Ernst, Mr. Kaula

***120. Physics of the Earth.**

Lecture, three hours; discussion one hour. Prerequisite: Physics 8A-8B-8C. Mathematics 11A, 11B, 11C, or consent of instructor. Application of physics to the structure and evolution of the solid earth. Seismology, convection and heat flow, gravity, geomagnetism, rock magnetis, and the relation of these topics to plate tectonics and other problems of current geophysical interest.

Mr. Anderson

M129. Geothermics.

(Same as Geology M129.) Lecture, three hours. Heat flow on the surface of the earth. Origin and distribution of heat sources. Heat transfer in minerals and in the earth. The geothermal gradient, geobarometry and geothermometry. Geology and geochemistry of geothermal areas. Drilling for geothermal power.

Mr. Anderson, Ms. Kieffer

M131. Geochemistry.

(Same as Geology M131 and Geophysics M131.) Lecture, three hours, discussion, one hour. Prerequisite: junior or senior standing in chemistry, physics, or geology, or consent of instructor. Origin and abundance of the elements and their isotopes; distribution and chemistry of the elements in the earth, oceans, and atmosphere; chemistry of the earth's interior, phase transformations at high pressure and temperature. (Alternates yearly with Geology and Geophysics course M130.)

Mr. Kennedy, Mr. Wasson

M136. Geophysical Exploration.

(Same as Geology M136 and Geophysics M136.) Lecture three hours. Prerequisite: consent of instructor. Principles and techniques of gravimetric, seismic, magnetic, and other geophysical methods of exploration for ores, petroleum, and other economic minerals.

Mr. Jackson, Mr. McPherron

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*Not to be given, 1976-1977.

M154. Solar Terrestrial Physics.
(Same as Meteorology M154.) Lecture, three hours. Prerequisite: Physics 110B or consent of instructor. Particle and electromagnetics emissions from the sun under quiet and under disturbed conditions. The solar wind. The magnetospheres and the ionospheres of the earth and other planets. Geomagnetic phenomena. Aurora and airglow.
Mr. Venkateswaran

M160. Astrogeology.
(Same as Geology M160.) Prerequisite: basic geology and calculus, or consent of instructor. Surface modification processes on the planets; meteorite impact and volcanism; field, laboratory and theoretical concepts of impact cratering and shock waves; volcanic landforms and processes; Lunar and Martian impact and volcanic features; field trip to Meteor Crater, Arizona.
Mrs. Kieffer

199. Special Studies in Geophysics and Space Physics. (½ to 2 courses)
Prerequisites: any two of Physics 105A, Physics 110A, Physics 112A, Physics 131, or other equivalents. Directed individual study for upper division students majoring in a physical science or mathematics.
The Staff

Graduate Courses

200A. Introduction to Geophysics and Space Physics 1: The Solid Earth and Planets.
Prerequisite: Physics 105A, 110A, 112A, 131 or consent of instructor. Geochemistry, cosmochemistry, and petrology; geotectonics; gravity field; seismology; heat transfer, thermal and mechanical evolution of the mantle; the core and geomagnetism; lunar and planetary interiors.
Mr. Kaula

200B. Introduction to Geophysics and Space Physics 2: Oceans and Atmospheres.
Prerequisite: Physics 105A, 110A, 112A, 131 or consent of instructor. Evolution, chemistry, and heat balance of oceans and atmospheres; molecular spectra, radiative transfer, and planetary observations; dynamics of oceans and atmospheres.
Mr. Schubert

200C. Introduction to Geophysics and Space Physics 3: Plasmas: Aeronomy and the Interplanetary Medium.
Prerequisites: Physics 105A, 110B, 112A, 131, or consent of the instructor. Solar surface features, heating and expansion of corona, solar wind, plasma and magnetic fields, interaction of the solar wind with the earth, magnetospheric phenomena.
Mr. Lingenfelter

201. Classical Mechanics.
Kinematics, variational principles and Lagrange's equations, rotational dynamics. Hamilton equations of motion, linear and non-linear perturbation theory, applications to the solar system.
Mr. Schubert

202. Continuum Mechanics.
Kinematics and dynamics of continuous media. Properties of stress, strain and rate-of-strain tensors. Conservation laws. Rotating systems, boundary layers, and dynamical similarity.
Mr. Busse

203. Electrodynamics.
Prerequisite: upper division electromagnetic theory or consent of instructor. Maxwell's equations and boundary conditions; momentum, angular momentum and energy of electromagnetic fields; plane electromagnetic and magnetohydrodynamic waves; wave guides, simple radiating systems and diffraction.
Mrs. Kivelson

***205. Inverse Theory and Data Interpretation**
Prerequisites: Mathematics 115, Mathematics 150. This course addresses the inverse modelling problem: to determine model parameters consistent with experimental data, considering the effects of random errors and nonuniqueness. Linear and quasi-linear problems will be emphasized, but non-linear problems will be discussed. Tools to be used include matrix theory, quadratic forms, orthogonal rotations, statistics, the principal axis transformation for rectangular matrices, Backus-Gilbert resolving kernels, and Lagrange multipliers. Examples will be taken from a broad range of physical sciences.
Mr. Jackson

***210. Hydrodynamic Instabilities and Turbulence.**
An introduction to the theories of hydrodynamic instability and the non-statistical description of turbulence; stability bounds by the energy method; linear theory of instability; finite amplitude theories of post-instability flows; bounds on properties of turbulent flows by variational techniques.
Mr. Busse

***214. Geophysical Fluid Dynamics.**
Prerequisite: consent of the instructor. Dynamics of stationary and transient motions in rotating systems; Ekman boundary layer theory; inertial oscillations; B-plane approximation; Rossby waves; theory of thermally induced motions; applications to flow phenomena in planetary atmospheres, in the oceans, and in the earth's core.
Mr. Busse

215. Magnetohydrodynamics.
The continuum theory of the interaction of conducting fluids and magnetic fields. Electrodynamics of moving media, boundary conditions, wave motion in bounded and unbounded media, energy flow, dynamo problem. Boundary layers and the effects of rotation. Geophysical and astrophysical applications.
Mr. Busse

220. Planetary and Orbital Dynamics.
Solar system dynamical evolution; figure and gravitational field of a planet; satellite orbits; earth-moon system evolution; rotational dynamics, including effects of non-rigidity and energy dissipation.
Mr. Kaula

***222. Introduction to Seismology.**
Types of seismic waves; travel-time seismology; epicenter location; amplitude variations; seismograph theory; explosion seismology; seismicity; focal conditions; surface wave analysis; microseisms and tsunamis.
Mr. Knopoff

M224A. Elastic Wave Propagation I.
(Same as Engineering M257A.) Prerequisite: Engineering 158A or 159A or consent of the instructor. Elastic wave equation and elementary solutions; wave motions in elastic half-spaces; reflection and refraction of elastic waves; surface waves; vibrations of rods and plates.
Mr. Knopoff, Mr. Mal

M224B. Elastic Wave Propagation II.
(Same as Engineering M257B.) Prerequisite: consent of instructor. Wave propagation in layered media; Green's function for various geometries; diffreaction and scattering of elastic waves; attenuation; inversion problems.
Mr. Knopoff, Mr. Mal

***225A. Physics and Chemistry of Planetary Interiors 1.**
Chemical compositions of the earth and planets; high pressure and temperature effects, phase transitions, and equations of state; variations of density and temperature with depth; thermal and compositional evolution.
Mr. Kaula

***225B. Physics and Chemistry of Planetary Interiors 2.**
Lateral inhomogeneties in the earth: seismic velocities, petrology, geothermal and gravitational variations; evidences of motion; remanent magnetism, seismic motions; post-glacial rebound; plate tectonics; rheology of mantle; thermal convection.
Mr. Kaula

***228. Planetary Magnetism.**
Prerequisite; course 215 or consent of instructor. Description and analysis of the magnetic fields of the earth and planets. Origin and history of the earth's magnetic field: core dynamics, dynamo theory, paleomagnetism.
Mr. Busse

230. Planetary Surfaces and Atmospheres.
Prerequisite: course 200A, 200B. Advanced study of planetary observations. Techniques of planetary astronomy; interpretation of visible and infrared observations; spectroscopy; observations from spacecraft; interaction of surface and atmosphere. Current observations and theories will be critically discussed.
Mr. Kieffer

M233. Mineral Physics and Equation of State.
(Same as Geology M233.) Prerequisite: consent of instructor. Interrelationship of the physical properties of rock-forming minerals: optical reflectivity, refraction index, sound velocity, elastic constants, specific heat, and thermal expansivity. Determination of pressure, volume, and temperature relationships in planet-forming compounds. Variation of elastic constants with temperature and pressure. Application of shock-wave experiments to equations of state.
Mr. Anderson

240. Space Plasma Physics.
Prerequisite: course 203 or Physics 210A. Plasma waves in two-fluid approximation; Hartmann flow; interchange instability; kinetic theory; instabilities of ion cyclotron; ion acoustic, drift waves; pitchangle scattering from ion cyclotron turbulence, anomalous resistance from ion acoustic turbulence; collisional plasmas; magnetic field annihilation; collisionless shocks.
Mr. Coroniti

***M250. Dynamics of the Solar Wind.**
(Same as Meterology M250.) Parker's hydrodynamic solution and spiral magnetic field model; effects of magnetic field and solar rotation; shock waves, discontinuities, small amplitude wave propagation, large scale structure; interaction with the moon, planets and interstellar medium, stellar winds and stellar spindown.
Mr. Coleman, Mr. Siscoe

M252. Seminar in Geochemistry.
(Same as Geology M252.) Phase equilibria under crustal conditions, chemistry of ocean waters, recent and ancient sediments, structure and chemistry of the upper mantle, geochronology, cosmochronology, and cosmochemistry.
The Staff

260 Topics in Magnetospheric Plasma Physics.
Research problems in the theory of magnetic storms.
Mr. McPherron

***265. Instrumentation, Data Processing, and Data Analysis in Space Physics.**
Principles, testing and operations of magnetometers and other instruments. Data processing, display, and archiving. Time-series analysis techniques, including filtering. Fourier series, eigen-analysis, and power spectra.
Mr. Coleman

M266. Cosmic Ray Physics
(Same as Astronomy M255.) Cosmic ray composition, origin, acceleration, propagation, interactions with

*Not to be given 1976-1977.

interstellar matter, magnetic field and radiation field, role in interstellar heating, non-thermal galactic radio and galactic x- and gamma-radiation, interactions in the earth's atmosphere.

Mr. Lingenfelter

270. Energy Production and Environmental Tradeoffs.

Upper Colorado Basin coal and other energy resources of the southwestern states; interest groups involved in exploitation of these resources; impacts of exploitation of these resources on power, water, agriculture and environmental quality. A laboratory course concerning societal issues.

Mr. Anderson

M283. Seminar in Environmental Science and Engineering.

(Same as Geology M283.) Problems of current interest concerning the interaction of man, technology, and the environment, such as: regional water and energy allocation; earthquake mechanism; geochemistry of pollution; environmental fluid dynamics; engineering geology; environmental geology.

The Staff

***M285. Origin and Evolution of Solar System.**

(Same as Astronomy M285.) Dynamical problems of the solar system; chemical evidences from geochemistry, meteorites, and the solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes, formation of the planets and satellite systems.

The Staff

286A-286B-286C. Seminar in Planetology. (½ course each)

Problems of current interest concerning the moon, planets, and meteorites. Graded S/U.

The Staff

287A-287B-287C. Seminar in Seismology and the Earth's Interior. (½ course each)

Problems of current interest in seismology and the earth's interior. To be graded S/U only.

The Staff

288A-288B-288C. Seminar in Space Physics. (½ course each)

Problems of current interest concerning particles and fields in space.

The Staff

289A-289B-289C. Seminar in Fluid Dynamics. (½ course each)

Problems of current interest in fluid dynamics with emphasis on geophysical applications.

The Staff

Individual Study and Research

Courses in the 500 series may be applied in place of 200-level courses toward the requirements for the master's degree *except* for the minimum number required in a field of specialization. Letter grades will be given in 596; courses 597 and 599 will be taken on a satisfactory/unsatisfactory basis.

501. Cooperative Program. (½ to 2 courses)

Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

*Not to be given 1976-1977.

596. Research in Geophysics and Space Physics. (½ to 3 courses)

Prerequisite: consent of the faculty graduate adviser. Directed individual study or research.

597. Preparation in Geophysics and Space Physics for Comprehensive Field Examinations. (½ to 1 course)

Prerequisite: consent of faculty graduate adviser. Review of fundamental course 200A-200B-200C in preparation for the written comprehensive examination for the master's degree, or study and research in the area selected for a possible dissertation topic prior to the Ph.D. qualifying examination.

The Staff

598. Research for and Preparation of the Master's Thesis. (½ to 3 courses)

Research for and preparation of the master's thesis in Geophysics and Space Physics.

The Staff

599. Research for and Preparation of the Doctoral Dissertation in Geophysics and Space Physics. (½ to 3 courses)

Research for and preparation of the doctoral dissertation in Geophysics and Space Physics.

The Staff

Related Courses in Other Departments Providing Fundamental Techniques

Engineering 251A. Stratified and Rotating Fluids.
252A. Stability of Fluid Motion.

Physics 210A-210B. Electromagnetic Theory.
215A. Statistical Physics.
220A. Foundations of Classical and Quantum Mechanics.
221A-222B-222C. Methods of Mathematical Physics.
231A-231B-231C. Methods of Mathematical Physics.

Pertaining to the Natural Environment

Astronomy 201A-201B-201C. Astrophysics of the Solar System.

Meterology 225. Radiative Processes in the Atmosphere.
226. Scattering Processes in the Atmosphere.
230. Theory of Planetary Atmospheres.
240. Upper Atmospheric Wave Phenomena.
246. Physics of the Ionosphere.
247. Radiation Belt Plasma Physics.
248. Dynamics of the Magnetosphere.
249A-249B. Magnetosphere-Ionosphere Coupling.

■ GERMANIC LANGUAGES

(Department Office, 310 Royce Hall)

[6]Ehrhard Bahr, Ph.D., *Professor of German.*
Franz H. Bäuml, Ph.D., *Professor of German.*
Victor A. Oswald, Jr., Ph.D., *Professor of German (Chairman of the Department).*
Eli Sobel, Ph.D., *Professor of German.*
Hans Wagener, Ph.D., *Professor of German.*
Erik Wahlgren, Ph.D., *Professor of Scandinavian and Germanic Languages.*
Donald J. Ward, Ph.D., *Professor of German and Folklore.*
Gustave Otto Arlt, Ph.D., LL.D., *Emeritus Professor of German.*
Carl William Hagge, Ph.D., *Emeritus Professor of German.*
Wayland D. Hand, Ph.D., *Emeritus Professor of German and Folklore.*
William J. Mulloy, Ph.D., *Emeritus Professor of German.*
Vern W. Robinson, Ph.D., *Emeritus Profesor of German.*
[6]Wolfgang Nehring, Ph.D., *Associate Professor of German.*
Terence Wilbur, Ph.D., *Associate Professor of Germanic Linguistics and Philology.*
Janet R. Hadda, Ph.D., *Assistant Professor of Yiddish.*
Dieter Jedan, Ph.D., *Assistant Professor of German.*
E. Bond Johnson III, Ph.D., *Assistant Professor of German and Comparative Literature.*
Robert S. Kirsner, Ph.D., *Assistant Professor of Dutch-Flemish and Afrikaans.*
Laurence G. Lyon, Ph.D., *Assistant Professor of German.*
[6]MacDonald Stearns, Jr., Ph.D., *Assistant Professor of German.*
[6]Alexander Stephan, Ph.D., *Assistant Professor of German.*

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Marianna D. Birnbaum, Ph.D., *Lecturer in Hungarian.*
Stephanie Lombardi, Ph.D., *Lecturer in German.*

■ SCANDINAVIAN LANGUAGES

†Kenneth G. Chapman, Ph.D., *Professor of Scandinavian Languages.*
Erik Wahlgren, Ph.D., *Professor of Scandinavian and Germanic Languages.*
Ross P. Shideler, Ph.D., *Associate Professor of Scandinavian Languages and Comparative Literature (Vice Chairman of the Department).*
James R. Massengale, Ph.D., *Assistant Professor of Scandinavian Languages.*
Mary Kay Norseng, Ph.D., *Assistant Professor of Scandinavian Languages.*

♦

Inkeri A. Rank, M.A., M.Ed., *Lecturer in Finnish Studies.*

Preparation for the Major in German

Required: courses 1, 2, 3, 4, 5, 6, or their equivalents.

The Major in German

Two majors of 15 courses each are offered by the department. Either one may be used in satisfaction of Bachelor of Arts requirements.

Plan A is designed primarily for the undergraduate who may expect to continue study

[6]Absent on leave, Fall Quarter, 1976.

†Absent on leave, 1976-1977.

toward the attainment of a teaching credential and/or a terminal M.A. degree. This plan requires courses 100A or 100B, 108A, 108B, 117, 128, 129 and five introductory literature courses chosen from among 101, 103A, 103B, 104, 105, 106, 107 and four courses chosen from among 121H, 121I, 122, 123A, 123B, 124, 125, 126, 127, 132, 134.

Plan B is designed primarily for the undergraduate who may expect to continue study toward the attainment of the M.A. in German and the Ph.D. degree in Germanic Languages. This plan requires courses 100A or 100B, 101, 108A, 108B, 117; five introductory literature courses: free choice among 103A, 103B, 104, 105, 106, 107; and five advanced courses: free choice among 121H, 121I, 122, 123A, 123B, 124, 125, 126, 127, 128, 129, 132, 134.

Admission to Graduate Status

The completion of the undergraduate major, or its equivalent, with a minimum gradepoint average of 3.0 is required. If the candidate is deficient in the undergraduate major he must complete it by taking the appropriate courses, as recommended by the departmental graduate adviser. A placement examination in German language and literature may be required of entering graduate students.

Teaching Credential Requirements

Students desiring a single-subject teaching credential in German must have the approval of the German Department in order to gain admission to student teaching. For the Single-Subject Instruction Credential, this approval is contingent upon a major (or the equivalent) in German and the successful completion of German 370, which should be taken prior to student teaching. Under exceptional circumstances, the Department may allow the student to enroll in this course concurrently with a student teaching assignment.

For additional information, consult the Graduate School of Education (Moore Hall 201) and the Department of Germanic Languages (310 Royce Hall).

Requirements for the Master's Degree

1. For the general requirements, see Requirements for Graduate Degrees.

2. Application for advancement to candidacy may be made when the student has passed the Graduate Division reading examination in French.

3. A minimum of nine upper division and graduate level courses of which at least five courses must be graduate level (200 or 500 series), plus a comprehensive examination and additional course requirements described under items 5 and 6 below. When appropriate, the comprehensive examination will be conducted orally.

4. A student who is accepted by the Department on the thesis plan is required to pass an oral examination in the field of the thesis in addition to the comprehensive examination of item 5 (Plan A) below.

5. For the candidate who expects to terminate his studies with an M.A. degree and teaching credential (Plan A): in addition to the minimum of nine upper division and graduate courses mentioned above in item 3, courses 128 and 129 (or their equivalent) and 370 are specifically required. No seminar is required. A comprehensive examination is required on (a) the origin and development of the standard German language, (b) contemporary standards of the German language, and (c) major works and authors from earliest times to the present.

6. For the candidate whose interests are literary and linguistic rather than pedagogical or who intends to proceed toward the Ph.D. (Plan B): at least 9 upper division and graduate courses, of which 6 must be of graduate level; one seminar must be included. A comprehensive examination is required on (a) a basic knowledge of bibliography, (b) a reading knowledge of Middle High German, (c) the origin and development of the German language, and (d) major works and authors from the earliest times to the present.

Requirements for the Doctor's Degree

1. For the general requirements, see Candidate Philosophy Degree.

2. The department reserves the right to require of a student holding an M.A. degree from another institution an examination equivalent to that given its own M.A. candidates. Failure to demonstrate satisfactory achievement may result in the assignment of additional preparatory courses.

3. Advancement to candidacy will take place when the student has (a) passed the graduate reading examination in French; (b) passed a departmental reading examination either in a modern Scandinavian language or Dutch-Flemish-Afrikaans or in Latin; or in Yiddish; (c) successfully completed three seminars; (d) passed the qualifying examinations for the doctorate (see item 4 below).

4. At the beginning of his work toward the doctorate or as soon as possible thereafter, the student shall make known his intended major field as well as his minor field, selected from the four fields in which the degree is offered: (a) German literature, (b) Germanic Philology and Linguistics, (c) Scandinavian Literature and Philology, (d) Germanic Folklore, (e) Yiddish (as a minor field only). The field in which the candidate intends to present a dissertation will be designated as his major field. A departmental doctoral guidance committee will direct his work toward the qualifying examinations. The candidate who chooses German Literature as his major field will be required to choose two fields of specialization (which will comprise the subject-matter of his major field examination) from the following: (a) German Literature before 1600; (b) German Literature from 1600 through Romanticism; (c) German Literature from Romanticism to the present. The candidate who chooses German Literature as his minor field will be required to select from the above three fields of specialization one field which will be covered by his minor field examination. The candidate shall pass one written qualifying examination in his major field and one written qualifying examination in a minor field. He is then subject to an oral qualifying examination administered by his doctoral committee, (see Final Oral Examination). Upon passing his qualifying examinations the candidate shall write a dissertation. The final oral examination (if required) will deal primarily with the relation of his dissertation to the field of knowledge to which it contributes.

Lower Division Courses

No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition. Prerequisites for lower division courses are listed under the course descriptions. Students with demonstrated preparation may be permitted a more advanced program by the Department, or such students may be transferred to a more advanced course on recommendation of the instructor.

1. Elementary German.
Lecture, five hours per week; laboratory, one hour.
Mr. Jedan

1G. Elementary German for Graduate Students. (No credit)
Lecture, five hours per week. To provide preparation for Graduate Division foreign language reading requirement.
Mr. Jedan

2. Elementary German.
Lecture, five hours per week; laboratory, one hour. Prerequisite: course 1.
Mr. Jedan

2G. Elementary German for Graduate Students. (No credit)
Continuation of course 1G.

2R. Elementary German for Reading Knowledge.
Prerequisite: course 1. This course will continue the study of the German language and guide the student to an acquisition of basic reading skills.
Mr. Jedan

3. Elementary German.
Lecture, five hours per week. Prerequisite: course 2 or two years of high school German.
Mr. Jedan

3R. Elementary German for Reading Knowledge.
Prerequisite: course 2, 2R, or 2 years of high school German. This course will complete the study of the German language and introduce the student to readings in the various humanistic and scientific disciplines. Conducted in groups according to field of study.
Mr. Jedan

4. Intermediate German.
Lecture, five hours per week. Prerequisite: course 3 or three years of high school German.
Mr. Jedan

5. Intermediate German.
Lecture, four hours per week. Prerequisite: course 4, or four years of high school German.
Mr. Jedan

6. Intermediate German.
Lecture, four hours per week. Prerequisite: course 5 or the equivalent.
Mr. Jedan

12. German Conversation. (½ course)
Lecture, two hours per week. Prerequisite: course 1 or one year of high school German. This course will utilize German language teaching films; students will have the opportunity to practice spoken German in small groups.
Mr. Jedan

14. Intermediate Conversation. (½ course)
Lecture, two hours per week. Prerequisite: course 3 or three years of high school German. Students will have the opportunity to practice spoken German in small groups.
Mr. Jedan

95. Freshman Seminar.
Course of variable content limited to topics of current interest; to be offered whenever a member of the staff is available.
The Staff

Upper Division Courses

The prerequisite for all upper division courses except 100A or 100B, 121A, 121B, 121C, 121D, 121E, 121F, 121G, 121H, 121I is course 6 or the equivalent.

Courses Not Open to Graduate Students in German

100A. German Civilization and Culture before 1800.
A study of the development of German civilization and institutions from the earliest times to 1800. Study of German culture as represented in its literature, art, music, and architecture before 1800. Students who have taken previous course 100 may receive credit for 100A or 100B but not both.
Mr. Bäuml, Mr. Sobel, Mr. Wagener

100B. Modern German Civilization and Culture.
A study of the development of German civilization and institutions from 1800 to the present. Study of German culture as represented in its literature, art, music, and architecture since 1800. Students who have taken previous course 100 may receive credit for 100A or 100B but not both.
Mr. Sobel, Mr. Wagener

101. The Study of German Literature.
Application of the techniques and methods employed in literary criticism. Study of the various genres of German literature and of German prosody.
Mr. Bäuml, Mr. Johnson, Mr. Ward

103A. Lessing.
Reading and discussion of representative works of Lessing, including *Minna von Barnhelm, Emilia Galotti, Nathan der Weise, Die Erziehung des Menschengeschlechts*, and selections from *Laocoon* and *Hamburgische Dramaturgie.*
Mr. Bahr, Mr. Lyon

103B. Schiller.
Reading and discussion of representative works of Schiller including *Die Räuber, Kabale und Liebe, Wallensteins Tod, Maria Stuart, Die Jungfrau von Orleans* and *Wilhelm Tell.*
Mr. Bahr, Mr. Lyon

104. Introduction to Romanticism.
Analysis of selected poetry and narrative prose of the Romantic period.
Mr. Johnson, Mr. Nehring

105. Introduction to 19th Century German Literature.
Analysis of selected works of post-Romantic, pre-Naturalistic literature.
Mr. Johnson, Mr. Nehring

106. Introduction to Modern Literature.
Analysis of selected works of the period from 1890 to 1945.
Mr. Oswald, Mr. Wagener

107. Introduction to Contemporary Literature.
Analysis of selected works of the period 1945 to the present time.
Mr. Stephan

108A. Composition and Conversation.
Composition and conversation.
Ms. Lombardi

108B. Composition and Conversation.
Composition and conversation. Prerequisite: course 108A or consent of instructor.
Ms. Lombardi

117. Language and Linguistics.
Prerequisite: courses 100A or 100B and 108A. Introduction to the historical development of the German language; theory and method of descriptive, historical, and comparative linguistics.
Mr. Stearns, Mr. Wilbur

121A. Older German Literature in Translation.
Analyses in English of works of German literature from the Medieval period to Baroque. No credit toward completion of the major in German.
Mr. Bäuml, Mr. Sobel, Mr. Ward

121B. Classical German Literature in Translation.
Analyses in English of works of the period of Classicism. No credit toward completion of the major in German.
Mr. Bahr, Mr. Lyon

121C. 19th Century German Literature in Translation.
Readings and lectures in English on selected 19th century authors. No credit toward completion of the major in German.
Mr. Johnson, Mr. Nehring

121D. Modern German Literature in Translation—Narrative Prose I.
Readings, lectures and discussions in English on selected modern authors, including Mann, Kafka, Hesse and Rilke. No credit toward completion of the major in German.
Mr. Nehring, Mr. Stephan, Mr. Wagener

121E. Modern German Literature in Translation—Narrative Prose II.
Readings, lectures and discussions in English on post-1945 narrative prose. No credit toward completion of the major in German.
Mr. Stephan, Mr. Wagener

121F. Modern German Literature in Translation—Drama and Lyrics.
Readings, lectures and discussions in English on modern German drama and lyric poetry. No credit toward completion of the major in German.
Mr. Stephan, Mr. Wagener

121G. Modern German Jewish Literature in Translation.
Readings, lectures in English on selected authors, including Mendelssohn, Heine, Schnitzler, Kraus, Kafka, Feuchtwanger, Anne Frank, Nelly Sachs. No credit toward completion of the major in German.
Ms. Hadda

121J. The Faust Tradition from the Renaissance to the Modern Age.
Readings and discussions in English of the Faust theme and Faust tradition in European literature and intellectual history, including the chapbook of *Doctor Faustus*, Christopher Marlowe's and Goethe's Faust dramas as well as Thomas Mann's novel *Doctor Faustus: The Life of the German Composer Adrian Leverkühn.*
Mr. Bahr, Mr. Lyon

Courses open to Graduate Students in German

121H. Special Problems in Literature.
Prerequisite: upper division standing in any department. Varying topics of current importance and immediate relevance to literary study. The course is designed to introduce the student to contemporary trends in literary study and is predominantly concerned with topics related to German literature and criticism. Lectures in English.
The Staff

121I. The German Film in Cultural Context.
A survey of various aspects of the German film in relationship to literary, artistic, and political directions of the times, with emphasis on the film as a separate mode of artistic expression.
Mr. Johnson

122. Studies in German Literature Before 1750.
Prerequisites: three upper division courses, including courses 100, or 100A, and 101 or consent of the instructor. Readings and analysis of major works from the Middle Ages to the Baroque.
The Staff

123A. The Young Goethe.
Prerequisites: courses 100A or 100B, 101, and 103A or 103B, or consent of the instructor. Reading and discussion of representative works of Goethe's early period including *Götz von Berlichingen, Werther, Urfaust, Egmont*, and a wide selection of lyrics.
Mr. Bahr, Mr. Lyon

123B. The Classical Goethe.
Prerequisites: courses 100A or 100B, 101, 103A or 103B, or consent of the instructor. Reading and discussion of representative works of Goethe's maturity and old age, including *Iphigenie auf Tauris, Die Wahlverwandtschaften, Novelle*, and a wide selection of lyrics.
Mr. Bahr, Mr. Lyon

124. Advanced Study in Romanticism.
Prerequisites: courses 100A or 100B, 101, 104, or consent of the instructor. Reading and analysis of a wider range of works than in course 104.
Mr. Johnson, Mr. Nehring

125. Advanced Study in Nineteenth Century Literature.
Prerequisites: courses 100A or 100B, 101, 105, or consent of the instructor. Reading and analysis of a wider range of works than in 105.
Mr. Bahr, Mr. Johnson, Mr. Nehring

126. Advanced Study in Modern Literature.
Prerequisites: courses 100A or 100B, 101, 106, or consent of the instructor. Reading and analysis of a wide range of the literature from 1890-1945.
Mr. Johnson, Mr. Oswald, Mr. Wagener

127. Advanced Study in Contemporary Literature.
Prerequisites: courses 100A or 100B, 101, 107, or consent of the instructor. Analysis of a wide range of German literature from 1945 to the present.
Mr. Stephan

128. Advanced Composition, Grammar and Conversation.
Prerequisites: course 108A-108B or consent of the instructor. Grammar, composition, conversation.
Ms. Lombardi

129. German Phonetics.
Study of the articulatory basis of the sounds of German and practice in standard pronunciation.
Mr. Stearns

132. Goethe's Faust.
Prerequisites: courses 100A or 100B, 101, 123A, 123B, or consent of the instructor. Detailed interpretation of Goethe's *Faust*, Parts I and II, together with more general consideration of other treatments of the Faust theme in European literature.
Mr. Bahr, Mr. Lyon

134. German Folklore.
A survey of the various genres of German folklore.
Mr. Ward

199A-199ZZ. Special Studies. (½ or 1 course)

Prerequisite: consent of the instructor. To be arranged with the member of the faculty who will direct the study. The member of the faculty directing the study will be identified by the same two-letter code used to identify his 599 research course. A course of independent study for students who desire more intensive or specialized investigation of material covered in a regular course, and who present such a course as a prerequisite.

The Staff

Graduate Courses

201A. Bibliography of German Literary History.

Study of the various kinds of bibliographies, handbooks, lexica, series publications, journals, literary histories, and other reference works.

Mr. Sobel

201B. History of Germanistics.

A history of the study of German literature and the German language from Humanism to the present with particular attention to the development of new methods in philology and literary historiography.

Mr. Bäuml, Mr. Ward

201C. Theories and Methods of Literary Criticism.

Foundations of literary criticism, current theories and methods.

Mr. Bahr, Mr. Wagener

201D. Diplomatics, Palaeography, and Principles of Text Editing.

A study of diplomatics, medieval German palaeography, and the principles of editing various types of texts.

The Staff

202A. Middle High German.

Introduction to the Middle High German language.

Mr. Bäuml

202B. Readings in Middle High German Literature.

Readings from Middle High German courtly literature.

Mr. Bäuml, Mr. Ward

203A. The Courtly Epic.

Analysis of Hartmann's *Erec* and *Iwein*, Wolfram's *Parzival*, and Gottfried's *Tristan*. Lectures on methods of interpretation.

Mr. Bäuml

203B. The Courtly Lyric

Analysis of lyric poetry from Der von Kurenberg to Johannes Hadlaub.

Mr. Bäuml, Mr. Ward

203C. The Heroic Epic.

Analysis and methods of interpretation of heroic poetry from the *Hildebrandslied* to *Kudrun*.

Mr. Bäuml, Mr. Ward

204. Renaissance and Reformation Literature.

German literature of the 15th and 16th centuries, including introduction to the Early New High German language.

Mr. Sobel

205. Baroque Literature.

Development of modern Baroque scholarship, prosodies, lyrics, drama, and types of the Baroque novel and prose satire.

Mr. Sobel, Mr. Wagener

206A. Enlightenment and Sentimentalism.

Representative authors of the earlier part of the eighteenth century from Gottsched through Lessing.

Mr. Bahr, Mr. Lyon

206B. Sturm und Drang.

Representative authors of the *Sturm und Drang* including the young Goethe and Schiller.

Mr. Bahr, Mr. Lyon

207A. Classicism: Goethe.

Selected topics in the works of Goethe in the period 1776-1832.

Mr. Bahr

207B. Classicism: Schiller.

Selected topics in the dramatic and critical works of Schiller in the period 1793-1805.

Mr. Bahr

206. Romanticism.

Analysis of representative works of the Romantic Period.

Mr. Johnson, Mr. Nehring

209A. 19th Century Lyrics.

Analysis of postromantic lyric poetry.

Mr. Bahr, Mr. Johnson, Mr. Nehring

209B. 19th Century Drama.

Analysis of postromantic, prenaturalistic dramas.

Mr. Bahr, Mr. Johnson, Mr. Nehring

209C. 19th Century Narrative Prose.

Analysis of works of postromantic, prenaturalistic narrative prose.

Mr. Bahr, Mr. Johnson, Mr. Nehring

210A. Naturalism and Symbolism.

Poetry, drama, and shorter narratives of the period 1890-1945.

Mr. Nehring, Mr. Oswald, Mr. Wagener

210B. Expressionism and Neorealism.

Poetry, drama, and shorter narratives of the period 1910-1933.

Mr. Nehring, Mr. Oswald, Mr. Wagener

210C. 20th Century Novel to 1945.

Analysis of selected novels written prior to 1945.

Mr. Nehring, Mr. Oswald, Mr. Wagener

211A. Contemporary Novel.

Analysis of selected novels of the period from 1945 to the present.

Mr. Stephan

211B. Contemporary Lyrics and Drama.

Lyrics and drama of the period from 1945 to the present.

Mr. Stephan

217. History of the German Language.

Mr. Stearns

230. Survey of Germanic Philology.

Mr. Wilbur

231. Gothic.

Mr. Stearns, Mr. Wilbur

232. Old High German.

Mr. Stearns

233. Old Saxon.

Mr. Wilbur

240A. Theories, Methods, and History of Germanic Folklore.

Historical survey of folklore theory in the Germanic countries, and a study of modern folklore methodology, bibliography, and status of studies.

Mr. Ward

240B. Folk Song and Ballad.

Survey of German folk song and ballad, as to historical development, relation to other literary genres, ethnic background, and poetic and musical values.

Mr. Ward

240C. Oral Prose Genres.

Legends, folk tales, jests, proverbs, riddles; their history, function, and poetic value.

Mr. Ward

M245A. Germanic Religions and Mythology.

(Same as Scandinavian M245).

Mr. Wahlgren

245B. Germanic Antiquities.

Prehistory and early history of Germanic culture; a philological investigation of Germanic ethnography, customs, behavior and law.

Mr. Ward

251. Seminar in Syntax and Phonology of German.

The syntactical and phonological structure of the German language according to the principles of generative grammar and other techniques.

Mr. Wilbur

252. Seminar in Historical and Comparative German Linguistics.

The historical development of the Germanic languages according to the principles and techniques of comparative linguistics.

Mr. Wilbur

253. Seminar in Medieval Literature.

Mr. Bäuml, Mr. Ward

254. Seminar in Renaissance and Reformation.

Mr. Sobel

255. Seminar in Baroque Literature.

Mr. Sobel, Mr. Wagener

256. Seminar in Enlightenment and Sturm und Drang.

Mr. Bahr, Mr. Lyon

257. Seminar in the Age of Goethe.

Mr. Bahr

258. Seminar in Romanticism.

Mr. Bahr, Mr. Johnson, Mr. Nehring

259. Seminar in 19th Century Literature.

Mr. Bahr, Mr. Johnson, Mr. Nehring

260. Seminar in the Modern Period.

Mr. Nehring, Mr. Oswald, Mr. Wagener

261. Seminar in Contemporary Literature.

Mr. Stephan

262. Seminar in Germanic Folklore.

Mr. Ward

Professional Course in Method

370. The Teaching of German in Secondary Schools.

Lecture, three hours per week and discussion periods. Prerequisite: graduate standing or consent of the in-

structor. Required of all candidates for the general secondary credential in German.

Ms. Lombardi

495A-495B. Preparation for College Teaching of German. (½ course each)

Two-quarter sequence. Study of problems and methods in teaching German on the college level. Theory and classroom practice, observation and critical evaluation. Credit only on completion of 495B. May not be used to fulfill any of the course requirements for the Master's Degree. This course is offered on an In Progress basis, which requires students to complete the full 2-quarter sequence at the end of which time a grade is given for all quarters of work.

Mr. Jedan

Individual Study and Research

596A-596ZZ. Directed Individual Study or Research.

To be arranged with the member of the faculty who will direct the study or research. The member of the faculty directing the study will be identified by a two-letter code using the initials of the sponsoring instructor (see department for code). To be graded on Satisfactory-Unsatisfactory basis. May be taken twice. Only one course in the 500 series may count toward the M.A. requirement.

The Staff

597A-597ZZ. Preparation for Comprehensive Examination for the Masters Degree or the Qualifying Examination for the Ph.D.

To be arranged with the member of the faculty who will direct the study. The member of the faculty directing the study will be identified by a two-letter code using the initials of the sponsoring instructor (see department for code). To be graded on Satisfactory-Unsatisfactory basis. May be taken only once before and only once after the M.A. degree. Only one course in the 500 series may count toward the M.A. graduate course requirement.

The Staff

598A-598ZZ. Research for Preparation of Master's Thesis.

To be arranged with the member of the faculty who will direct the study. The member of the faculty directing the study will be identified by a two-letter code using the initials of the sponsoring instructor (see department for code). To be graded on Satisfactory-Unsatisfactory basis. May be taken three times. Only one course in the 500 series may count toward the M.A. graduate course requirement.

The Staff

599A-599ZZ. Research for Preparation of the Doctoral Dissertation. (1 to 2 courses)

To be graded on Satisfactory-Unsatisfactory basis. May be taken unlimited number of times. To be arranged with the member of the faculty who will direct the study. Each faculty member has his own doctoral research course identified by a two-letter code using his initials.

The Staff

Dutch-Flemish and Afrikaans

101A. Elementary Dutch-Flemish.

Mr. Kirsner

101B. Elementary Afrikaans.

Mr. Kirsner

101C. Intermediate Dutch-Flemish.

Prerequisite: course 101A or equivalent.

Mr. Kirsner

101D. Intermediate Readings in Dutch-Flemish.

Prerequisite: course 101C or equivalent.

Mr. Kirsner

101E. Intermediate Readings in Afrikaans.

Prerequisite: course 101B.

Mr. Kirsner

112. Dutch, Flemish, Afrikaans Literature in Translation.

Readings and analysis of selected works in translation from Dutch, Flemish, and Afrikaans Literature.

Mr. Kirsner

199. Special Studies in Dutch-Flemish and Afrikaans. (½ to 1 course)

Mr. Kirsner

M234. The Structure of Modern Standard Dutch.

(Same as Linguistics M225Z.) A detailed examination, from contrasting theoretical viewpoints, of central problems in Dutch phonology, grammar, and semantics, with attention to related phenomena in German, English, and Afrikaans.

Mr. Kirsner

Hungarian

101A. Elementary Hungarian.

Introduction to grammar and reading exercises, emphasis on the spoken language.

Ms. Birnbaum

101B. Intermediate Hungarian.

Prerequisite: course 101A or the equivalent. Grammatical exercises, conversation, and reading of texts.

Ms. Birnbaum

101C. Advanced Hungarian.

Prerequisite: course 101B or the equivalent. Conversation and readings in literary texts.

Ms. Birnbaum

120A-120B. Readings in Hungarian.

(Formerly numbered Finno-Ugric 153A-153B.) Prerequisite: course 101C or the equivalent. Large selections of Hungarian prose and poetry read in the original.

Ms. Birnbaum

121A-121B. Survey of Hungarian Literature in Translation.

(Formerly numbered 158A-158B.) Intended for students in general and comparative literature as well as students interested in Finno-Ugric studies. Main trends and contacts with other literatures are surveyed.

Ms. Birnbaum

M135. Hungarian Folklore and Mythology.

(Same as Folklore M128.) A general course for the student in folklore and mythology, with emphasis on types of folklore and varieties of folklore research.

Ms. Birnbaum

M136. Folklore and Mythology of the Ugric Peoples.

(Same as Folklore M129.) Survey of the traditions of the smaller Ugric nationalities (Voguls, Ostyaks, etc.).

Ms. Birnbaum

199. Special Studies in Hungarian. (½ to 1 course)

Prerequisite: consent of the instructor is required. A course of independent study for students who desire more intensive or specialized investigation of material covered in a regular course, and who present such a course as a prerequisite.

Mr. Birnbaum

Yiddish

1. Elementary Yiddish.

Lecture, five hours per week. Introduction to grammar; instruction in listening, speaking, reading and writing skills.

Ms. Hadda

2. Elementary Yiddish.

Lecture, five hours per week. Prerequisite: course 1 or equivalent.

Ms. Hadda

3. Elementary Yiddish.

Lecture, five hours per week. Prerequisite: course 2 or equivalent.

Ms. Hadda

104. Intermediate Yiddish.

Lecture, five hours per week. Prerequisite: course 3 or equivalent. Grammatical exercises, reading and linguistic analysis of texts, conversation.

Ms. Hadda

121A. 20th Century Yiddish Poetry in English Translation.

Prerequisite: upper division standing or consent of the instructor. Readings in 20th Century Yiddish Poetry and drama. Lectures, discussions.

Ms. Hadda

121B. 20th Century Yiddish Prose and Drama in English Translation.

Prerequisite: upper division standing or consent of the instructor. Readings in 20th Century Yiddish Prose. and drama. Lectures, discussions.

Ms. Hadda

131A. Modern Yiddish Poetry.

Prerequisite: course 104 or consent of instructor. Readings in modern Yiddish poetry. Lectures, discussions.

131B. Modern Yiddish Prose and Drama.

Prerequisite: course 104 or consent of instructor. Readings in modern Yiddish prose and drama. Lectures, discussion.

199. Special Studies in Yiddish. (½ to 1 course)

Prerequisite: consent of the instructor. A course of independent study for students who desire more intensive or specialized investigation of material covered in a regular course, and who present such a course as a prerequisite.

Ms. Hadda

Scandinavian Languages

Preparation for the Major

Required: courses 1, 2, 3, 4, 5, or 11, 12, 13, 14, 15, or 21, 22, 23, 24, 25 and 30, or their equivalents.

The Undergraduate Major in Scandinavian

Nine upper division courses in Scandinavian, including courses 141, 142 and 143, plus three upper division courses which may be chosen from courses in Scandinavian or related linguistic or literary fields of study. It is recommended that students who plan to do graduate work in Scandinavian satisfactorily complete German 6 or its equivalent.

Admission to Graduate Status

The completion of the undergraduate major, or its equivalent, with a minimum gradepoint average of 3.0 is required. If the candidate is deficient in the undergraduate major he must complete it by taking the appropriate courses, as recommended by the adviser of the Scandinavian Section. A placement examination in the Scandinavian languages, as well as in German, may be required of entering graduate students.

Requirements for the Master's Degree

1. For the general requirements, see Requirements for Graduate Degrees.
2. Students entering the M.A. program in Scandinavian will be required to have completed an undergraduate major in Scandinavian, or its equivalent.
3. A reading knowledge of either German or French, at the discretion of the department, will be required for the M.A. degree in Scandinavian.
4. The M.A. in Scandinavian will consist of nine upper division and graduate courses in Scandinavian, of which at least five must be graduate courses. In addition, three courses on the upper division or graduate level must be taken in a related field of linguistic or literary study to be determined by consultation with the Graduate Adviser in Scandinavian. At least one of these three courses in a related field must be on the graduate level. A knowledge of Old Icelandic equivalent to courses 151 and 152 will be required of all candidates for the M.A. in Scandinavian.
5. A comprehensive examination will be required of all candidates for the M.A. degree in Scandinavian.

Requirements for the Doctor's Degree in Germanic Languages

A candidate for the Ph.D. in Germanic Languages may choose Scandinavian Literature and Philology as his major or his minor field. For details, see Candidate in Philosophy Degree.

Lower Division Courses

No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition. Prerequisites for lower division courses are listed under the course descriptions. Students with demonstrated preparation may be permitted a more advanced program by the Department, or such students may be transferred to a more advanced course on recommendation of the instructor.

Admission to Language Courses in the Scandinavian Section

Native speakers of Norwegian, Swedish, or Danish may not enroll in any language course (including courses 105, 106, and 110) in the Scandinavian Section, except by petition in writing to the Section. Non-Scandinavian students with a knowledge of one of these Scandinavian languages may not take courses in the others except by petition in writing. These petitions must include a description of the student's linguistic background and his reason for wanting to take the language course in question.

1. Elementary Swedish.
Mr. Shideler in charge

2. Elementary Swedish.
Prerequisite: course 1 or equivalent.
Mr. Shideler in charge

3. Elementary Swedish.
Prerequisite: course 2 or equivalent.
Mr. Shideler in charge

4. Intermediate Swedish.
Prerequisite: course 3 or equivalent.
Mr. Shideler in charge

5. Intermediate Swedish.
Prerequisite: course 4 or equivalent.
Mr. Shideler in charge

11. Elementary Norwegian.
Mr. Chapman in charge

12. Elementary Norwegian.
Prerequisite: course 11 or equivalent.
Mr. Chapman in charge

13. Elementary Norwegian.
Prerequisite: course 12 or equivalent.
Mr. Chapman in charge

14. Intermediate Norwegian.
Prerequisite: course 13 or equivalent.
Mr. Chapman in charge

15. Intermediate Norwegian.
Prerequisite: course 14 or equivalent.
Mr. Chapman in charge

21. Elementary Danish.
A first-quarter course in the Danish language.
Mr. Massengale

22. Elementary Danish.
Prerequisite: course 21, or equivalent. A second-quarter course in the Danish language.
Mr. Massengale

23. Elementary Danish.
Prerequisite: course 22, or equivalent. A third-quarter course in the Danish language.
Mr. Massengale

24. Intermediate Danish.
Prerequisite: course 23 or equivalent.
Mr. Massengale

25. Intermediate Danish.
Prerequisite: course 24 or equivalent.
Mr. Massengale

30. Intermediate Danish, Norwegian and Swedish.
(Formerly numbered 20) Prerequisite: either course 5, 15, or 25, or the equivalent. Readings in Danish, Norwegian and Swedish. Written and oral exercises. To be taken on P/NP or S/U basis only.
The Staff

Upper Division Courses

105. Advanced Swedish.
Prerequisite: course 30 or equivalent. Readings, composition, and conversation. Conducted in Swedish.
Mr. Wahlgren

106. Advanced Swedish.
Prerequisite: course 105 or equivalent. Readings, composition, and conversation. Conducted in Swedish.
Mr. Wahlgren

110. Advanced Danish and Norwegian.
Prerequisite: course 30 or equivalent. Advanced reading, composition, and conversation in Danish and Norwegian. May be taken twice for credit.

M123A. Finnish Folklore and Mythology.
(Same as Folklore M123A.) The methods and results of Finnish folklore studies and the mythic traditions of the Finns. Special attention is paid to the oral epic, beliefs and legends.
Mrs. Rank

M123B. Finnish Folksong and Ballad.
(Same as Folklore M123B.) Course M123A is not prerequisite to M123B. A survey of Finnish balladry and folksong, with attention to historical development, ethnic background, and poetic and musical values.
Mrs. Rank

M125. Folklore and Mythology of the Lapps.
(Same as Folklore M125.) Survey of Lappish beliefs, customs, and various genres of oral tradition including tales, legends, songs and music. Attention is also paid to the material manifestations of Lappish culture: arts and crafts, textiles, costume, folk technology.
Mrs. Rank

130. Elementary Finnish.
Introduction to pronunciation and grammar.
Mrs. Rank

131. Intermediate Finnish.
Prerequisite: course 130 or equivalent. Grammatical exercises and readings.
Mrs. Rank

132. Advanced Finnish.
Prerequisite: course 131 or equivalent. Readings, composition and conversation.
Mrs. Rank

138. Survay of Finnish Literature.
Intended for students in general and comparative literature as well as students interested in Finnish studies. Readings and discussions of selected works from the literature of Finland in the 19th and 20th centuries. Conducted in English; no knowledge of Finnish required.
Mrs. Rank

141. Viking Civilization and Literature.
Readings and discussions of selected works from the Old Icelandic sagas, the Eddas, and early ballad literature. Conducted in English, and no knowledge of a Scandinavian language is required.
The Staff

142. Scandinavian Literature of the 18th and 19th Centuries.
Prerequisite for Scandinavian majors: course 30 or equivalent. For nonmajors: no knowledge of a Scandinavian language is required. Readings and discussions of selected works from the literature of Scandinavia in the 18th and 19th centuries.
The Staff

143. Modern Scandinavian Literature.
Prerequisite for Scandinavian majors: course 30 or equivalent. For nonmajors: no knowledge of a Scandinavian language is required. Readings and discussions of selected works of modern Scandinavian literature.
The Staff

144. Ibsen.
Prerequisite for Scandinavian majors: course 30 or equivalent. For nonmajors: no knowledge of a Scandinavian language is required. Readings and discussions of selected plays by Henrik Ibsen.
The Staff

145. Strindberg.
Prerequisite for Scandinavian majors: course 30 or equivalent. For nonmajors: no knowledge of a Scandinavian language is required. Readings and discussions of selected plays by August Strindberg.
Mr. Massengale

146. Kierkegaard.
Prerequisite for Scandinavian majors: course 30 or equivalent. For nonmajors: no knowledge of a Scandina-

vian language is required. Readings and discussions of selected works by Sören Kierkegaard.

Mr. Massengale

151. Elementary Old Icelandic.

Prerequisite: at least one year of a modern Scandinavian language or consent of the instructor. Grammar and readings of prose literature.

Mr. Chapman, Mr. Wahlgren

152. Intermediate Old Icelandic.

Prerequisite: course 151. Readings of Old Icelandic prose and poetry.

Mr. Chapman, Mr. Wahlgren

153. Modern Icelandic.

Prerequisite: course 152. Grammar, readings, composition, and conversation.

Mr. Chapman

180. Literature and Scandinavian Society.

Discussion of selected aspects of Scandinavian society based on readings of the contemporary literature as well as other documentary material. No knowledge of a Scandinavian language is required. May be repeated for credit when Undergraduate Adviser determines that course content is completely different.

The Staff

190. Honors Course in Scandinavian.

Prerequisites: senior standing with a minimum 3.0 grade-point average in the major and consent of the honors committee of the Scandinavian section. Intensive study of a selected special topic in Scandinavian. Discussions, oral and written reports.

The Staff

199A-199ZZ. Special Studies in Scandinavian. (½ or 1 course)

Prerequisites: senior or graduate standing, and consent of the instructor. To be arranged with the member of the faculty who will direct the study. The member of the faculty directing the study will be identified by the same two-letter code used to identify his 599 research course. A course of independent study designed for graduates or senior undergraduates who desire more intensive or specialized investigation of material covered in a regular course, and who present such a course as a prerequisite.

Graduate Courses

210. History and Description of the Scandinavian Languages.

Prerequisite: graduate status, and a thorough knowledge of one or more Scandinavian languages. Description of the Scandinavian languages and their development from the oldest period to the present. Emphasis will be placed on the relationship of the several Scandinavian languages to each other and to the other Germanic languages.

221. Advanced Old Icelandic Prose.

Prerequisite: course 152 or equivalent. Readings in advanced literary texts in Old Icelandic.

Mr. Chapman, Mr. Wahlgren

222. Advanced Old Icelandic (Poetry).

Prerequisite: course 152 or equivalent. Readings in advanced poetic texts, Eddic and Skaldic.

Mr. Chapman, Mr. Wahlgren

M245. Scandinavian Mythology.

(Same as German M245A.) Prerequisite: knowledge of German, a Scandinavian language, or consent of the instructor.

Mr. Wahlgren

251. Henrik Ibsen.

Prerequisite: course 144 and an advanced knowledge of Norwegian. Intensive study of the works of Ibsen.

The Staff

252. August Strindberg.

Prerequisite: course 145 and an advanced knowledge of Swedish. Intensive study of the work of August Strindberg.

Mr. Massengale

263. Seminar in Scandinavian Studies.

The Staff

Individual Study and Research

596A-596ZZ. Directed Individual Study or Research.

To be arranged with the member of the faculty who will direct the study or research. The member of the faculty directing the study will be identified by the same two-letter code used to identify his 599 research course. To be graded on Satisfactory-Unsatisfactory basis. May be taken twice. Only one course in the 500 series may count toward the M.A. graduate course requirement.

597A-597ZZ. Preparation for the Qualifying Examination for the Ph.D. (1 to 2 courses

To be arranged with the member of the faculty who will direct the study or research. The member of the faculty directing the study will be identified by the same two-letter code used to identify his 599 research course. To be graded on Satisfactory-Unsatisfactory basis. May be taken three times.

599A-599ZZ. Research for Preparation of the Doctoral Dissertation.

To be graded on Satisfactory-Unsatisfactory basis. May be taken unlimited number of times. To be arranged with the member of the faculty who will direct the study. Each faculty member has his own doctoral research course identified by a two-letter code as follows: K. G. Chapman, 599KC; J. R. Massengale 599JM; R. P. Shideler, 599RS; E. Wahlgren, 599EW.

■ HISTORY

(Department Office, 6265 Bunche Hall)

Robert L. Benson, Ph.D., *Professor of History.*

Kees W. Bolle, Ph.D., *Professor of History.*

Fawn M. Brodie, M.A., *Professor of History.*

John G. Burke, Ph.D., *Professor of History.*

E. Bradford Burns, Ph.D., *Professor of History.*

Robert I. Burns, S.J., Ph.D., *Professor of History.*

Robert N. Burr, Ph.D., *Professor of History (Chairperson of the Department).*

Mortimer H. Chambers, Jr., Ph.D., *Professor of History.*

Claus-Peter Clasen, Ph.D., *Professor of History.*

Stanley Coben, Ph.D., *Professor of History.*

Robert Dallek, Ph.D., *Professor of History.*

Amos Funkenstein, Ph.D., *Professor of History.*

John S. Galbraith, Ph.D., *Professor of History.*

Frank O. Gatell, Ph.D., *Professor of History.*

James A. Henretta, Ph.D., *Professor of History.*

Richard Hovannisian, Ph.D., *Professor of History.*

Norris C. Hundley, Ph.D., *Professor of History.*

Nikki Keddie, Ph.D., *Professor of History.*

Jere C. King, Ph.D., *Professor of History.*

Barisa Krekic, Ph.D., *Professor of History.*

James Lockhart, Ph.D., *Professor of History.*

Andrew Lossky, Ph.D., *Professor of History.*

Afaf Marsot, D.Phil., *Professor of History.*

Lauro R. Martines, Ph.D., *Professor of History.*

D. C. Moore, Ph.D., *Professor of History.*

Gary B. Nash, Ph.D., *Professor of History.*

Boniface I. Obichere, D.Phil., *Professor of History.*

Merrick Posnansky, Ph.D., *Professor of History.*

Hans J. Rogger, Ph.D., *Professor of History.*

Richard H. Rouse, Ph.D., *Professor of History.*

Theodore Saloutos, Ph.D., *Professor of History.*

Eleanor M. Searle, Doc. Medieval Studies, *Professor of History.*

Stanford J. Shaw, Ph.D., *Professor of History.*

Speros Vryonis, Jr., Ph.D., *Professor of History.*

Eugen Weber, M.Litt., *Professor of History.*

James W. Wilkie, Ph.D., *Professor of History.*

Robert A. Wilson, Ph.D., *Professor of History.*

Robert Wohl, Ph.D., *Professor of History.*

Stanley A. Wolpert, Ph.D., *Professor of History.*

Eugene N. Anderson, Ph.D., *Emeritus Professor of History.*

Truesdell S. Brown, Ph.D., *Emeritus Professor of History.*

John W. Caughey, Ph.D., *Emeritus Professor of History.*

Brainerd Dyer, Ph.D., *Emeritus Professor of History.*

Raymond H. Fisher, Ph.D., *Emeritus Professor of History.*

Yu-Shan Han, Ph.D., *Emeritus Professor of History.*

Gerhart B. Ladner, Ph.D., *Emeritus Professor of History.*

Lynn White, jr., Ph.D., *Emeritus Professor of History (University Professor).*

Edward A. Alpers, Ph.D., *Associate Professor of History (Vice Chairperson of the Department).*

Robert P. Brenner, Ph.D., *Associate Professor of History.*

Christopher Ehret, Ph.D., *Associate Professor of History.*

David M. Farquhar, Ph.D., *Associate Professor of History.*

Juan Gómez-Quiñones, Ph.D., *Associate Professor of History.*
Thomas S. Hines, Jr., Ph.D., *Associate Professor of History.*
Daniel W. Howe, Ph.D., *Associate Professor of History.*
Philip C. Huang, Ph.D., *Associate Professor of History.*
Michael O. Jones, Ph.D., *Associate Professor of History.*
John H. M. Laslett, D.Phil., *Associate Professor of History.*
Peter Loewenberg, Ph.D., *Associate Professor of History.*
Fred G. Notehelfer, Ph.D., *Associate Professor of History.*
Peter H. Reill, Ph.D., *Associate Professor of History.*
Damodar R. SarDesai, Ph.D., *Associate Professor of History.*
Alexander P. Saxton, Ph.D., *Associate Professor of History.*
Kathryn Kish Sklar, Ph.D., *Associate Professor of History.*
Geoffrey W. Symcox, Ph.D., *Associate Professor of History.*
Richard Weiss, Ph.D., *Associate Professor of History.*
Robert S. Westman, Ph.D., *Associate Professor of History.*
Agnes A. Aidoo, Ph.D., *Assistant Professor of History.*
Lutz K. Berkner, Ph.D., *Assistant Professor of History.*
Temma E. Kaplan, Ph.D., *Assistant Professor of History.*
Ronald J. Mellor, Ph.D., *Assistant Professor of History.*
Michael G. Morony, Ph.D., *Assistant Professor of History.*
Kenneth M. Morrison, Ph.D., *Assistant Professor of History.*

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Milton Anastos, Ph.D., *Professor of Byzantine Greek and History.*
Amin Banani, Ph.D., *Professor of Persian and History.*
Giorgio Buccellati, Ph.D., *Professor of History and Near Eastern Languages.*
Robert G. Frank, Ph.D., *Assistant Professor of History and Medical History/Anatomy.*
Albert Hoxie, M.A., *Senior Lecturer in History.*
Ludwig Lauerhass, Ph.D., *Lecturer in History and Librarian.*
Armstead L. Robinson, B.A., *Acting Assistant Professor of History.*

The Undergraduate Program

The undergraduate program in history is designed to give students an insight into the world in which they live and the forces and events that have served to shape and mold that world. In its broadest sense the discipline of history provides a background for all other subjects and disciplines. Along more specific lines the goal of history is the classical goal of self-knowledge. History is therefore concerned with "why we are what we are" and "how we came to be where we are today." In this sense history is the study of the past of our own society and how it emerged out of the traditions that produced it. At the same time, self-knowledge for the student of history comes not only from self-discovery, but from a comparison of his own tradition and experience with those of others. It is only by studying the history of other civilizations and cultures that we can hope to gain perspective on our own. The purpose of historical study is therefore not only an understanding of our own past and our present self, but an understanding of, and empathy for, the cultures and civilizations of other peoples and other nations.

It is in keeping with these broad goals that the History Department's undergraduate major has been established. As listed below, the department's undergraduate program begins with a three quarter survey of Western Civilization and a two quarter study of United States history. For comparative purposes the students are asked to spend two quarters studying non-Western history. In addition they are required to devote one quarter to the study of historical methodology and philosophy. At the upper division level students are encouraged to develop their own problem consciousness and to follow their personal interests into whichever area they choose. The only further requirement at this level is a one-quarter colloquium and writing course which is designed to give the student some experience in formal historical discourse.

Students interested in careers in the field of law, teaching, public service, journalism, and a variety of other areas involving the social sciences will find the history major beneficial and rewarding.

Preparation for the Major, and Major

The History Department's undergraduate program consists of 16 courses in history (6 lower division: the Preparation for the Major; 10 upper division: the Major), and 4 courses in the social sciences outside the department. The following courses are required in the program:

1. History 1A-1B-1C. Western Civilization.
2. Two courses in U.S. History.
3. Two courses in Non-Western History from the same area: Latin America; Asia; Near and Middle East; Africa; Technology.
4. History 99 (For Freshmen and Sophomores) or History 100 (No restriction by class). Normally no more than one of these should be taken.
5. History 197 (Undergraduate Colloquia) or History 199 (Special Studies in History).
6. Four courses in the Social Sciences outside of History.

The requirements for U.S. and Non-Western History may be met with either upper or lower division courses. *Students are, however, cautioned that normally only six lower division courses in history are to be included in their program.* This will generally mean that if they meet the U.S. History requirement at the lower division level they will have to meet the Non-Western requirement at the upper division level (or vice versa). If they choose to do both requirements at the lower division they will still be required to do 10 upper division courses to fulfill the upper division requirements of the Major. The Department recommends the following lower division courses to meet the U.S. History and Non-Western Requirements: History 6A-6B-6C (U.S. History); History 8A-8B (Latin America); History 9A-9B-9C (Asia); History 9D plus one suitable upper division course (Near and Middle East); History 10A-10B (Africa); History 3 plus an upper division course. Suitable upper division courses that may be used to fulfill these requirements can be found among the courses numbered 101 to 199.

All history majors are required to take at least four courses in other departments in the division of social sciences, whether lower or upper division (anthropology, geography, economics, political science, sociology, psychology). *These courses may not be taken for "Pass/Not Pass" grades.* One quarter course from the History 6A-6B-6C (U.S. History) sequence may be applied to this requirement, provided the same quarter course is not used to satisfy any other requirement of the major.

Advanced Placement Credit in History. The College of Letters and Science allows ten quarter units towards the B.A. for each Advanced Placement Test in History. The History Department applies this credit to the Preparation of the History Major as follows: AP European History fulfills History 1B-1C; AP American History fulfills the U.S. History requirement at the lower division level.

Only one course offered outside of the History Department will count as a Major course without petition: Medical History 107B, Historical Development of Medical Sciences.

Transfer students with deficiencies in lower division may by petition substitute appropriate upper division courses in history for the lower division requirements. See the departmental adviser.

There is no language requirement for the major; however, students wishing to take the honors program or planning to do graduate work in history are urged to pursue language study early in their undergraduate careers.

The Honors Major

The honors program in history is designed for history majors who are interested in carrying out a year-long independent research project that will culminate in an honors thesis. The program gives qualified students the opportunity of working closely with an individual professor in a supervised research and writing project. Students contemplating graduate work in history should find this program particularly beneficial and rewarding.

Qualifications: All history majors with a departmental grade point average of 3.5 or better are eligible for the honors program. Candidates for honors will be required to meet all normal requirements of the history major described in the preceding section. Instead of History 197 or 199 honors majors are required to take a three quarter honors sequence, History 199H-A-B-C, under the guidance of a sponsoring professor. These courses will be taken in the candidate's senior year and will count as three courses in the regular ten upper division course requirement that applies to all history majors.

Admission to the Program: Students desiring to enroll in the honors program should consult the History Department Undergraduate Adviser normally at the end of their junior year in order to fill out the required application form.

Admission to Graduate Status

For admission to graduate status in the History Department students should normally have completed the undergraduate major or its equivalent; have received a bachelor's degree or its equivalent from an acceptable college or univer-

sity; and have maintained at least a B-plus average in that major and a B average in all courses taken in the junior and senior years. The Department requires applicants to provide two letters of recommendation. The Department also requires the Graduate Record Examination scores on the aptitude tests. Applicants for the field of U.S. History are required to submit GRE scores for the advanced test as well as for aptitude tests. Students not meeting the grade-point average may be admitted if their letters of recommendation and their Graduate Record Examination scores or other evidence indicate unusual promise. Students may be admitted with subject deficiencies, but such deficiencies will have to be made up by taking courses in addition to requirements for an advanced degree program. Applications for the academic year should be submitted by December 30. Students are expected to begin their graduate work in the fall quarter. Only in exceptional cases will students be allowed to begin their work in the winter or spring quarter.

Information and applications for the Graduate Record Examination may be obtained by writing to the Educational Testing Service, 1947 Center Street, Berkeley, California 94704 or, for applicants east of the Rocky Mountain states, the Educational Testing Service, Box 955, Princeton, New Jersey 08540.

Requirements for the General Secondary Teaching Credential

Consult the ANNOUNCEMENT OF THE GRADUATE SCHOOL OF EDUCATION.

The Master's Degree

Completion of the Master's Degree at UCLA is designed to meet requirements for admission to the Department's doctoral program. Students are advised to pace their Master's degree over a two-year period, completing requirements within six quarters of full-time study. For general University requirements, see "Master's Degrees" in "Colleges, Schools, and Graduate Division" section of this Catalog.

Departmental M.A. Requirements

Foreign Language. A reading knowledge of a foreign language approved by the Department. It is recommended that this requirement be met by the second quarter of graduate work.

Units of Work. Department: A minimum of nine upper division and graduate courses in history, at least five of which must be graduate courses. No course in the 300 series may be counted toward this requirement, and only one of the 500 series. Course work must be completed under at least three different professors.

Students concentrating in the following fields must meet the special requirements of the field: Near East — students should give evidence of their ability to carry out research, either in a multi-unit sequence course or directed research course; United States — students are required to take eight of nine courses in the 200 series, one of which must be History 200H and two of which must be a research seminar in U.S. History for the M.A.

The Department will recommend to the Dean of the Graduate Division that students who do not complete the Master's degree in six quarters be dropped from departmental rolls automatically unless upon petition the Graduate Guidance Committee grants an extension of time.

Master's Examination. The Department follows the Comprehensive Examination Plan (see "Thesis or Comprehensive Examination" in "Colleges, Schools, Graduate Division" section of this Catalog). The examination will consist of either (1) a three-hour written examination designed to assess the candidate's ability to synthesize a broad field of knowledge, or (2) the submission of three essays written under three different professors as part of the candidate's program of study. At least two of these papers must have been submitted for graduate courses in the 200 series. Students in the U.S. field must submit the paper from the two-quarter research seminar in U.S. History.

In Spring Quarter of each academic year each field meets to determine which of the Comprehensive Examination options it wishes to adopt for the following academic year. In consultation with the faculty in each field the Chairperson of the Department then appoints a field M.A. committee which consists of at least three faculty members to administer the Comprehensive Examination for that year.

The Comprehensive Examination covers one of the following fields:

1. Ancient (also includes Ancient Near East).
2. Medieval, 300-1500 (also includes Byzantine and Medieval Jewish History).
3. Europe, 1500-1789 (also includes British History to 1763).
4. Europe since 1789 (also includes British History since 1763 and the British Empire).
5. Africa.
6. Near East (includes candidates with emphasis on Armenia).
7. India and Southeast Asia.
8. East Asia.
9. Latin America.
10. United States to 1800.
11. United States since 1763.
12. History of Science.
13. Special Fields: students in the History of Religion, Russian History, and Modern Jewish History will normally be examined in one of the above fields, but with the approval of the faculty in these fields may petition the Graduate Guidance Committee for M.A. examination in their field of specialization.

Field examiners administer the M.A. comprehensive exams in November, March, and May of each academic year, considering the candidate's examination in relation to course evaluations filed by professors for all graduate courses taken by the candidate. To complete the examination file, an evaluation of the candidate's potential must be forwarded to the Field Examining Committee by the professor whom the candidate would like to become chairperson of the doctoral committee. The committee will recommend the following examination results: Pass to Continue; Pass on Probation; Terminal Pass; Fail. In cases where the M.A. is awarded with "Pass on Probation", the field M.A. Committee will conduct a special re-evaluation of the candidate's progress after not more than an additional three quarters of study.

Special Requirements for Admission to the Doctoral Program

All students must be evaluated formally before proceeding to the Ph.D. degree. For the student who enters the graduate program with only a B.A. degree, this evaluation (see M.A. requirements above) must occur within the period of six quarters.

For students who enter with a Master's Degree from another department, evaluation must be completed by the end of three quarters of study in our department in order to determine whether or not they will be permitted to continue toward the Ph.D. This evaluation will be conducted in the same manner as described above under "The Master's Degree", except that for some candidates the written examination may be waived at the discretion of the field examination committee.

All candidates must present to the Graduate Guidance Committee a field approval form from the faculty member who has agreed to sponsor his/her work for the Ph.D. according to the following schedule: by the end of the sixth quarter or earlier for students entering with only a B.A., and by the end of the third quarter or earlier for students entering with an M.A. from another department.

Students who do not meet time limits on evaluation will be dropped from the departmental rolls automatically, unless upon petition they are excepted by the Graduate Guidance Committee.

Requirements for the Doctor's Degree

A candidate for the degree of Doctor of Philosophy in history must meet (a) the "Special Requirements for Admission to the Doctoral Program" listed above; and (b) the general requirements set forth under the Graduate Division. Attention is directed to the requirement that a program, extending over the full time of study, must be approved by the Department. A command of good English, spoken and written, the ability to read at least one foreign language, and an acquaintance with general history are expected of all candidates. The candidate is required to complete at least one (two in the cases of U.S. and Near Eastern History) continuing, two or three-quarter seminar(s). Students of United States History should complete History 200H and students of European History should complete the History 216A-B series.

Examination

Foreign Language Requirements. A reading knowledge of the languages prescribed below for the major fields is required. If only two languages are prescribed the student will display his competence in them by passing examinations administered by the Graduate Division. For a third or fourth language evidence of competence satisfactory to the chairman of the doctoral committee will be considered acceptable.

Every student is urged, when possible and practical, to take a Graduate School Foreign Language Test before entering the department's graduate program as an effort toward fulfilling the foreign language requirements as quickly as possible. No oral qualifying examination for the Ph.D. may be scheduled until the student has passed an examination in at least one foreign language.

1. Ancient History. French, German, Latin and Greek.
2. Modern European History and the History of Science. Either French or German and a language needed by the student in his research and approved by the Guidance Committee.
3. Near Eastern History. Three languages — two Western and one Near Eastern — are required. They are to be selected on the basis of the candidate's specialization. The two Western languages will generally be French and German, but Russian may be substituted for one of those

in certain cases. Competence in all three foreign languages must be proven by passing examinations administered by the Graduate Division.

4. British History. French and German, with the possibility of substitution.

5. Medieval History. French and German for all candidates plus Greek for those specializing in Byzantine history and Latin for those specializing in western medieval history. Students are expected to have French or German at the beginning of their graduate studies.

6. African History. French and at least one other European or African language needed for the student's research and approved by the Chairperson of the Ph.D. Committee.

7. Asian History. (a) India: for those specializing in Indian History, three languages chosen from the following: French and/or German, Dutch or Portuguese, plus Hindi and/or one classical or modern regional language of India; (b) East Asia: 1) for the M.A. degree: two years of Chinese or Japanese, or one European language certified by an ETS score of 500 or better; 2) for the Ph.D. degree in Chinese history: French or German or Russian plus Chinese and Japanese; for the Ph.D. degree in Japanese history: French and either German or Dutch plus Japanese. Admission to candidacy for the Ph.D. in the Chinese and Japanese fields requires the completion of a research seminar in the major field. Students are advised that successful completion of this seminar usually requires the equivalent of at least four years of superior college level language work in Chinese or Japanese.

8. United States History. Any one foreign language plus a second language, or a substitute requirement which must be arranged with the consent of the doctoral candidate's chief adviser. The second language requirement is to be met through the ETS examination with a score of 500 or above. Alternatively the student may satisfy his/her second language requirement with two courses in a second language with a grade of B or better. As a substitute for the second language, students may develop sufficient competence in an ancillary analytic skill as evidenced by grades of B or above in two quarters of course work.

9. Latin American History. Two of the following options: Spanish, Portuguese, or special methodological studies.

10. Russian History. Russian and German as well as French or another language deemed necessary by the instructor for the candidate's research.

11. History of Religion. French and German plus (in most cases) a classical or ancient language in the religious tradition of the specialization.

12. Jewish History. Hebrew plus another European language or Arabic.

13. Armenian History. Armenian, French, and an additional language or languages deemed necessary for the research to be undertaken. Students specializing in the Ancient and Medieval periods will be encouraged to prepare in Greek and/or Latin, while students specializing in the Modern period will be encouraged to prepare in Turkish and/or Russian.

14. Ancient Near East. French, German and two ancient languages, one of which should be either Akkadian, Egyptian or Hebrew. The other ancient language may be chosen out of Sumerian, Hittite, Ugaritic, Phoenician, Aramaic, Greek or Latin, depending on individual programs. It is expected that the ancient languages, with all attendant problems of philological and textual criticism, will normally constitute the fourth field of the doctoral examination.

15. Southeast Asia. Two languages; one chosen from the following: French, Dutch, Spanish. One of the languages of the area. At present, facilities exist for the teaching of Thai, Vietnamese and Tagalog.

Except in the fields of African, Asian, British and United States history, reading knowledge of an appropriate language is required for admission to all graduate seminars.

Qualifying Examinations

Before admission to candidacy students must pass oral and written examinations. In these examinations the student is expected to show an adequate grasp of the wider field of historical knowledge and an ability to correlate historical data pertaining to them and to explain their significance. These examinations are designed to test not merely factual knowledge but also powers of historical analysis and synthesis, critical ability, and capacity for reflective thinking. A knowledge of the history of any area includes a reasonable knowledge of its historiography and bibliography; of its geography; and of its political, cultural, economic, and other historical aspects. The candidate is to be examined in four fields, one of which may be an approved field in anthropology, economics, geography, language and literature, philosophy, political science, or other allied subjects. This allied field must be comparable in size and scope to the history fields listed below. The candidate should select the fields in consultation with his/her faculty sponsor and must receive the Department's approval of all four fields not less than six months before the qualifying examination is taken. To obtain this approval the student should supply the Graduate Guidance Committee with the name of the faculty member who has agreed to serve as the sponsor of the doctoral work and with the details of the proposed program. A full-time graduate student must begin the qualifying examinations not later than the end of the ninth quarter of graduate work. (See "Time Limits for Completion of Stages Leading to the Doctor's Degree" listed below.)

Method of Examination

The written qualifying examination is normally prepared and administered by the chairman of the student's doctoral committee and read by the entire committee before the oral qualifying examination. The written qualifying examination includes the major field only. The oral examination will cover all four fields and will normally be held shortly after the written examination, but at the discretion of the doctoral committee it may be held as late as six months after the written examination. Both the written and oral examinations are the responsibility of the committee as a whole. The successful completion of the written qualifying examination is required for eligibility to take the oral qualifying examination. The writtens and orals each may be repeated once.

Fields of Examination

Ancient Greece; Ancient Rome; The Early Middle Ages, 300-1100; The Later Middle Ages, 1050-1500; Byzantine History; Russia Since 862; History of Southeast Europe (Balkans); Medieval England; England, 1485-1763; England Since 1763; the British Empire; The Near East, 500-1500; The Near East Since 1500; Ancient Near East; Armenian History; Survey of African History; Topics in African History (preferably on a regional basis); History of Science to 1600; History of Science Since 1600; Europe, Renaissance-Reformation; Renaissance to the French Revolution; Europe Since 1740; European Socio-Economic History; European Intellectual and Cultural History; Psychohistory; China, 900-1800; China Since 1800; Modern Japan; South Asia; Southeast Asia; Latin America, 1492-1830; Latin America Since 1759; History of Religions; Jewish History; Comparative History; United States: (1) Mastery of a general field sufficient to teach a college level survey course in United States History, and (2) A specialized field chosen from the following: Afro-American, American Diplomatic, American West, American Indian, California, Ante-Bellum and History of the South, Civil War and Reconstruction, Colonial, Cultural, Economic, Immigration, Intellectual, Jeffersonian and Jacksonian America (1800-1850), Labor, Mexican-American, Political Biography, Social, The New Nation (1763-1800). Twentieth Century, Urban, Women's History. Both fields must be submitted for specialists in U.S. history. Either (1) or (2) or both may be chosen as minor fields for the Ph.D.

In addition to the European fields listed above, there is now a program in European Intellectual and Cultural History. Candidates working toward a doctorate in this field would offer fields in (1) the socio-political history of Modern Europe, (2) intellectual history, (3) one other area of study (such as medieval, ancient, or a given national history, etc.), and normally, (4) one field in some discipline outside the Department (in philosophy, literary criticism, psychology, linguistics, sociology of knowledge, art history, or the like). Students working in the earlier period (16th-18th centuries) must demonstrate minimal competency in Latin as well as in two modern European languages.

Candidates offering a field in Comparative History as a fourth field for the Ph.D. degree should choose a topic for comparison which would usually, but not necessarily, coincide with the time-area spans of the other three fields defined for Ph.D. qualifying examinations. Each candidate offering a field in Comparative History will be required to submit a special written statement defining his or her particular field of study which must be approved by the candidate's proposed doctoral committee before petitioning the Graduate Guidance Committee for approval of the doctoral committee and four fields of examination.

Candidates in the history of science program must select three of the above fields and either the history of medicine or an allied field referred to above. The candidates must also demonstrate a detailed knowledge of the substance and historical development of a particular science, or of a type of engineering or technology, as a subfield common to the historical fields.

Final Examination

If required by the qualifying examination committee, a final oral examination will be conducted upon completion of the dissertation to cover the field within which the dissertation falls. The candidates will be expected to show such a mastery of their special fields, and such an acquaintance with the literature, general and special, bearing on them as would qualify them to give instruction to mature students. After

approving a dissertation, the Chairperson of the doctoral committee may, with the unanimous consent of the entire committee, recommend a waiver of the final oral examination.

Dissertation

Candidates are required to present a dissertation on a subject of their choice of such character as to show a thorough mastery of the sources of information, the ability to carry on independent research, and to communicate its results in good literary form. In lieu of the customary type of dissertation, a student may in certain cases edit, or translate and edit, some historical source. Such a project involves careful textual criticism, explanatory annotations, and an historical introduction clearly showing the contribution of the source to historical knowledge. For the time limit on completion of the dissertation, see immediately below.

Time Limits for Completion of Stages Leading to the Doctor's Degree

After completion of the Bachelor's degree (and including all postgraduate work in this or other departments), the following schedule is mandatory:

(1) Oral examinations must be completed by the end of the ninth quarter.

(2) Dissertations must be completed within twenty quarters (including leaves of absence following completion of the oral examination).

Candidates will be dropped from departmental rolls automatically if they exceed these time limits for completion of the oral examination and dissertation, unless they petition to the Graduate Guidance Committee for an extension. This petition must be endorsed by the candidate's sponsoring professor before it can be evaluated by the Committee.

Annual Evaluation of All Graduate Students

In addition to the evaluation processes involved in (1) the Master's examination; (2) the admission of students to the Doctoral program; (3) the Doctoral qualifying examinations; and (4) the preparation of the Doctoral dissertation, the Department's Graduate Guidance Committee conducts an annual evaluation of all graduate students each spring quarter. This evaluation is made in consultation with the entire departmental faculty in order that appropriate action may be taken in cases of unsatisfactory student progress. Students who do not maintain a 3.0 grade-point average are subject to dismissal.

Lower Division Courses

1A-1B-1C. Introduction to Western Civilization.

Lecture and discussion. 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 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.

Mr. Hoxie, Mr. Weber, Mr. Wohl

2A-2B. History of Technology from Antiquity to the Twentieth Century.

Designed for students in the natural sciences, social sciences, and fine arts. It is a survey of the development of man's ability to understand more fully and to utilize more efficiently his natural environment, stressing technology's changing social, economic, scientific and cultural relationships.

Mr. Burke

3. Introduction to the History of Science.

Introductory survey to several major problem areas in the history of scientific thought designed to acquaint the beginning student with the relationship of philosophical ideas, social thought and religious values to the scientific process. Topics include scientific revolutions in the physical, biological, social sciences.

Mr. Burke, Mr. Frank, Mr. Westman

6A-6B-6C. History of the American Peoples.

A survey of the American peoples from the advent of aboriginal society to the present, emphasizing racial and ethnic interaction, industrialization, urbanization, and cultural change.

Mr. Hearetta, Mr. Nash, Mr. Saxton

8A. Latin America: Reform and Revolution.

A general introduction to Latin America emphasizing those institutions from the past which have shaped the present and the struggle for change in the twentieth century. Movies and discussions complement the topical lectures.

Mr. Burns and Staff

8B. Latin American Social History.

The historical and contemporary perspective of the role of ordinary people in Latin American society. Each lecture-film session centers on a major Latin American movie illustrative of a theme in social history. May be taken independently of 8A.

Mr. Burns and Staff

9A-9D. Introduction to Asian Civilizations. (1 course each)

9A. History of India.

An introductory survey for beginning students of the major cultural, social, and political ideas, traditions, and institutions of Indic civilization.

Mr. Wolpert

9B. History of China.

Survey of the history of China: the evolution of characteristic Chinese institutions and modes of thought from antiquity to 1950; the problems of political change; China's response to the western impact in modern times.

Mr. Farquhar

9C. History of Japan.

A survey of Japanese history from earliest recorded times to the present with emphasis on the development of Japan as a cultural daughter of China. Attention will be given to the manner in which Chinese culture was Japanized and the aspects of Japanese civilization which became unique. The creation of the modern state in the last century and the impact of western civilization on Japanese culture will be treated.

Mr. Notehelfer, Mr. Wilson

9D. History of the Near and Middle East.

A survey of the major social, cultural and political institutions and ideas of the Near East.

The Staff

10A-10B. A Cultural Survey of Africa.

Offered as an alternative to the cultural surveys on Asia, the Middle East, and Latin America as a means of satisfying the requirements for history majors. Students will normally take both quarters.

The Staff

M70. Survey of Mediaeval Greek Culture.

(Same as Classics M70.) Classical roots and mediaeval manifestations of Byzantine civilization: political theory, Roman law, pagan critique of Christianity, literature, theology, and contribution to the Renaissance (including the discovery of America).

Mr. Anastos

99. Introduction to Historical Practice.

Course will take the form of undergraduate seminars of not more than 15 students meeting with a faculty member. Seminars will explore how works of history are written by focusing on a selected book.

The Staff

Upper Division Courses

The prerequisite for all upper division courses is upper division standing or consent of the instructor, unless otherwise stated. For certain graduate courses which are open to students with Upper Division standing and with the permission of the instructor, see prerequisite under "Graduate Courses" heading.

100. History and Historians.

Required of all history majors in their junior year. 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.

Mr. Reill

101A-101B-101C. Western Civilization.

Lecture. A broad, historical study of major elements in the Western heritage from the world of the Greeks to that of the twentieth century. Primarily designed for non-history majors. May not be taken for credit by students who have taken History 1A-1B-1C.

Mr. Symcox, Mr. Weber, Mr. Wohl

104. Explorations in Psychoanalysis and History.

Prerequisite: consent of instructor. The course will study the art of psychological and historical interpretation, and will assess recent writings in the field of psychohistory. Limited to 35 students.

Mr. Loewenberg, Mr. Wohl

106A-106D. History of Science.

Science and scientific thought in relationship to society.

106A. Medieval and Renaissance Science.

(Formerly numbered 108.) Prerequisite: course 3 or consent of instructor. Continuity and discontinuity in scientific traditions from the 12th to the 17th century; interrelationships between theology, scientific thought, and social conditions. Theories of force, motion and space stressed; some attention to the occult sciences.

Mr. Funkenstein, Mr. Westman

106B. The Scientific Revolution.

Prerequisite: course 3 or consent of instructor. The great transformation in scientific consciousness in the seventeenth century. Includes such topics as: Galileo's mechanics; Kepler's new astronomy; Descartes' philosophy of nature; Newton's synthesis of astronomy and physics; science and political theory; rise of scientific societies; influence of theology and social conditions.

Mr. Funkenstein, Mr. Westman, Mr. Wise

106C. Physical Science Since the Enlightenment.

Prerequisite: course 3 or consent of instructor. The development of physical science post-Newton through the 19th century. Includes the evolution of geological, chemical, electrical, optical, and heat theories; applications of mathematics; emergence of chemistry and physics as disciplines; and the changing national and institutional locus of scientific activity.

Mr. Burke, Mr. Wise

106D. Physical Sciences in the 20th Century.

Prerequisite: course 3 or consent of instructor. The transformation since 1890, with emphasis on ideas of relativity and the quantum and the changing structure and function of research. Includes turn-of-the-century contexts of German, English, and French science; emergence of American science; and brief discussions of Russia and the East.

Mr. Burke, Mr. Wise

M106E-106F. History of Biological Sciences.

(Same as Medical History M108A-108B.) Prerequisite: upper division standing.

106E. Biological sciences from ancient times to the early nineteenth century. **Mr. Frank**

M106F. Biological sciences from the early nineteenth to the mid-twentieth century.

Mr. Frank

M106G. The Biomedical Sciences in the 19th Century.

(Same as Medical History M197). Prerequisite: consent of instructor. Topics in the growth of the biomedical sciences and their institutions in Europe and America, from the French Revolution to approximately 1900.

Mr. Frank

106H. History of Physics Laboratory.

Prerequisite: course 3 or consent of instructor. A new approach seeking to integrate the roles in science of theory, experiment controversy, and philosophy as seen through selected critical experiments. Four experiments — e.g., of Galileo, Newton, Franklin, Oersted — will be prepared in historical context, performed, analyzed, and disputed.

Mr. Wise

111A-111B-111C. History of the Ancient Mediterranean World.

111A. A survey of the history of the ancient East from earliest times to the foundation of the Persian Empire.

111B. The history and institutions of the Greeks from their arrival to the death of Alexander.

111C. The history and institutions of Rome from the founding of the city to the death of Constantine.

Mr. Chambers, Mr. Mellor

112A-112B. History of Ancient Greece.

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.

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.

Mr. Chambers

117. History of Ancient Egypt.

A cultural history of ancient Egypt from predynastic times to the end of the new kingdom.

118A. The Christian Church to 1056.

From the Church's origins to the mid-11th century, this survey treats the history of Christian thought and action, doctrine and institutions, authority and dissent, during the conversion of the Mediterranean and Germanic peoples.

Mr. Benson

118B. The Christian Church, 1056-1517.

The Church during the high tide of papalism, from the 11th-century revolt against lay domination to the crises and decline on the eve of the Reformation.

Mr. Benson

121A. The Early Middle Ages.

A survey of religious, intellectual, artistic, social, and economic changes in Europe from the decay of the Roman Empire until about 1050.

121B. The Later Middle Ages.

A continuation of course 121A, from 1050 to about 1450, with the added consideration of the new scientific movements.

M122A-M122B. Byzantine Civilization.

M122A. (Same as Classics M170A.) Emphasis is laid on Byzantine theology.

M122B. (Same as Classics M170B.) Literature, relations with Rome, and the Renaissance.

Mr. Anastos

123A-123B-123C. Byzantine History.

The course stresses the political, socio-economic, religious, and cultural continuity in the millennial history of Byzantium. It begins with the reforms of Diocletian and includes such topics as Byzantium's relations with Latin Europe, Slavs, Sassanids, Arabs, and Turks.

Mr. Vryonis

124A. Introduction to the History of Religions.

This course is a discussion of the various systems, ideas and fashions of thought that have dominated Western scholarship in this field.

Mr. Bolle

124B. History of Religions: Buddhism in India.

Prerequisite: course 124A or 124D.

Mr. Bolle

124C. Religions of the Ancient Near East.

The main polytheistic systems of the ancient Near East, with emphasis on Mesopotamia and Syria, and with reference to the religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom and moral conduct.

Mr. Buccellati

124D. History of Religions: Myth.

Course of an introductory character (like courses 124A and 124B), but focusing on the function of myth in religion and culture.

Mr. Bolle

124E-124G. History of Religions.

Prerequisite: course 124A or 124D.

124E. Hinduism.

124F. The religion of the Veda and Brahmanism.

124G. Religions of Southeast Asia.

Mr. Bolle

125A-125B-125C. History of Africa.

History of the societies of sub-Saharan Africa.

The Staff

126A-126B. History of West Africa.

126A. West Africa from earliest times to 1800.

126B. West Africa since 1800.

Mr. Obichere

127A-127B. History of East and Central Africa.

127A. History of East Africa from its peopling to the gaining of independence. Particular attention is paid to state formation, long distance trade, and the rise of nationalism.

Mr. Alpers

127B. Development of social and political institutions from the rise of the great Central African state systems to the present.

128A-128B. History of Southern Africa.

128A. History of Southern Africa from origins to 1870. The origins of the South African peoples and their interactions to 1870. Attention will be given to social and economic, as well as political aspects.

128B. History of Southern Africa since 1870. The interactions between the inhabitants of Southern Africa since 1870. Attention will be given to social and economic, as well as, political aspects.

Mr. Ehret

129. History of Northeast Africa.

Cultural and economic developments from earliest times. The Semitic settlement in Ethiopia and the kingdom of Axum. Ethiopia from the decline of Axum to modern times.

Mr. Alpers, Mr. Ehret

130A-130B-130C. Islamic Iran.

Political, social and cultural history of Persia.

130A. 600 to 1400.

Mr. Banani

130B. 1400 to 1800.

Mr. Banani

130C. 1800 to Present.

Ms. Keddie

131A-131B-131C. Armenian History.

A survey of the political, economic, and cultural history of Armenia from ancient to modern times.

131A. The question of origins to the fall of the Bagratid kingdom, 11th century A.D.

131B. The Cilician kingdom, the Turkic conquests, and the Armenian cultural and political renaissance.

131C. The Armenian emancipatory struggle, the World War, the Independent Republic, and Soviet Armenia.

Mr. Hovannisian

131D. Introduction to Armenian Oral History.

The uses and techniques of Armenian oral history; the pre-interview, interview, and post-interview procedures; methods of transcription, compilation, and assessment. The course includes field assignments, oral evaluations, and a term project. May be concurrently scheduled with course 228.

Mr. Hovannisian

132. The Caucasus Since 1801.

A survey of the political, economic, social, and cultural developments in the Caucasus since the Russian conquests. The interrelationship of Georgians, Azerbaijanis, and Armenians, and their individual and collective response to Tsarist Russia and the Soviet Union.

Mr. Hovannisian

133A-133B. History of North Africa from The Moslem Conquest.

133A. To 1578.

133B. From 1578 to the present.

134A-134B. Near and Middle East from 600 to 1500 A.D.

134A. The rise of Islam, the Umayyad and early Abbasid empires.

134B. The Seljuq Turks, Crusaders, Mongols and Mamlukes.

Mr. Morony

135A. Introduction to Islamic Cultures.

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.

Mr. Morony

135B. Islamic Institutions and Political Ideas.

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.

Mr. Morony

136A-136B. The Middle East: 1500 to the Present.

Social, intellectual and political change in Turkey, Iran and the Arab countries from 1500 to the present.

Ms. Keddie, Ms. Marsot

137A-137B. Jewish Intellectual History.

137A will cover the medieval period; 137B the modern period. This course studies the development of the Jewish self-understanding in relation to the intellectual climate of the environment, as expressed in the halacha, in philosophy, and in cabbalism.

Mr. Funkenstein

138A-138B. Jewish History.
Jewish history from Biblical times to our period.
Mr. Funkenstein

138C-138D. Focal Themes in Jewish History.
The course will treat in depth one major theme in Jewish history (such as: the history of Messianic Movements, the Structure of the Jewish Communities) through the ages.
Mr. Funkenstein

139A-139B-139C. History of the Turks.
A survey of the society, government, and political history of the Turks from earliest times to the present.
139A. Origins to the sixteenth century.
Mr. Shaw, Mr. Vryonis
139B. Sixteenth to the nineteenth centuries.
Mr. Shaw
139C. Nineteenth and twentieth centuries.
Mr. Shaw

140A-140B. History of Ancient Mesopotamia and Syria.
The political and cultural development of the "Fertile Crescent," including Palestine, from the Neolithic to the Achaemenid period.
Mr. Buccellati

141A-141G. History of Modern Europe.
141A. The Renaissance.
Mr. Martines
141B. The Reformation.
Mr. Clasen
141C. Europe, 1560-1660.
Mr. Hoxie, Mr. Lossky
141D. Europe under the old Regime.
Mr. Berkner
141E. Europe, 1789-1848.
Mr. Berkner, Mr. King
141F. Europe, 1848-1900.
Mr. King, Mr. Reill
141G. Europe in the 20th Century.
Mr. King, Mr. Wohl

142A-142E. Cultural and Intellectual History of Modern Europe.
Climates of taste and climates of opinion. Educational, moral and religious attitudes; the art, thought and manners of the time in an historical context. Quarter courses are oriented approximately as follows:
142A. 16th Century.
Mr. Hoxie, Mr. Westman
142B. 17th Century.
Mr. Hoxie, Mr. Funkenstein
142C. 18th Century.
Mr. Hoxie, Mr. Reill
142D. 19th Century.
Mr. Loewenberg, Mr. Weber
142E. 20th Century.
Mr. Loewenberg, Mr. Weber, Mr. Wohl

143A-143E. History of Modern France.
143A. 1450-1620.
Mr. Lossky
143B. 1620-1789.
Mr. Lossky
143C. The Revolution and Napoleon.
Mr. Berkner
143D. 1815-1870.
Mr. King
143E. Contemporary France.
Mr. King

144A-144D. History of Modern Germany.
144A. 1555-1700.
Mr. Clasen
144B. 18th Century.
Mr. Reill
144C. 19th Century.
Mr. Loewenberg
144D. 20th Century.
Mr. Loewenberg

145A-145B. The Netherlands in European Affairs, 1450-1795.
145A. From the Burgundian unifications to the Truce of 1609.
Mr. Lossky
145B. From the Truce of 1609 to the end of the Dutch Republic.
Mr. Lossky

146A-146D. Topics in Russian History.
146A. Medieval Russia and the Rise of Muscovy.
Mr. Krekic, Mr. Lossky.
146B. Imperial Russia (to 1905).
Mr. Lossky, Mr. Rogger
146C. 20th Century Russia (from 1905 to the death of Stalin).
Mr. Rogger
146D. Social Thought and Movements in Modern Russia, late 18th to early 20th centuries. (Prerequisites: a background in Russian history, literature or European social thought.)
Mr. Rogger

147A-147B-147C. European International Relations.
Survey of European diplomatic and military history.
147A-147B. Early modern period (1500-1815).
Mr. Symcox
147C. Late modern period (1815-1970).
Mr. King

148A-148B. History of Italy.
148A. Late Middle Ages to Unity.
The Italian people from the late Middle Ages to the achievement of national unity.
Mr. Wohl
148B. 1861 to the Present.
Political, economic, social, diplomatic and ideological developments.
Mr. Wohl

148C. The Social History of Spain to 1650.
This course will deal with the development of popular history in the Iberian Peninsula. Emphasis will be given to peasant and urban history, gold routes, slave trade, history of women, and the development of different types of collective violence.
Ms. Kaplan

148D. The Social History of Spain, 1650 to the Present.
Spain's position in Europe and its potentialities for social change will be discussed through investigations of urban history, agrarian social structure, history of women, problems of slow industrial development, imperialism, anarchism, and labor history.
Ms. Kaplan

149A-149B-149C. Southeastern Europe in Medieval and Modern Times.
149A: Southeastern Europe from 500 to 1200.
149B: Southeastern Europe from 1200 to 1700
149C: Southeastern Europe from the XVIIIth to the XXth century.
Mr. Krekic

150A-150H. Studies in English History.
150A-150B. Medieval England.
Mrs. Searle
150C-150D. Renaissance England.
150E-150F. Early Modern England.
Mr. Brenner
150G. Modern England, 19th Century.
Mr. Moore
150H. Modern England, 20th Century.
Mr. Moore

158A-158B. The British Empire Since 1783.
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.
Mr. Galbraith, Mr. SarDesai

159. History of Canada.
A survey of the growth of Canada into a modern state from its beginnings under the French and British colonial empires.
Mr. Galbraith

160A-160J. Topics in European Social History.
160A. Social Movements.
Ms. Kaplan
160B. Peasants and Agrarian Society.
Mr. Brenner
160C. Urban Society.
Mr. Symcox
160D. Aristocracy and Nobility.
Mr. Berkner
160E. Population.
160F. The Family.
Ms. Kaplan
160G. Psycho-history.
Mr. Loewenberg, Mr. Wohl
160I. Special Topics.
The Staff
160J. Women.
Ms. Kaplan

160K-160L. Marxist Theory and History.
Introduction to Marxist philosophy, method; conception of historical stage; competing Marxist analyses of transition from feudalism to capitalism in relation to non-Marxist approaches; analysis of capitalist economy via reading *Capital;* theory of politics and state in relationship to historical interpretation of 19th century European revolutions; capitalist crisis.
Mr. Brenner, Ms. Kaplan

161A-161B. Topics in European Economic History.
161A. Medieval and Early Modern period.
161B. The Industrial Revolution.

162A. Latin America in the 19th Century.
An intensive analysis of the economic, social, and political problems of the Latin American nations from their independence to around 1910.
Mr. Burns, Mr. Burr

162B. Latin America in the 20th Century.
An examination of society, economy, and politics.
Mr. Burr

162C. Topics in Latin American Cultural History Since 1900.
Prerequisite: course 164 or consent of instructor. This course is designed to explore the meaning of cultural contributions of Latin American intellectuals. The works of novelists, philosophers, and artists are examined.
Mr. Wilkie

163A-163B. The History of Brazil.
The lectures treat selected topics in the political, economic, social, and cultural development of Brazil. Discussions, movies and guest speakers supplement and complement the lectures. The first quarter covers the colonial, independence, and early imperial periods; the second deals with modernization and reform, 1850 to the present.
Mr. Burns

163C. Brazilian Intellectual History.
The general intellectual development of Brazil with emphasis on those introspective movements in which the Brazilians attempted to interpret themselves, their nation, and their civilization.
Mr. Burns

164. Latin American Elitelore.
Separate realities are examined for leaders' and followers' perceptions of Latin America's 20th-century national development, especially in Uruguayan, Mexican, Cuban, Costa Rican models. Elitelore (tested in

oral history and applied historical statistics) is related, e.g., to Alliance for Progress policy.

Mr. Wilkie

166. The Mexican Revolution Since 1910.

The structure of "Permanent Revolution" since 1910.

Mr. Wilkie

168A-168B. Colonial Latin America.

Studies in the general development of Latin America prior to 1825 with emphasis on social history.

Mr. Lockhart

169. Latin American International Relations Since Independence.

Emphasis is given to the developing interests of the Latin American nations in their relationship with one another and with other areas of the world.

Mr. Burr

170. Industrialization and Social Change in the American South Since the Civil War.

An analysis of Southern industrialization and its impact upon community life, politics, class and racial patterns.

171A. The United States: Colonial Period to 1763.

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.

Mr. Nash

171B. The United States: the New Nation, 1763-1800.

Political and social history of the American nation, with emphasis upon the rise of the new west, revolution, confederation, and union; the fathers of the Constitution.

Mr. Henretta, Mr. Nash

171C-171D-171E. Social History of Women in the U.S.

171C. The transition from pre-industrial family structures, demographic patterns, and kinship significance, 1600-1850.

171D. Women, work, and the industrial transition to modernity, 1850-1940.

171E. The reintegration of family and work, post-industrial trends, 1940-1970.

Ms. Sklar

172A-172B. The United States: 1800-1850.

172A. Jeffersonian America. Jeffersonian Republican ascendancy and the Era of Good Feelings, 1800-1828; disintegration of the Federalist opposition; the testing of American nationality in the second war with Britain; beginnings of the transportation and industrial revolutions; restructuring of politics in an increasingly egalitarian age.

172B. Jacksonian America and Beyond. The "Jacksonian Revolution" and its aftermath, 1829-1850; the problem of national power versus state sovereignty; problems of rapid social change through industrialization and urbanization; reform impulse; antislavery movements; territorial expansion as focus for sectional rivalry.

Mrs. Brodie, Mr. Gatell, Mr. Saxton

173A. The United States: Civil War and Reconstruction.

The topics studied will include: the rise of sectionalism, the antislavery crusade; the formation of the Confederate States; the war years; political and social reconstruction.

Mr. Saxton

173B. The United States, 1875-1900.

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.

Mr. Saxton

174A-174B. The United States: The Twentieth Century.

The political, economic, intellectual, and cultural aspects of American democracy in the twentieth century.

Mr. Cohen, Mr. Weiss

174C. The United States Since 1945.

A history of the political, social and diplomatic developments that have shaped the United States since 1945.

The Staff

175A-175B. Economic History of the United States Since the Civil War.

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.

Mr. Saloutos

176A-176B. Afro-American History.

An emphasis of the social, cultural and political history of Black People in the United States.

Mr. Robinson

177A-177B. Intellectual History of the United States.

The principal system 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.

Mr. Howe

177C. History of Religion in the United States.

Consideration of the religious dimension of people's experience in the United States. A number of religious traditions which have been important in this country will be examined, and attention devoted to relating developments in religion to other aspects of American culture.

Mr. Howe

178A-178B. American Diplomatic History.

178A. The establishment of an independent foreign policy, the territorial expansion of the United States, and the emergence of a world power.

178B. The role of the United States in the 20th century world.

Mr. Dallek

179A-179B. Constitutional History of the United States.

Prerequisite: eight units of United States history or government, or consent of the instructor. A study of the origins and development of the Federal Constitution.

180A-180B. Social History of the United States Since 1800.

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.

Mr. Hines

180D-180E. Relationships Between Men and Women in American Life.

A cultural and historical approach to the relationships between men and women in American society. The course will explore the implications of a "separation of the sexes" in such areas as religion, literature, politics, business, intellectual life, medicine, and family.

The Staff

180F-180G-180H. North American Indian History.

An investigation of Indian-White interaction in North America which will focus on the activities of such peoples as the Iroquois, Sioux, and Chumash as they actively responded to white penetration and colonization.

180F. Eastern Region.

180G. Central Region.

180H. Western Region.

Mr. Morrison

180J-180K. History of American Architecture and Urban Planning: 1600-The Present.

(Formerly numbered M180C.) Aspects of American cultural history as explored through architecture, urban planning and the allied arts. The focus is on the development of an architectural consciousness in America, ways in which the built environment has affected its users and observers, and the extent to which it has reflected their values and ways of living. 180J covers from 1600 to 1890. 180K covers from 1890 to the present.

Mr. Hines

181. The American West.

A study of the West as frontier and as region, in transit from the Atlantic seaboard to the Pacific, and from the 17th century to the present.

Mr. Hundley

182. The Immigrant in America.

An historical analysis of the social and economic causes and effects of immigration, particularly after the 1880's, emphasizing the problems of acculturation and adjustment. The restrictionists and the implications of immigration policy on U.S. foreign policy will be stressed.

Mr. Saloutos

183. Racial Attitudes in America.

The course will trace the origins and development of racial attitudes, both scientific and popular, in America from the first English contacts with Africans and Indians in the late 16th century to the present day.

Mr. Nash in charge

184. American Reform Movements and Reformers.

A study of educational, monetary, labor and agrarian reforms advocated in the nineteenth and twentieth centuries.

Mr. Saloutos

185A-185B. American and Comparative Working Class Movements.

Examines major episodes in institutional, economic, and cultural development of American working class from colonial times to present, emphasizing both organized and unorganized labor in a comparative context. A.F. of L., rise of industrial unionism, and labor politics are also discussed.

Mr. Laslett

186A-186B. History of the Chicano Peoples.

The character, values, economy, social structure, politics, culture, and intellectual heritage of the Mexican-American peoples as related to the history of the United States and Mexico, with emphasis on the Southwest.

Mr. Gómez-Quiñones

187. American Political Biography.

Leading American statesmen, as seen through the best of their biographies, with an examination of the making and unmaking of American heroes, and changing fashions in the art of biography.

Mrs. Brodie

188. History of California.

The economic, social, intellectual, and political development of California from the earliest times to the present.

Mr. Hundley

189A-189B. American Urban History.

189A. A social analysis of the urbanization process down to 1900.

189B. A social analysis of American urbanization in the 20th Century.

191A-191B-191C. History of China.

Prerequisite: course 9B or 191A or equivalent readings are prerequisite to 191B.

191A. Origins to 900.

191B. 900-1600.

191C. 1600-1800.

Mr. Farquhar, Mr. Huang

191D. Modern China, 1840-1920.

From the Opium War to the May Fourth Movement. Imperialism, semi-colonial China, and popular movements; some attention to contrasts between established and revolutionary interpretations.

Mr. Huang

191E. The Chinese Revolution.

From the founding of the Chinese Communist Party to the present. Special emphasis on: the evolution of Mao's thought, the history of the Communist movement, the conditions in the Chinese countryside, the revolutionary developments under the People's Republic.

Mr. Huang

192. Asians in American History.

A study of the politically troubling question of entry into the United States of immigrants ineligible for citizenship, and their citizen children in American history.

Mr. Wilson

193. Diplomatic History of the Far East.

The role of the 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.

Mr. Wilson

195A-195B-195C. Japanese History.

The political, economic, and cultural development of Japan, from pre-history to the present.

195A. Ancient: Pre-history-1600.

195B. Early Modern: 1600-1868.

195C. Modern: 1868-present.

Mr. Notehelfer

196A. Early History of India.

Prerequisite: course 9A or equivalent. Introduction to the civilization and institutions of India. A survey of the history and culture of the South Asian subcontinent from the earliest times to the founding of the Mughal Empire.

Mr. Wolpert

196B. Recent History of India and Pakistan.

Prerequisite: course 9A or 196A. History of the South Asian subcontinent from the founding of the Mughal Empire, through the eras of European expansion, British rule, and the nationalist movement, to the present.

Mr. Wolpert

196C-196D. History of Southeast Asia.

196C. Early History of Southeast Asia. A political and cultural history of the peoples of Southeast Asia from the earliest times to about 1815.

196D. Southeast Asia since 1815. History of modern Southeast Asia with emphasis on expansion of European influence in the political and economic spheres, growth of nationalism and the process of decolonization.

Mr. SarDesai

197. Undergraduate Colloquia.

(Two courses only may be taken for credit.) Intensive readings, discussions, papers. Weekly meetings. Enrollment limited to 15 students per section. Signups and description of offerings each quarter at History Department office. May be concurrently scheduled with course 240A-240T.

The Staff

199. Special Studies in History.

Prerequisite: consent of instructor. Two courses only may be taken for credit. An intensive directed research program. Enroll in Department.

The Staff

199HA-199HB-199HC. Directed Studies for Honors.

Prerequisite: a three-quarter sequence restricted to history honors majors.

199HA. Extensive reading and research in the field of the student's proposed honors thesis. Reports on work in progress will be made to the sponsoring professor at regular intervals.

199HB. Continued reading and research culminating in a draft of the student's honors thesis.

199HC. Revisions of draft and preparation of polished honors thesis; oral examination on thesis.

The Staff

Graduate Courses

200-228. Graduate Lecture Courses and Colloquia.

Prerequisite: graduate status or, with permission of instructor, upper division standing.

200H. Colloquium in U.S. History.

A critical introduction to the historical method, with emphasis on new methodological and conceptual approaches, the use of source materials, and the current state of U.S. historiography. Normally limited to and required of all entering graduate students in U.S. history.

The Staff

201A. History of the Eurasian Nomadic Empires.

This course outlines the history of the great Eurasion nomadic empires (2nd century B.C.-13th century A.D.) with emphasis on their relations with the late Roman and the Byzantine Empires as well as the peoples of Eastern Europe and the Near East.

Mr. Bodrogligeti

201B. Themes in Early and Modern Chinese History.

A close examination of various topics and periods mainly between the years 900 and 1800.

Mr. Farquhar

203. History of Ancient Egypt in the Late Period.

Prerequisite: course 117 and a background in Graeco-Roman history. A cultural history of ancient Egypt from the end of the new kingdom to the coming of Christianity.

205A-205B. Medieval and Renaissance Italy.

The course will treat Italian city-states, particularly Venice, Florence, Milan, and Genoa, between 1100 and 1500, emphasizing urban society, urban problems, politics, and institutions. Italian cities will be contrasted with major Northern European cities.

Mr. Martines

207. Armenian Intellectual History.

Intellectual and cultural trends reflected in Armenian literature, historiography, religious and philosophical thought.

Mr. Sanjian

208. Modern British Biography.

A study of the lives of leaders of Britain, the development of biographical technique and the place of biography in the writing of history.

210A-210B. Morocco and Europe to the End of the French Protectorate.

The interaction of indigenous traditions, political, social, institutional, with European influence emerging mostly from Portugal, Spain and France. Morocco will be the focus of attention with the rest of North Africa providing a basis for comparison.

214. Social and Intellectual History of Recent Japan.

The social changes which accompanied the political and economic transformation of modern Japan and the necessary adaptation of the Confucian value system.

Mr. Notehelfer

M215A-215B-215C. History of Western Education.

(Same as Education M201A-201C.)

M215A. The rise of western educational tradition from the Greeks to the 20th Century.

M215B. The history of American education to 1860.

M215C. History of American Education, 1860 to the Present.

Mr. S. Cohen

216A-216B. An Introduction to the Professional Study of Modern European History.

Prerequisite: Admission to graduate study in Modern European history. An introduction to the topics, methods, and historiography of Modern European history. Required of all graduate students in Modern European history.

The Staff

217. Early Modern Britain and the Continent: Comparative Studies in Social Change.

Socio-political change in relation to ideological development, 1550-1700, with emphasis placed on the periods of the religious wars and on the "Seventeenth Century Crisis" of the state and of the economy.

Mr. Brenner, Mr. Symcox

216A-218B. Modern Britain and the Continent: Comparative Studies in Economic Change.

Prerequisite: course for 218B is 218A. The Industrial Revolution in Europe, with emphasis on the relationship between agrarian structure, population changes, and industrialization. Considerable attention is given to problems of methodology.

222A-222B. Studies in Medieval Latin Literary History.

An introduction to medieval Latin literary history, examining several basic forms of literature produced in the monastery, the university, and the secular world. Considerable attention given to the survival of the classical authors and to the contemporary sources for the study of medieval literary history.

Mr. Rouse

223A-223B. Introduction to the Sources of Medieval and Early Modern History.

This course describes and exemplifies the main types of sources and introduces the student to the use of libraries, archives and source collections as well as to the principal auxiliary sciences of history such as codicology, diplomatics, chronology and sphragistics.

Mr. Rouse

224. Later Medieval Latin Palaeography and Manuscripts, 1100-1500.

An intensive training in the reading of select Medieval and Renaissance hands and in the tools and techniques of textual and literary history.

Mr. Rouse

225. Introduction to Historical Methods.

An historical and analytical examination of the methods of historical study and the assumptions and premises to which these methods are related.

Mr. Moore

226. Quantitative Methods.
An introduction to the application of quantitative methods to historical problems, stressing the practical use of data processing and elementary statistical techniques.
Mr. Berkner

227. Theories of Scientific Change.
Prerequisite: consent of instructor. Historical and philosophical perspectives on science focusing upon the rationality of scientific change and the logic and psychology of scientific discovery. Readings and seminar-style discussions of such authors as: Popper, Kuhn, Toulmin, Lakatos, Holton, Buchdahl, Feyerabend and others.
Mr. Westman

228. Methods in Armenian Oral History.
Prerequisite: Proficiency in the Armenian language. Lectures and laboratory in the methods of taking, processing, and utilizing depositions and other oral sources for Armenian history. The course will include a project assignment in the field. May be concurrently scheduled with course 131D.
Mr. Hovannisian

***230A-230T. Advanced Historiography.**
A. Ancient Greece; B. Ancient Rome; C. Medieval; D. Early Modern Europe; E. Modern Europe; F. Russia/Eastern Europe; G. Britain; H. United States; I. Latin America; J. Near East; K. India; L. China; M. Japan; N. Africa; O. Science/Technology; P. History of Religions; Q. Theory of History; R. Jewish History; S. Armenia and the Caucasus; T. Southeast Asia. May be repeated for credit.
The Staff

M231. Latin American Research Resources.
(Same as Latin American Studies M200.) The course will acquaint students with general and specialized materials in fields concerned with Latin American Studies. Library research techniques will provide the experience and competency required for future bibliographic and research sophistication as the basis for enhanced research results.
Mr. Lauerhass

***240A-240T. Topics in History.**
A through T as for 230. A graduate course involving reading, lecturing, and discussion of selected topics. This course does not fulfill the seminar requirements for the Ph.D. degree. May be repeated for credit. May be concurrently scheduled with course 197.
The Staff

240JX. Topics in History: Near East. (¼ course)
A graduate course involving reading, lecturing, and discussion of selected topics. This course does not fulfill the seminar requirements for the Ph.D. degree. May be repeated for credit.
Mr. Buccellati

Admission to all graduate seminars is subject to the instructor's approval and to appropriate language qualifications. Credit and grades will be given only on completion of the full seminar sequence. IP grading for 250-291 series.

250A-250B. Seminar in Ancient History.
Mr. Chambers

251A-251B. Seminar in Church and Monarchy in the Middle Ages.
Textual studies and interpretative problems in the constitutional, legal, and intellectual history of the Latin Church and of the Western European monarchies, with special attention to the German monarchy, from the 11th century to the 14th.
Mr. Benson

252A-252B-252C. Seminar in Byzantine History. Mr. Vryonis

253A-253B. Seminar in Medieval History.

254A-254B. Seminar in the Italian Renaissance. Mr. Martines

255A-255B. Seminar in the Reformation.
Mr. Clasen

256A-256B. Seminar in the History of Science. Mr. Burke, Mr. Westman

257A-257B. Seminar in Early Modern European History. Mr. Lossky, Mr. Martines

258A-258B. Seminar in English History: Middle Ages. Mrs. Searle

259A-259B. Seminar in English History: Modern History. Mr. Moore

260A-260B. Seminar in Modern European History. Mr. King

261A-261B. Seminar in Modern European Intellectual and Cultural History.
Mr. Weber, Mr. Wohl

262A-262B. Seminar in the Modern History of Spain, Italy and Portugal. Mr. Wohl

263A-263B. Seminar in Russian History.
Mr. Rogger

264A-264B. Seminar in British Empire History. Mr. Galbraith

265A-265B. Seminar in African History.

266A-266B. Seminar in Latin American History: 19th and 20th Centuries.
Mr. Burr

266C-266D. Seminar in Brazilian History.
Mr. Burns

266E-266F. Seminar in Recent Latin America History. Mr. Wilkie

266G-266H. Seminar in Colonial Latin American History. Mr. Lockhart

267A-267B. Seminar in Near Eastern History.
The seminar will concentrate on studies in the History of the Near East, and, in alternate years, on Westernization of the Arab-speaking world.
Mrs. Marsot

268A-268B. Seminar in Jewish History.
Studies in the intellectual and social history of the Jewish people from ancient times to the modern period.
Mr. Funkenstein

269A-269B. Seminar in Early American History. Mr. Henretta, Mr. Nash

270A-270B. Seminar in Recent United States History. Mr. Cohen

271A-271B-271C. Seminar in Recent American History. Mr. Saloutos

272A-272B. Seminar in United States History of the Middle Nineteenth Century. Mrs. Brodie

273A-273B. Seminar in United States Social and/or Intellectual History.
Mr. Howe, Mr. Saxton

274A-274B. Seminar in the History of the American West. Mr. Hundley

275A-275B. Seminar in Jacksonian America.
Mr. Gatell

276A-276B. Seminar in American Diplomatic History. Mr. Dallek

277A-277B. Seminar in Afro-American History.
Social and political history of the Afro-American including an emphasis on the development and structure of race relations in America, and racial concepts and dilemmas, black and white.
Mr. Robinson

276A-278B. Seminar in Medieval Intellectual History and History of Science.
Chosen problems from medieval and early modern philosophy, science, political theory, theology.
Mr. Funkenstein

279A-279B. Seminar in Chinese History.
Mr. Farquhar, Mr. Huang

280A-280B. Seminar in South and Southeast Asia. Mr. SarDesai, Mr. Wolpert

281A-281B. Seminar in Modern Japanese History. Mr. Notehelfer, Mr. Wilson

282A-282B. Seminar in the History of Religions. Mr. Bolle

283A-283B. Seminar in Ottoman and Modern Turkish History. Mr. Shaw

284A-284B. Seminar in the Social History of the Middle East.
The interrelationship of city, tribe, and village in the Middle East; the role of such definable social groups as women, religious classes, middle classes, landlords, tribesmen, and peasants; social change.
Ms. Keddie

285A-265B. Seminar in United States Urban History.

286A-286B. Seminar in Armenian History.
Prerequisite: course 131A-131B-131C or their equivalent. No credit or letter grade will be assigned until completion of entire seminar sequence.
Mr. Hovannisian

M287A. Topics in History of Education: Discussion, Research, and Writing.
(Same as Education M250A.)
Mr. S. Cohen

M287B. Seminar in Bibliography and Historiography in History of Education.
(Same as Education M250B.) Study of sources and new developments in the field. Emphasis will be on representative historians of education and their different modes of writing history.
Mr. S. Cohen

288A-288B. Seminar in Working Class History. Mr. Laslett

289A-289B. Seminar in Chicano History.
Mr. Gómez-Quiñones

290A-290B. Seminar in Social History of Women in the U.S. Ms. Sklar

291A-291B. Seminar in Medieval Middle Eastern History. Mr. Morony

Individual Study and Research

501. Cooperative Program. (½ to 2 courses)
Prerequisites: Approval of UCLA Graduate Advisor and Graduate Dean. Approval of host campus, Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Studies. (¼ to 2 courses)
The Staff

597. Directed Studies for Graduate Examinations. (¼ to 2 courses)
Preparation for either the Master's Comprehensive Examination or the Ph.D. Qualifying Examinations.
The Staff

599. Doctoral Research and Writing. (¼ to 2 courses)
Open only to students who have passed the qualifying examination for the Ph.D. degree.
The Staff

Related Course in Another Department

The following course is offered in the Department of Medical History and is accepted for credit.

Medical History 107B. Historical Development of Medical Science.

■ HUMANITIES

Arnold J. Band, Ph.D., *Professor of Hebrew and Comparative Literature.*
Pier-Maria Pasinetti, Ph.D., *Professor of Italian and Comparative Literature.*
J. Norman Austin, Ph.D., *Associate Professor of Classics and Comparative Literature.*
Ross P. Shideler, Ph.D., *Associate Professor of Scandinavian and Comparative Literature.*
Steven Latimer Bates, Ph.D., *Assistant Professor of English.*
Albert R. Braunmuller, Ph.D., *Assistant Professor of English.*
Richard K. Cross, Ph.D., *Assistant Professor of English.*
Albert David Hutter, Ph.D., *Assistant Professor of English.*
E. Bond Johnson, III, Ph.D., *Assistant Professor of German and Comparative Literature.*

Selected masterpieces of world literature representing different types and national origins. Recommended as courses to satisfy the H-requirement in the College of Letters and Science.

*Offered as schedule and staff allow.

1A. World Literature: Antiquity to Renaissance.
Class meets three hours a week plus one section per week.
The Staff

1B. World Literature: Renaissance to Modern Period.
Class meets three hours a week plus one section per week.
The Staff

2A. Survey of Literature: Antiquity to the Renaissance.
Lecture, two hours; discussion, two hours. Prerequisite: completion of Subject A requirement. The study of selected texts from Antiquity to the Renaissance with emphasis on literary analysis and expository writing. Essays on topics related to the assigned readings will be required. Not open to students who have taken Humanities 1A. This course may be taken to satisfy the Letters and Science "D" requirement (English Composition).
The Staff

2B. Survey of Literature: Renaissance to Modern.
Lecture, two hours; discussion, two hours. Prerequisite: completion of Subject A requirement. The study of selected texts from the Renaissance to the Modern Period with emphasis on literary analysis and expository writing. Essays on topics related to the assigned texts will be required. Not open to students who have taken Humanities 1B. This course may be taken to satisfy the Letters and Science "D" requirement (English Composition).
The Staff

101. The Romantic Dilemma.
Prerequisites: course 1A-1B, or English 1 and 2, or consent of the instructor. The theme of Romantic individualism and rebellion, pursued through literary examples of Romantic hero types (and anti-types) from Rousseau and Goethe to Dostoevsky and Hesse.
The Staff

102. Satire.
Prerequisites: course 1A-1B, or English 1 and 2, or consent of the instructor. The changing nature of satire as illustrated by examples of the genre from Horace and Juvenal to Ionesco and Nabokov.
Mr. Austin

M103. Renaissance Drama.
(Same as Comparative Literature M203.) Prerequisites: upper division standing and literature major: consent of instructor. (Reading knowledge of one appropriate foreign language for graduate students.) The course offers a broad introduction to the subject matter and types of plays in the Renaissance. Historical and literary influences on the plays will be considered. Readings will include works of such dramatists as: Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. This course is cross-listed with Comparative Literature M203. Students seeking U/G credit will be allowed to read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original language and will meet as a group one additional hour each week.
Mr. Braunmuller

104. The Twentieth Century Continental Novel: Mann and Proust.
Prerequisites: course 1A-1B, or English 1 and 2, or consent of the instructor. An intensive study of *The Magic Mountain* and *The Remembrance of Things Past* as works of art and as expressions of the sense of social and cultural dissolution felt in early twentieth century Europe.
Mr. Pasinetti

M105. The Comic Spirit.
(Same as Comparative Literature M205). Prerequisite: upper division standing and literature major. (Reading knowledge of one appropriate foreign language for grads.) Literary masterpieces, both dramatic and non-dramatic, selected to demonstrate the varieties of comic expression. This course is cross-listed with Comparative Literature M205. Students seeking U/G credit will be allowed to read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original language. These students will meet as a group an additional hour each week.
Mr. Band

107. The Epic.
Prerequisites: course 1A-1B, or English 1 and 2, or consent of the instructor. A survey of the epic as a literary form from Homer to Camoens, with analysis of individual works in relation to their contemporary societies and a comparison of the salient differences between oral and literary epic.
Mr. Austin

108. The Faust Theme.
Prerequisite: course 1A-1B or English 1 and 2, or consent of the instructor. The course will explore artists' and intellectuals' use and abuse of their disciplines to find refuge from spiritual dryness. Readings of works by such writers as Marlowe, Goethe, Melville, Valery, Mann, and Malcolm Lowry.
Mr. Cross

M109. The Crisis of Consciousness in Modern Literature.
(Same as Comparative Literature M209.) Prerequisites: upper division standing and literature major. (Reading knowledge of one appropriate foreign language for graduate students.) Study of modern European and American works which are concerned both in subject matter and artistic methods with the growing self-consciousness of the artist and his society, focusing on works of Flaubert, Joyce, Gide, Mann and Nabokov. This course is crosslisted with Comparative Literature M209. Students seeking U/G credit will be allowed to read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original language. These students will meet as a group an additional hour each week.
Mr. Johnson

110. Man and His Fictions.
Prerequisite: course 1A-1B or English 1 and 2, or consent of the instructor. An exploration of dialogue and tale-telling, the wisdom or knowledge they possess, how the exchange of tales defines and sustains a community, how a narrator clarifies his form and meaning for his audience. Readings from writers such as Plato, Dante, Proust, Freud.
The Staff

111. Tragedy.
Prerequisite: upper-division standing. Major tragic drama of the Western tradition: a study of theme and form.
The Staff

112. Modern Poetry of the Western World.
Prerequisite: upper-division standing or consent of the instructor. A study of selected 19th or 20th century European and American poetry.
Mr. Shideler

114. The Short Novel.
Prerequisite: course 1A and 1B, or English 1 and 2; or consent of the instructor. A study of selected short novels as works of literary art and as relevant intellectual statements. Texts by Melville, Flaubert, Dostoevsky, Kafka, et al.
Mr. Pasinetti

115. Four Modern Dramatists.
A study of several works by four major modern dramatists, focusing on understanding specific elements in each work and the authors' possible interrelations. Pirandello, Beckett, and Pinter will be read; the fourth

author will be chosen from; Ionesco, Giradoux, Cocteau.

Mr. Braunmuller

116. Man and Society in the Renaissance.

Lecture, three hours; discussion, one hour. Prerequisite: Humanities 1A-1B, or English 1 and 2, or consent of the instructor. Explorations of a change in Western man's relationship to his world, himself, and his art; reading of such works as *Don Quixote*, the *Essays of Montaigne, Gargantua and Pantagruel, The Praise of Folly, Utopia.*

Mr. Bates

M117. The Mystery Novel.

(Same as Comparative Literature M297.) Prerequisite: upper division standing and literature major or consent of instructor. (Reading knowledge of French for graduate students.) A study of mystery and detective fiction in England, France, and the United States. The origin, form and historical significance will be developed through close readings of selected works. This course is cross-listed with Comparative Literature M297. Students seeking U/G credit will be allowed to read all works in translation. Students taking this course for graduate credit will be required to participate in a special discussion section and to prepare papers based on texts read in the original languages.

Mr. Hutter

M118. Mozart and the Literature of Opera.

(Same as Comparative Literature M268.) Prerequisites: Humanities 1A and 1B or English 1 and 2 or consent of instructor. (Reading knowledge of *either* German or Italian for graduates.) The course will concentrate on opera as a dramatic and poetic medium, by focusing on the literary texts and musical settings of five major Mozart operas. Major topics: theatrical use of mixed media; recitative and aria; staging of opera; Mozart's career as a dramatic composer; Da Ponte as librettis. This course is cross-listed with Comparative Literature M268. Students seeking U/G credit will be allowed to read all works in translation. Students seeking credit will participate in a special discussion section and will prepare all papers based on texts read in the original languages.

Mr. Fletcher

119. Humanism and Reformation in Modern Arabic Literature: 1800-1952.

Prerequisite: English 1 and 2 or Humanities 1A-1B. This course will trace the development of two major aspects of modern Arabic literature: Humanism and Reformation, during the period from 1800-1952.

M129. Archetypal Heroes in Literature.

(Same as Comparative Literature M229.) Prerequisite: upper division standing. (Reading knowledge of one appropriate foreign language for graduate students.) Survey and analysis of the function and appearance of such archetypal heroes as Osiris, Ulysses, Prometheus and Oedipus in literature from antiquity to the modern world. This course will be cross-listed with Comparative Literature M229. Students seeking U/G credit will be allowed to read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original language, and will meet as a group an additional hour per week.

Mr. Awad

M160. Literature and the Other Arts.

(Same as Comparative Literature M260.) Prerequisites: upper division standing and literature major. (Reading knowledge of French, Spanish, Italian or German for Graduate students.) A comparative study of literature and the other art media. This course is cross-listed with Comparative Literature M260. Students seeking U/G credit will be allowed to read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original language and will meet as a group one additional hour per week.

Mr. Bensimon

M180. The Symbolist Tradition in Poetry.

(Same as Comparative Literature M280.) Prerequisite: upper division standing and literature major. (Reading knowledge of either French or German for graduate students.) A study of the symbolist tradition in English, French, and German poetry. This course is cross-listed with Comparative Literature M280. Students seeking U/G credit will read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original languages. These students will meet as a group an additional hour each week.

Mr. Shideler

M181. Poetry and Poetics of the Post-Symbolist Period.

(Same as Comparative Literature M281.) Prerequisites: upper division standing and literature major. (Reading knowledge of either French or German for Graduate Students.) A study of some of the dominant poetic trends and figures in American and European poetry in the first half of the 20th century including such Surrealists as G. Apollinaire and A. Breton, imagists, and major individual poets such as E. Pound, T.S. Eliot, Paul Valery, R.M. Rilke, Stefan George, and Wallace Stevens. This course is cross-listed with Comparative Literature M281. Students seeking U/G credit will read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original languages, and will meet as a group an additional hour each week.

Mr. Shideler

M192. The Psychological Novel.

(Same as Comparative Literature M292) Prerequisites: upper-division standing and literature major. (Reading knowledge of French for Graduate students). A comparative study of French and English novels which both precede and follow the development of psychoanalysis. Selected readings of Freud will be assigned in addition to the required fiction. This course is cross-listed with Comp. Lit. M292. Students seeking U/G credit will read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original languages, and will meet as a group an additional hour each week.

Mr. Hutter

Related Courses in Other Departments

Integrated Arts 1A-1B-1C.
Engineering 101A. Engineering Analysis.

■ IMMUNOLOGY

The Immunology faculty is associated with several departments and is joined in a common instructional program designed to meet the diverse needs of undergraduate, graduate, and professional students, as well as postdoctoral fellows. An *Interdisciplinary Course Sequence in Immunology* with a brief description of each course and the faculty involved may be obtained by writing the Department of Microbiology and Immunology, UCLA Center for the Health Sciences. Students seeking degrees with emphasis in immunology may choose to meet the general requirements of any of the following four departments: Anatomy, Bacteriology, Biology, or Microbiology and Immunology.

■ INDO-EUROPEAN STUDIES (INTERDEPARTMENTAL)

Raimo A. Anttila, Ph.D., *Professor of Indo-European and General Linguistics.*
Henrik Birnbaum, Ph.D., *Professor of Slavic Languages.*
Marija Gimbutas, Ph.D., *Professor of European Archaeology (Department of Slavic Languages).*
Jaan Puhvel, Ph.D., *Professor of Classics and Indo-European Studies.*
Hartmut Scharfe, Ph.D., *Professor of Indic Studies (Department of Oriental Languages).*
Hanns-Peter Schmidt, Ph.D., *Professor of Indo-Iranian Studies (Department of Near Eastern Languages).*
Donald J. Ward, Ph.D., *Professor of Folklore and German.*
Patrick K. Ford, Ph.D., *Associate Professor of Celtic Studies (Department of English).*
Terence H. Wilbur, Ph.D., *Associate Professor of Germanic Linguistics and Philology.*

Undergraduate Curriculum in Indo-European Studies

For details of the curriculum leading to the degree of Bachelor of Arts, see under the College of Letters and Sciences.

Graduate Degrees (C.Phil. and Ph.D.)

These degrees are offered under the jurisdiction of an interdepartmental committee.

Admission to Graduate Status

Students admitted to graduate status must have an A.B. degree with a major in Indo-European Studies from UCLA, or a major in an Indo-European language field (e.g. German, Slavic, Latin, Greek, Romance Languages), or a major in Linguistics (with emphasis on historical linguistics) or a major in Anthropology (with concentration on Europe and Asia). If deficiencies exist in prerequisites to specific work at the graduate level, a student may be admitted conditionally and will be expected to remove these deficiencies as soon as possible upon enrollment.

Requirements for the Doctor's Degree

General Requirements. See Candidate in Philosophy Degree.

Foreign Language. During the first year of graduate study, the student is expected to absolve the standard reading examinations set by the Graduate Division in any two of German, French, and Russian. During the second year a similar test is to be passed in the remaining language, unless the candidate demonstrates beforehand adequate facility in its research use.

Program of Study. The doctorate in Indo-European Studies is offered with three alternative major emphases: (1) Indo-European linguistics, (2) Indo-Iranian or other specialized language area studies, (3) European and related archaeology. In preparation for the written qualifying examinations it is normally necessary to devote at least two years of full-time graduate study to a systematic program of courses and seminars. The general requirements for all students include Vedic Sanskrit, Homeric Greek, one upper division course in Latin, basic competence in Indo-European linguistics (e.g., IES 150, 210), mythology (e.g., IES 140), and archaeology (e.g., IES 131, 132). Additional requirements for the concentration in (1) Indo-European linguistics include an advanced seminar in comparative grammar, a minimum of five

ancient Indo-European languages from different sub-branches, and additional units in courses offered by linguistics (e.g., structural linguistics, phonetics) and related departments. Additional requirements for the concentration in (2) Indo-Iranian or other specialized language area studies include an advanced seminar in comparative grammar, a minimum of two ancient Indo-European languages from different sub-branches, and additional units in language and cultural courses in the area of specialization. Additional requirements for the concentration in (3) European and related archaeology include a minimum of one ancient Indo-European language, an advanced seminar in European archaeology, a course in analytical methods in archaeology, and additional units in archaeology, anthropology, and related fields. The additional units in each area of concentration are to be chosen in close consultation with the student's advisor and/or guidance committee.

Qualifying Examinations. Before advancement to doctoral candidacy and conferral of the C.Phil. degree, a student must pass a series of qualifying examinations, both written and oral. The written examination covers the major and minor fields and includes translation and analysis of passages from prescribed texts in ancient Indo-European languages. The oral examination, conducted by the doctoral committee, probes the student's grasp of the entire program.

Dissertation. A dissertation must be submitted, on a subject approved by the candidate's doctoral committee, dealing with a segment of the major field or combining the major and minor fields. The dissertation must be the result of original research and constitute a significant contribution to knowledge.

Final Examination. This oral examination, administered by the doctoral committee, covers the dissertation and its place both within the candidate's field of emphasis and the discipline as a whole.

Upper Division Courses

M131. European Archaeology: Proto-Civilizations of Europe.
(Same as Archaeology M131.) A survey of European cultures from the beginning of the food-producing economy in the 7th millennium B.C. to the beginning of the Bronze Age in the 3rd millennium B.C.
Mrs. Gimbutas

M132. European Archaeology: The Bronze Age.
(Same as Archaeology M132.) Prerequisite: course M131 or consent of the instructor. A survey of European cultures from around 3000 B.C. to the period of the destruction of the Mycenaean culture about 1200 B.C. The course covers the Aegean area and the rest of Europe.
Mrs. Gimbutas

140. Introduction to Indo-European Mythology.
Recommended preparation: Classics 161. A basic comparative survey of the mythic and religious traditions of ancient India, Iran, Anatolia, and the early Baltic, Slavic, Germanic, Italic and Celtic peoples.
Mr. Puhvel, Mr. Ward

M150. Introduction to Indo-European Linguistics.
(Same as Linguistics M150.) Prerequisite: one year of college-level study (course 3 or better, 8 units minimum) of either Greek or Latin and either German or Russian. A survey of the Indo-European languages from ancient to modern times; their relationships and their chief characteristics.
Mr. Anttila, Mr. Puhvel

199. Special Studies. (½ to 2 courses) **The Staff**

Graduate Courses

210. Indo-European Linguistics: Advanced Course.
Prerequisite: course M150 or the equivalent. Comparative study of phonology, morphology, syntax, and lexicon. Problems in analysis and reconstruction.
Mr. Anttila, Mr. Puhvel

220A-220B. Hittite. (½ course each)
Credit is given only upon completion of both quarters. Prerequisite: consent of the instructor. Introduction to cuneiform Hittite script and grammar, with practice in political, historical, legal, and literary texts; linguistic and other aspects of Anatolia in the 2nd millennium B.C. and survivals into Graeco-Roman times.
Mr. Puhvel

M250A-250B. Seminar in European Archaeology. (½ course each)
(Same as Anthropology M285A-285B and Archaeology M250A-250B.) Prerequisite: consent of the instructor. Credit is given only upon completion of both quarters. The full sequence may be repeated for credit. Studies in ancient European archaeological materials, and their relationship to the Near East, Western Siberia, and Central Asia.
Mrs. Gimbutas

260A-260B. Seminar in Indo-European Mythology. (½ course each)
Credit is given only upon completion of both quarters. Prerequisite: consent of the instructor. Studies in ancient Indo-European mythic and religious traditions and their relationship to the myths of the Mediterranean, the Near East, and the Finno-Ugric area.
Mr. Puhvel, Mr. Ward

280A-280B. Seminar in Indo-European Linguistics.
Prerequisite: course 210. Selected topics in Indo-European comparative grammar for advanced graduate students.
Mr. Anttila, Mr. Puhvel

596. Directed Individual Studies. (½ to 2 courses) **The Staff**

597. Preparation for Doctoral Qualifying Examination. (½ to 2 courses) **The Staff**

599. Research for the Dissertation. (½ to 2 courses) **The Staff**

Related Courses in Other Departments

Ancient Near East (Near Eastern Languages)
160A-160B. Introduction to Near Eastern Archaeology.
161A-161B-161C. Archaeology of Mesopotamia.
260. Seminar in Ancient Near Eastern Archaeology.
261. Practical Field Archaeology.

Anthropology 109A-109B. Old Stone Age Archaeology.
123A-123B. Origins of Old World Civilization.
175A. Strategy of Archaeology.
175B. Archaeological Research Techniques.
M175C. Dating Techniques in Environmental Sciences and Archaeology.
175E. Laboratory Analysis in Archaeology.
183. History of Archaeology.
230. Analytical Methods in Archaelogical Studies.
232. Archaeology.
286. Selected Topics in Historical Reconstruction and Archaeology.

Archaeology 259. Field Work in Archaeology.

Armenian (Near Eastern Languages) 130A-130B. Elementary Classical Armenian.
131A-131B. Intermediate Classical Armenian.
132A-132B. Advanced Classical Armenian.

Classics 161. Introduction to Classical Mythology.
166A. Greek Religion.
166B. Roman Religion.
180. Introduction to Classical Linguistics.
251A. Seminar in Classical Archaeology.
260. Seminar in Roman Religion.

English M111D. Introduction to Celtic Folklore and Mythology.
M111E. Survey of Medieval Celtic Literature.
211. Old English.
216A-216B. Old Irish.
217A-217B. Medieval Welsh.
218. Celtic Linguistics.

Folklore M112. Survey of Medieval Celtic Literature.
M122. Introduction to Celtic Folklore and Mythology.
M126. Introduction to Baltic and Slavic Folklore and Mythology.

German 230. Survey of Germanic Philology.
231. Gothic.
232. Old High German.
233. Old Saxon.
M245A. Germanic Religions and Mythology.
245B. Germanic Antiquities.
252. Seminar in Historical and Comparative German Linguistics.

Greek (Classics) 242A-242B. Greek Dialects and Historical Grammar.
243. Mycenaean Greek.

Hindi (Linguistics) 171A-171B-171C. Hindi.

Iranian (Near Eastern Languages) 169. Civilization of Pre-Islamic Iran.
170. Religion in Ancient Iran.
190A-190B. Introduction to Modern Iranian Studies.
210A-210B. The History of the Persian Language.
M222A-222B. Vedic.
230A-230B. Old Iranian.
231A-231B. Middle Iranian.

Latin (Classics) 242A-242B. Italic Dialects and Latin Historical Grammar.

Linguistics 100. Introduction to Linguistics.
103. Introduction to General Phonetics.
110. Introduction to Historical Linguistics.
120A-120B. Linguistic Analysis.
160. History of Linguistics through the 19th Century.
202A. Linguistic Change: Phonology.
202B. Linguistic Change: Morpho-syntax.
225A. Linguistic Structures: Indo-European.
225E. Linguistic Structures: Indo-Aryan.
270. Historical Linguistics. Seminar.

Oriental Languages 160. Elementary Sanskrit.
161. Intermediate Sanskrit.
162. Advanced Sanskrit.
165. Readings in Sanskrit.
214A-214B. Pali and Prakrits.
221A-221B. Introduction to Panini's Grammar.
247. Selected Readings in Sanskrit Texts.

Scandinavian (Germanic Languages) 151. Elementary Old Icelandic.
152. Intermediate Old Icelandic.
M245. Scandinavian Mythology.

Semitics (Near Eastern Languages) 140A-140B. Elementary Akkadian.
141. Advanced Akkadian.
220A-220B. Ugaritic.

Slavic 177. Baltic Languages and Cultures.
M179. Introduction to Baltic and Slavic Folklore and Mythology.
201. Introduction to Old Church Slavic.
202. Introduction to Comparative Slavic Linguistics.
241A-241B. Advanced Old Church Slavic.
242. Comparative Slavic Linguistics.

Urdu (Near Eastern Languages) 101A-101B-101C. Elementary Urdu.

■ INTEGRATED ARTS

The main manifestations of the creative spirit in the arts of Western Civilization and the problems of their interrelation (literature excluded). For the general student; a knowledge of European history is expected.

1A. Integrated Arts.
Lecture, three hours. From Classic Antiquity to the end of the Middle Ages.

1B. Integrated Arts.
Lecture, three hours. From the Renaissance to the rise of Classicism.

1C. Integrated Arts.
Lecture, three hours. From the French Revolution to the present.

■ INTERDISCIPLINARY COLLOQUIA

Organized colloquia involving several disciplines are offered from time to time in conformity with faculty and student interests. They are open to all faculty members and to graduate students assigned to the colloquia by their advisers. Graduate credit is not awarded directly, but may be given through appropriate departmental courses.

For information about the Committees in charge of these colloquia, call the secretary of the Dean of the College of Letters and Science, 825-4453.

African Studies

A colloquium on Africa in the social sciences will meet biweekly throughout the year. Papers presented and discussed in this colloquium will focus each quarter upon a different integrating theme, such as Urbanization and Migration, Development and Adaptation of Legal Systems in Africa, the Plural Societies of Africa, and similar topics amenable to interdisciplinary discourse.

Mathematics in the Behavioral Sciences

Meetings are announced in the UNIVERSITY CALENDAR.

A colloquium on mathematics in the behavioral sciences will meet biweekly throughout the year. Papers presented and discussed in this colloquium use mathematical language to improve communication between behavioral sciences, and also between these sciences and other branches of knowledge.

■ ISLAMIC STUDIES (INTERDEPARTMENTAL)

For details of the undergraduate major, see Curriculum in Near Eastern Studies.

Master of Arts in Islamic Studies

The interdepartmental program for the Master of Arts in Islamic Studies is designed primarily for the student desiring to prepare for an academic career. It may, however, be found useful also for the student seeking a general education and desiring a special emphasis in this particular area or for a student who plans to live and work in this area, whose career will be aided by a knowledge of the peoples, languages, and institutions. (Such a career might be centered on teaching, research, business, engineering, journalism, librarianship, or government service.) Subject to the limitations indicated below, the special course of studies is formulated for each candidate according to his experience and requirements.

Requirements for the Master's Degree

General Requirements See the Graduate Division.

Admission to the Program. Admission to the Graduate Division with a degree of Bachelor of Arts in Near Eastern Studies or its equivalent is required. The committee to administer the interdepartmental degree in Islamic Studies will pass on the application for admission to the program. A student entering the program is normally expected to have completed the equivalent of advanced intermediate Arabic (Arabic 102A-102B-102C); or advanced Persian (Persian 102A-102B-102C); or advanced Turkish (Turkish 103A-103B). In the case of Arabic, the student must demonstrate his proficiency by passing an examination within the first two weeks of instruction (those failing the examination will be required to take all or part of the first two years of Arabic at UCLA).

Plan. The program is offered under the Comprehensive Examination Plan only. The candidate must pass written examinations in two Near Eastern languages, the history of the Near East and one other social science.

Language Requirements

A candidate for the degree of Master of Arts in Islamic Studies will be required to show proficiency in either French or German, in addition to two Near Eastern languages of his field of specialization. The student is expected to pass the graduate foreign language reading examination in either French or German by the end of the second quarter of residence. In view of the scholarly literature in the field, a candidate is earnestly advised to acquaint himself with a second European language in which relevant material for his studies is available.

Program. The program of each candidate will be especially prescribed by the interdepartmental advisory committee. The program should, wherever possible, be established before the candidate enters his first quarter of work. The program will be planned to emphasize Arabic, Persian or Turkish (Islamic) studies and is intended particularly for the student desiring to prepare for an academic career in this field.

Program in Arabic, Persian or Turkish (Islamic) Studies. The student will be required to continue his language work by taking no fewer than four courses on the appropriate level in the two Near Eastern languages of his choice. Students electing Arabic as one of the two Near Eastern languages of their choice are required to take a course on the third-year level (Arabic 103A-103B-103C, 130A-130B-130C, or 140A-140B-140C) earning at least a B average, or, in exceptional cases (at the discretion of the advisory committee), may be allowed to satisfy this requirement by examination. The remaining five courses are to be chosen from the relevant upper division and graduate courses in history, political science or any of the other fields represented in the program depending on the student's preparation and specific needs, with the proviso that the selection must be limited to two of these disciplines. The omission of history may be approved only in exceptional cases.

Other study arrangements in the Near Eastern field are available through the Department of Near Eastern Languages.

Requirements for the Ph.D. Degree in Islamic Studies

General Requirements. See Doctoral Degrees.

Admission to the Program. Competence in one of the relevant Near Eastern languages, or an undergraduate major in one of the social sciences affiliated with the program, that is, at present, history, political science, anthropology, and sociology, with some specialization in the Near East. The student may be required to take additional work to remove any deficiency in his undergraduate program especially in connection with language preparation. Students proceeding directly to the Ph.D. degree and students who enter the program with an M.A. from another university must satisfy the requirements for the M.A. degree with regard to the two Near Eastern languages of their choice by examination.

Requirements of the Program. At the beginning of his first quarter in residence, the candidate will present to the chairman of the committee to administer the interdepartmental degree in Islamic Studies a written statement explaining his preparation in the two modern languages required by the University (generally French and German). He is expected to pass the graduate foreign language reading examination in both languages by the end of his second year of residence. For work in some fields, a reading knowledge of Italian and/or Spanish and/or Russian is essential. In the first year of graduate study, the candidate will follow essentially the existing master's program in Islamic (Arabic, Persian or Turkish) studies which calls for two Near Eastern languages and literatures as well as two social sciences. Students are expected to continue taking courses beyond the intermediate level in the two Near Eastern languages of their choice and to take a proficiency examination in these languages 9 to 12 months prior to their scheduled qualifying examinations. Normally the

candidate will devote the second year to courses and seminars in departments affiliated with the program, these courses to be determined by the candidate's advisory committee to be appointed by the end of the third quarter of graduate work. This committee is to consist of four faculty members who will supervise the four fields in which the candidate is to be examined. Upon completion of these courses, he will take his qualifying examinations and advance to candidacy. A final year 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 requirements either by taking additional seminars or by registering in Islamics 599.

The Qualifying Examination

The qualifying examination will depend on the social science concentration elected by the student. If, for example, his chosen field is history, he will be examined on the whole range of Near Eastern history, in one field of anthropology, sociology or political science, and in the particular Near Eastern languages and literatures of his approved program. Qualifying examinations for students with different concentrations will be constructed accordingly.

Lower Division Courses

Arabic 1A-1B-1C. Elementary Arabic.

Art 50. Ancient Art.

Classics M70. Survey of Medieval Greek Culture. (Formerly numbered 145A. Same as History M70.)

Geography 1B. Introduction to Geography: Cultural Elements.

Hebrew.*

History 9D. History of the Near and Middle East.
10A-10B. A Cultural Survey of Africa.
M70. Survey of Mediaeval Greek Culture. (Same as Classics M70.)
99. Introduction to Historical Practice.

Iranian 10A-10B-10C. Persian Conversation.

Music 71K. Music of Persia.

Upper Division Courses

African Languages.†

Ancient Near East 120A-120B-120C. Elementary Ancient Egyptian.
121A-121B-121C. Intermediate Ancient Egyptian.
123A-123B. Coptic.
130. Ancient Egyptian Religion.
140A-140B. Elementary Sumerian.
150A-150B-150C. Survey of Ancient Near Eastern Literatures in English.
160A-160B. Introduction to Near Eastern Archaeology.
161A-161B-161C. Archaeology of Mesopotamia.
162. Archaeology of Palestine.
170. Introduction to Biblical Studies.
199. Special Studies in the Ancient Near East.

Anthropology 110. Peoples of the Middle East: Arab Culture.
122A. Comparative Society.
123A-123B. Origins of Old World Civilization.
140. Comparative Religion.
145. Introduction to Psychological Anthropology.

Arabic 102A-102B-102C. Intermediate Arabic.
103A-103B-103C. Advanced Arabic.
111A-111B-111C. Spoken Arabic.
113A-113B-113C. Spoken Iraqi Arabic.
114A-114B-114C. Spoken Moroccan Arabic.
130A-130B-130C. Classical Arabic Texts.
132A-132B-132C. Philosophical Texts.
140A-140B-140C. Modern Arabic Texts.
141. Modern Arabic Literature.
150A-150B. Survey of Arabic Literature in English.
199. Special Studies in Arabic.

Armenian 101A-101B-101C. Elementary Modern Armenian.
102A-102B-102C. Intermediate Modern Armenian.
103A-103B. Advanced Modern Armenian.
130A-130B. Elementary Classical Armenian.
131A-131B. Intermediate Classical Armenian.
132A-132B. Advanced Classical Armenian.
150A-150B. Survey of Armenian Literature in English.
160A-160B. Armenian Literature of the 19th and 20th Centuries.
199. Special Studies in Armenian Language and Literature.

Art 101A-101B-101C. Egyptian Art and Archaeology.
101D. Art of the Ancient Near East.
103B. Hellenistic Art.
104B-104C-104D. Architecture and the Minor Arts of Islam in the Middle Ages.
105A. Early Christian Art.
105B. Early Medieval Art.
105E. Byzantine Art.
114A. The Early Art of India.
115A. Advanced Indian Art.
199. Special Studies in Art.

Berber 101A-101B-101C. Elementary Berber.
102A-102B-102C. Advanced Berber.
120A-120B-120C. Introduction to Berber Literature.
130. The Berbers.
199. Special Studies in Berber Languages.

Classics M170A-170B. Byzantine Civilization. (Same as History M122A-122B.)

Classics Greek 130. Readings in the New Testament.

French 121A. Franco-African Literature.

Geography 187. The Middle East.
188. Northern Africa.

Hebrew.*

History 117. History of Ancient Egypt.
121A. The Early Middle Ages.
121B. The Later Middle Ages.
M122A-122B. Byzantine Civilization. (Same as Classics M170A-170B.)
123A-123B-123C. Byzantine History.
124A-124B. History of Religions.
124C. Religions of the Ancient Near East.
129. History of Northeast Africa.
130A-130B-130C. Islamic Iran. (Formerly numbered 211A-211B-211C.)
131A-131B-131C. Armenian History.
132. The Caucasus since 1801.
133A-133B. History of North Africa from the Moslem Conquest.
134A-134B. Near and Middle East from 600 A.D. to 1500 A.D.
135A. Introduction to Islamic Cultures.
135B. Islamic Institutions and Political Ideas.
136A-136B. The Middle East: 1500 to the Present.
137A-137B. Jewish Intellectual History.
138A-138B. Jewish History.
139A-139B-139C. History of the Turks.
140A-140B. History of Ancient Mesopotamia and Syria.
149A-149B-149C. History of the Balkans.
196A. Early History of India.
196B. Recent History of India and Pakistan.
197. Undergraduate Colloquia.
199. Special Studies in History.

Iranian 101A-101B-101C. Elementary Persian.
102A-102B-102C. Advanced Persian.
140. Contemporary Persian Belle Lettres.
141. Contemporary Persian Analytical Prose.
150A-150B. Survey of Persian Literature in English.
169. Civilization of Pre-Islamic Iran.
170. Religion in Ancient Iran.
190A-190B. Introduction to Modern Iranian Studies.
199. Special Studies in Iranian.

Jewish Studies 110. Social, Cultural and Religious Institutions of the Jews.
151A-151B. Modern Jewish Literature in English.
190. Undergraduate Seminar in Jewish Studies.
199. Special Studies.

Music 171K. Music of Persia.

Near Eastern Languages 198. Special Studies in Near Eastern Languages.

Philosophy 104. Topics in Islamic Philosophy.

Political Science 132. International Relations of the Middle East.
164. Governments and Politics in the Middle East.
165. Government and Politics in North Africa.

Semitics 101A-101B-101C. Elementary Amharic (Modern Ethiopic).
102A-102B-102C. Advanced Amharic (Modern Ethiopic).
110. Neo-Aramaic.
130. Biblical Aramaic.
140A-140B. Elementary Akkadian.
141. Advanced Akkadian.
142. Akkadian Literary Texts.

Sociology 132. Population and Society in the Middle East.
133. Comparative Sociology of the Middle East.
151. Culture and Personality.

Turkic Languages 101A-101B. Elementary Turkish.
102A-102B. Intermediate Turkish.
103A-103B. Advanced Turkish.
110A-110B-110C. Old and Middle Turkic.
112A-112B-112C. Uzbek.

†See Linguistics Department for complete listing and detailed description.

*See Department of Near Eastern Languages for complete listing and detailed description.

114A-114B-114C. Bashkir.
199. Special Studies in Turkic Languages.

Graduate Courses

African Languages.†

Ancient Near East 210. Late Egyptian.
220. Seminar in Ancient Egypt.
250. Seminar in Ancient Mesopotamia.
260. Seminar in Ancient Near Eastern Archaeology.
261. Practical Field Archaeology.
596. Directed Individual Study.
597. Examination Preparation.
599. Dissertation Research and Preparation.

Anthropology 214. Cultures of the Middle East.
265. Selected Topics in Cultures of the Middle East.

Arabic 220A-220B-220C. Islamic Texts.
230A-230B-230C. Arabic Poetry.
240A-240B-240C. Arab Historians and Geographers.
250A-250B-250C. Seminar in Arabic Literature.
260A-260B-260C. Introduction to Modern Arabic Dialects.
280. Structure of Classical Arabic.
596. Directed Individual Study.
597. Examination Preparation.
599. Dissertation Research and Preparation.

Archaeology 200. Archaeology Colloquium.
259. Field Work in Archaeology.
596. Individual Studies for Graduate Students.
597. Preparation for Doctoral Qualifying Examinations.

Armenian 210. History of Armenian Language.
220. Armenian Literature of the Golden Age (A.D. Fifth Century).
250A-250B. Seminar in Armenian Literature.
290. Seminar in Armenian Paleography.
596. Directed Individual Study.
597. Examination Preparation.
599. Dissertation Research and Preparation.

Art 210. Egyptian Art.
213. Problems in Islamic Art.
222A-222B. Greco-Roman Art.
223. Classical Art.
225. Medieval Art.
226A-226B. Medieval Art and Architecture.
260. Asian Art.

Classics. Greek 231A-231B-231C. Seminar in Patristic and Byzantine Literature.
233. Byzantine Poetry.

French 221A. Introduction to the Study of the French-African Literatures.
221B. French-African Literature of Madagascar and Bantu Africa.
221C. French-African Literature of Berbero-Sudanese and Arabo-Islamic Africa.
257A-257B. Studies in French-African Literature.

Geography 288. Africa.
290H. Middle East.
290I. Northern Africa.

Hebrew.*

History 201A. History of the Eurasian Nomadic Empires.
203. History of Ancient Egypt in the Late Period.
207. Armenian Intellectual History.
210A-210B. Morocco and Europe to the End of the French Protectorate.
228. Methods in Armenian Oral History.
230J. Advanced Historiography. The Near East.
230R. Advanced Historiography. Jewish History.
230S. Advanced Historiography. Armenian.
240J. Topics in History. The Near East.
240P. Topics in History. History of Religions.
240R. Topics in History. Jewish History.
240S. Topics in History. Armenian History.
250A-250B. Seminar in Ancient History.
252A-252B-252C. Seminar in Byzantine History.
267A-267B. Seminar in Near Eastern History.
268A-268B. Seminar in Jewish History.
278A-278B. Seminar in Medieval Intellectual History and History of Science.
282A-282B. Seminar in the History of Religions.
283A-283B. Seminar in Ottoman and Modern Turkish History.
284A-284B. Seminar in the Social History of the Middle East.
286A-286B. Seminar in Armenian History.
291A-291B. Seminar in Medieval Middle Eastern History.
596. Directed Studies.
597. Directed Studies for Graduate Examinations.
599. Doctoral Research and Writing.

Iranian 210A-210B. The History of the Persian Language.
211A-211B. Modern Iranian Dialects.
220A-220B. Classical Persian Texts.
221. Rumi the Mystic Poet of Islam.
M222A-222B. Vedic.
230A-230B. Old Iranian.
231A-231B. Middle Iranian.
250. Seminar in Classical Persian Literature.
251. Seminar in Contemporary Persian Literature.
596. Directed Individual Study.
597. Examination Preparation.
599. Dissertation Research and Preparation.

Islamics 596. Directed Individual Study.
597. Examination Preparation.
598. Thesis Research and Preparation.
599. Dissertation Research and Preparation.

Linguistics 220A. Linguistic Areas. Africa.
225M. Linguistic Structures: Berber.
225U. Linguistic Structures: Persian Phonology and Syntax.
225V. Linguistic Structures: Persian Syntax.

Music 282. Music of Persia.
284. Music of the Arabic Near East.

Near Eastern Languages 200. Bibliography and Method of Near Eastern Languages and Literatures.
210. Survey of Hamito-Semitic Languages.
M241. Folklore and Mythology of the Near East.
290. Seminar in Paleography.
596. Directed Individual Study.
597. Examination Preparation.
599. Dissertation Research and Preparation.

Political Science 250F. Seminars in Regional and Area Political Studies. Middle East.
250K. North African Studies.

Semitics 201A-201B-201C. Old Ethiopic.
202A-202B-202C. Readings in Old Ethiopic Literature.
209A-209B-209C. Comparative Study of the Ethiopian Languages.
210. Ancient Aramaic.
215A-215B. Syriac.
220A-220B. Ugaritic.
225. Phoenician.
230. Seminar in Northwest Semitic Languages and Literatures.
240. Seminar in Akkadian Language.
241. Seminar in Akkadian Literature.
280A-280B-280C. Seminar in Comparative Semitics.
290A-290B-290C. Comparative Morphology of the Semitic Languages.
596. Directed Individual Study.
597. Examination Preparation.
599. Dissertation Research and Preparation.

Sociology 236. Social Change in the Middle East.
237. Social Stratification in the Middle East.

Turkic Languages 210A-210B-210C. Ottoman.
211. Ottoman Diplomatics.
220A-220B-220C. Chagatay.
230A-230B-230C. A Historical and Comparative Survey of the Turkic Languages.
240A-240B-240C. Islamic Texts in Ottoman.
250A-250B-250C. Islamic Texts in Chagatay.
596. Directed Individual Study.
597. Examination Preparation.
599. Dissertation Research and Preparation.

Urdu 101A-101B-101C. Elementary Urdu.
199. Special Studies in Urdu.

■ ITALIAN

(Department Office, 340 Royce Hall)

Giovanni Cecchetti, Dottore in Lettere, *Professor of Italian (Chairman of the Department).*
Fredi Chiappelli, Dottore in Lettere, *Professor of Italian.*
Pier-Maria Pasinetti, Ph.D., *Professor of Italian and Comparative Literature.*
Charles Speroni, Ph.D., *Professor of Italian.*
Franco Betti, Ph.D., *Associate Professor of Italian.*
Margherita Cottino-Jones, Ph.D., *Associate Professor of Italian.*
Franco Masciandaro, Ph.D., *Assistant Professor of Italian.*
Edward F. Tuttle, Ph.D., *Assistant Professor of Italian.*

♦

Althea Reynolds, M.A., *Lecturer in Italian.*
Andrea Ornstein, M.A., *Lecturer in Italian.*

The program of studies leading to the Bachelor of Arts in Italian consists of two distinct phases:

†See Linguistics Department for complete listing and detailed description.

*See Department of Near Eastern Languages for complete listing and detailed description

preparation in the language, and study of the literature. While literature courses constitute the bulk of the program, a good knowledge of the language is a prerequisite to all upper division work literature courses credited toward the Major in Italian being taught in Italian only. All degree programs are designed to give students the best possible preparation in the field at the appropriate level. The use of Italian is stressed at all levels of study. Detailed information on programs and specific degree requirements may be obtained in the department publication, *Programs in Italian Studies*, and in the office of the Department of Italian located in 340 Royce Hall.

Preparation for the Major

Courses 1, 2, 3, 4, 5, 6, and 25, or their equivalents.

The Major

Required: 12 upper-division courses in Italian literature, including one course from the Italian 102 A-B-C series, Italian 113A, 113B, and 113C, and eight additional courses chosen from Italian 114 through 120. Strongly recommended: three upper-division courses from other departments as follows: Classics 143 or 144, History 148A or 148B, and English 110. Recommended: Art 106A, 106B, or 106C; upper-division courses in another literature and philosophy; and a second language (Latin, French, Spanish, or German) at least on level 3. All majors must organize their programs in consultation with their major adviser.

Preparation for the Major in Italian and Special Fields

Italian 1, 2, 3, 4, 5, and 6, or their equivalents, plus additional required courses associated with the field of specialization in consultation with the departmental undergraduate adviser.

The Major in Italian and Special Fields

Required: 12 upper-division courses, seven of which must be in Italian, distributed as follows: one course from the Italian 102A-B-C series; four courses chosen from Italian 113A-B-C, Italian 114A-B, Italian 116A-B, and Italian 118; two courses chosen from offerings in Italian literature, as determined by the area of specialization; and five courses chosen from a select group of offerings in another department, as determined by the field of specialization.

Study programs fulfilling requirements for the major in Italian and Special Fields have been developed with the Departments of Anthropology, Art, Classics (Latin), English, French, History, Linguistics, Music, and Theater Arts. Students should consult the Department of Italian for definitive requirements in the various fields of specialization.

NOTE: Students participating in the major in Italian and Special Fields will be required to plan their study lists each quarter in consultation with the departmental undergraduate adviser. Courses will be assigned in accordance with the student's needs as determined by the area of specialization pursued. When consultation with an area adviser is deemed necessary, the study list will require his approval also. In certain cases, as many as two courses (8 units) on the graduate level may be applied toward the 12-course minimum requirement.

Requirements for the Master's Degree

General Requirements. See Master's Degrees. The Department favors the Comprehensive Examination Plan, but, with departmental approval, the Thesis Plan may be followed. See Thesis or Comprehensive Examination.

Program A: Master of Arts in Italian Literature

Departmental Requirements. Thesis Plan. The preparation and examination of each candidate will be the responsibility of a guidance committee composed of three members of the Department. The chairman of the committee will be the instructor under whom the candidate proposes to write his thesis. No committee shall be appointed before a candidate has completed two full quarters of work in graduate standing in the Department.

1. Foreign Language. The same as for the Comprehensive Examination Plan.

2. Courses. Nine courses of which a minimum of six must be in the 200 series.

3. Thesis and Examination. The subject and general plan of investigation for the thesis must be approved by the Department and the instructor concerned before a guidance committee can be appointed. After completion of the thesis, the candidate must pass a two-hour oral examination testing his knowledge of the field of his thesis and his general competence. Only those students who attain a 3.5 grade-point rating in the examination will be encouraged to proceed to candidacy for the Ph.D. degree.

Departmental Requirements. Comprehensive Examination plan.

1. Foreign Language. A reading knowledge of one other foreign language approved by the graduate adviser, or evidence of successful completion of courses through at least level 3. This requirement must be met at least one quarter before the date of the comprehensive examination.

2. Courses. Twelve courses, three of which may be upper division, and nine of which must be distributed as follows: Three in the Medieval period, three in the Renaissance and Baroque periods, and three in the Modern period (from the 18th to the 20th century). At least one quarter of Italian 205 is required. Related courses in other Departments, such as History 205A and 205B and Art 230 are strongly recommended.

3. The Comprehensive Examination. One four-hour written examination, administered by a faculty committee appointed by the Chairman, to be given the next to the last week preceding the final examination period of the fall and spring quarters. After the written examination, at the discretion of the Department, the candidate may be required to take an oral examination.

Program B: Master of Arts in Italian Language

The program is designed as a terminal degree program with emphasis on the methodology of teaching language and elementary literature.

Departmental Requirements. Thesis Plan. The preparation and examination of each candidate will be the responsibility of a guidance committee composed of three members of the Department. The Chairman of the committee will be the instructor under whom the candidate proposes to write his thesis. No committee shall be appointed before a candidate has completed two full quarters of work with graduate standing in the Department.

1. Foreign Language. A reading knowledge of one other foreign language approved by the graduate adviser, or evidence of successful completion of courses through at least level 3. This requirement must be met at least one quarter before the date of the oral examination.

2. Courses. Twelve courses, six of which must be on the graduate level and distributed as follows: two in the Medieval Period (seminars on Dante strongly recommended); two in the Renaissance Period; and two in the Modern Period (courses in the twentieth century recommended). Italian 130A and 130B. Italian 259A and 259B. Latin 232 (Vulgar Latin). Linguistics 100 or 140, or both.

3. Thesis and Examination. The subject and general plan of investigation for the thesis must be approved by the Department and the instructor concerned before a guidance committee can be appointed. After completion of the thesis, the candidate must pass a two-hour oral examination testing his knowledge of the field of his thesis and his general competence.

Departmental Requirements. Comprehensive Examination Plan. 1. Foreign Language. A reading knowledge of one other foreign language approved by the graduate adviser, or evidence of successful completion of courses through at least level 3. This requirement must be met at least one quarter before the date of the comprehensive examination.

2. Courses. Twelve courses, six of which must be on the graduate level and distributed as follows: two in the Medieval Period (seminars on Dante strongly recommended); two in the Renaissance Period; and two in the Modern Period (courses in the twentieth century recommended). Italian 130A and 130B. Italian 259A and 259B. Latin 232 (Vulgar Latin) or Italian 210A.

3. The Comprehensive Examination. One four-hour written examination, administered by a faculty committee appointed by the Chairman, to be given the next to the last week preceding the final examination period of the fall and spring quarters. After the written examination, at the discretion of the Department, the candiate may be required to take an oral examination.

Requirements for the Ph.D. Degree in Italian

General Requirements. See Candidate in Philosophy Degree.

Departmental Requirements. 1. Foreign Language. A student normally will pass this requirement by giving evidence of successful completion of courses through level three in at least two of the following languages: Latin, French, German, Spanish (subject to departmental approval). Students may also pass a reading examination in French, German, or Spanish. All language requirements must be fulfilled prior to taking the qualifying examinations. Qualifying examinations will be given in the second week of the fall and spring quarters.

2. Required Courses. In addition to those required for the master's degree, or equivalent: at least ten other quarter courses, of which no more than two 596, or one 596 and one 495, courses may apply. In addition, the student will take such courses as his guidance committee will prescribe in preparation for the qualifying examinations, such as 596, 597, 599.

3. Fields of Specialization. The Department recognizes the following fields of specialization, from which *one major* and *one minor field* will

be selected: Medieval, Renaissance and Baroque, Modern.

4. Qualifying Examinations. Part I. An M.A. in Italian from UCLA is accepted as Part I of the Ph.D. qualifying examinations. Graduate students entering the Ph.D. Program in Italian with an M.A. from another University will take Part I at the end of their first graduate year at UCLA. (Note: This requirement may be waived under certain circumstances at the discretion of the Department and upon petition by the student.) This qualifying examination Part I is similar to the comprehensive examination for the M.A. (see Thesis or Comprehensive Examination.)

5. Qualifying Examinations. Part II. The qualifying examinations will consist of: one four-hour written examination in the candidate's major field; one four-hour written examination covering the minor field; a two-hour oral examination. The qualifying examinations are normally taken no later than nine quarters after the B.A. and six quarters after receiving the M.A. A summary of requirements entitled "Regulations for the Ph.D. Examination" is available in the Department on request.

6. The Dissertation. The dissertation should be presented within a period of three years after formal advancement to candidacy for the degree. After the acceptance of the dissertation in its final form, the candidate may be required to take an oral examination which will cover principally the field within which the dissertation falls.

Lower Division Courses

Enrollment in the Italian open language laboratory is required of all students of Italian 1, 1A, 2, 2A, and 3.

1. Elementary Italian—Beginning.
Sections meet four hours weekly plus one hour in the laboratory.

Mrs. Cheeseman in charge

1A. Elementary Italian—Accelerated. (2 courses)
Sections meet eight hours weekly plus one hour in the laboratory. Designed for those students having the capacity and desire to learn the language at a much faster pace than normal. Encompasses material ordinarily intended for courses 1 and 2.

Mrs. Cheeseman in charge

2. Elementary Italian—Continued.
Sections meet four hours weekly plus one hour in the laboratory. Prerequisite: course 1 or one year of high school Italian.

Mrs. Cheeseman in charge

2A. Elementary Italian Accelerated (Continued). (2 courses)
Sections meet four hours weekly plus one hour in the laboratory. Prerequisite: Italian 2 or Italian 1A, or two years of high school Italian. Designed for those students having the capacity and desire to learn the language at a much faster pace than normal. Encompasses the material ordinarily intended for Italian 3 and Italian 4.

Mrs. Cheeseman in charge

3. Elementary Italian—Continued.
Sections meet four hours weekly plus one hour in the laboratory. Prerequisite: course 2 or two years of high school Italian.

Mrs. Cheeseman in charge

4. Intermediate Italian.
Sections meet four hours weekly plus one hour in the laboratory. Prerequisite: course 3 or three years of high school Italian.

Mr. Masciandaro in charge

5. Intermediate Italian.
Sections meet four hours weekly plus one hour in the laboratory. Prerequisite: course 4 or four years of high school Italian.

Mr. Masciandaro in charge

6. Intermediate Italian.
Sections meet four hours weekly plus one hour in the laboratory. Prerequisite: course 5.

Mr. Masciandaro in charge

8A-8B-8C. Italian Conversation. (½ course each)
Sections meet two hours weekly. Prerequisite: for 8A, course 1; for 8B, course 2; for 8C, course 3.

Mrs. Reynolds

25. Advanced Italian.
Sections meet four hours weekly. Prerequisite: course 6. An advanced grammar and composition course with readings from select literary works.

Mr. Masciandaro in charge

46A-46B-46C. Literary and Socio-Political Trends in Italian Cinema (In English).
Lecture, two hours; discussion, two hours. The influence of Italian literature, socio-political thought, and aesthetics on the development and evolution, thematic emphases, and treatment of specific directors and genres of Italian cinema after World War II. 46C is intended as a general (and introductory) survey, while 46B and 46A focus on a particular emphasis — director or genre. Designed for students with majors other than Italian.

Mr. Cecchetti in charge

Upper Division Courses

Sixteen quarter units in Italian or the equivalent are required for admission to any upper division course. Upper division courses will be conducted mainly in Italian.

102A-102B-102C. Italian Culture and Institutions.
The courses are designed to familiarize the student with aspects and trends of Italian history and cultural development, including:
102A. History of the Italian Language.
102B. Social Institutions of Italy.
102C. History and Characteristics of Contemporary Italy.

The Staff

113A-113B-113C. Dante's "Divina Commedia."
Classes meet three hours weekly.
113A. *Inferno.*
113B. *Purgatorio.*
113C. *Paradiso.*

Mr. Cecchetti, Mr. Masciandaro

114A-114B. Italian Literature of the Middle Ages.
Classes meet three hours weekly. Emphasis on "Stil Novo," Dante's minor works, Petrarch and Boccaccio.

Mrs. Cottino-Jones, Mr. Masciandaro

116A-116B. Italian Literature of the Renaissance.
Classes meet three hours weekly. Emphasis on Lorenzo de'Medici, Poliziano, Castiglione, Machiavelli, Ariosto, Tasso.

Mr. Betti

118. Italian Literature of the Eighteenth Century.
Class meets three hours weekly. Emphasis on Goldoni, Parini, Alfieri.

Mr. Betti, Mr. Pasinetti

119A-119B. Italian Literature of the Nineteenth Century.
Classes meet three hours weekly. Emphasis on Foscolo, Leopardi, Manzoni.

Mr. Betti

120. Italian Literature of the Twentieth Century.
Class meets three hours weekly. From Verga to Contemporaries.

Mr. Cecchetti

130A-130B. Advanced Grammar and Composition (Teaching).
130A. The Teaching of Italian Idiomatic Structure: Grammar. A study in depth of the idiomatic phenomena of the language from both the grammatical and syntactical points of view.

Mr. Chiappelli

130B. The Teaching of Italian Idiomatic Structure: Vocabulary. Emphasis placed on the idiomatic linguistic phenomena from the point of view of the lexicon, such as: synonymia, homonymia, changes from literal to metaphorical connotations, archaisms, innovative trends.

Mr. Chiappelli

131. Reading and Reciting. (½ course)
Prerequisite: consent of instructor based on sufficient knowledge of the language. Emphasis on diction, interpretation and performance of one-act plays as vehicles for perfection of pronunciation, comprehension and fluency.

Mrs. Reynolds

190. Pre-Seminars in Italian Literature. (½ course)

The Staff

199. Special Studies. (½ to 1 course)
Prerequisite: consent of the instructor. A course of independent study for advanced undergraduates who wish to pursue a special research project under the direction and close supervision of a faculty member.

The Staff

Service Courses

No knowledge of Italian is required for these courses. No credit is given toward the major.

1G. Special Reading Course. (No credit)
Class meets three hours weekly. Mainly designed for graduate students in other areas.

The Staff

2G. Special Reading Course. (No credit)
Class meets three hours weekly. Mainly designed for graduate students in other areas.

The Staff

100A-100B-100C. Main Trends in Italian Literature and Their Relation to Other European Literatures (in English).
100A. From Dante to the Renaissance. Especially Dante, Petrarch, Boccaccio, to Poliziano, Lorenzo de'Medici, and Castiglione.
100B. The High Renaissance and the Baroque Period. Especially Ariosto, Machiavelli, the Petrarchists, Tasso, Galileo, Marino, and Vico.
100C. From the 18th Century to the Present. Especially Parini, Alfieri, Foscolo, Leopardi, Manzoni, Verga, Croce, Svevo, Pirandello, and the poetry of the 20th Century.

Mr. Betti

105. Tradition and Innovation in Italian Culture.
Italy's basic social structures and cultural institutions are delineated through their historical development and then as they are manifest in the stresses to which the industrializing state currently is subject.

Mr. Tuttle

110A-110B. The Divine Comedy in English.
Class meets three hours weekly.
The Staff

M140. From Boccaccio to Basile (in English).
(Same as Folklore M140.) Class meets three hours weekly. A study of the origins and the development of the Italian novella in its themes, in its structure, in its historical context, and in its European ramifications. The course is designed for students in other departments who wish to become acquainted with either the premises or the growth of similar literary genres. It is also intended for students majoring in Folklore and Mythology, who will be given an insight into Italian popular tales when these (as in the case of Boccaccio) were translated into highly sophisticated literary forms, as well as when (as in the case of Basile) they become embedded into the folk tradition of the Western world.
Mrs. Cottino-Jones

150. Modern Italian Fiction in Translation.
Class meets three hours weekly.
The Staff

Graduate Courses

201. Bibliography and Methods of Research.
Class meets two hours weekly.
Mrs. Cottino-Jones

205A-205B. Methods of Literary Criticism.
Classes meet two hours weekly.
205A. Brief History of Literary Criticism.
205B. Discussion of Modern Critical Approaches.
Mrs. Cottino-Jones

210A-210B-210C. Early Italian Literature.
Classes meet two hours weekly.
210A. The Origins of Italian Language and Early Texts.
210B. The *Scuola Siciliana* and Early Poetry in Central and Northern Italy.
210C. The *Dolce stil novo.*
Mr. Chiappelli

214A-214G. Italian Literature of the Fourteenth Century.
Classes meet three hours weekly.
214A. Dante's *Vita Nuova* and *Rime.*
Mr. Chiappelli
214B. *Convivio and De Vulgari Eloquentia.*
Mr. Masciandaro
214C. The *Commedia* and the *Monarchia.*
Mr. Chiappelli
214D. Petrarca.
Mr. Chiappelli
214E. The *Decameron.*
Mrs. Cottino-Jones
214F. Boccaccio's Other Works.
Mrs. Cottino-Jones
214G. Sacchetti and Other Prose Writers.
Mrs. Cottino-Jones

215A-215B-215C. Italian Literature of the Fifteenth Century.
Classes meet three hours weekly.
215A. Fiction and Other Prose Texts.
Mr. Chiappelli
215B. Writings of the Humanists.
Mr. Masciandaro
215C. The Age of Lorenzo de'Medici and Poliziano.
Mr. Betti

216A-216E. Italian Literature of the Sixteenth Century.
Classes meet three hours weekly.
216A. Machiavelli.
Mr. Chiappelli
216B. Ariosto.
Mr. Betti
216C. Bembo, Folengo, Aretino, and the Theatre.
Mr. Cecchetti
216D. Prose (Castiglione, Della Casa, Guicciardini, Cellini).
The Staff
216E. Tasso.
Mr. Chiappelli

217A-217B-217C. Italian Literature of the Seventeenth Century.
Classes meet three hours weekly.
217A. Bruno, Campanella, Galilei, Magalotti.
Mrs. Cottino-Jones
217B. Commedia dell'arte and the Theatre.
The Staff
217C. Marino and Marinisti.
Mrs. Cottino-Jones

218A-218E. Italian Literature of the Eighteenth Century.
Classes meet three hours weekly.
218A. The Prose from Vico to Cesarotti.
Mr. Betti
218B. Essayists and Autobiographical Writers.
Mr. Betti
218C. The Theater, Especially Metastasio, Goldoni, C. Gozzi.
Mr. Pasinetti
218D. Parini and the Poets of Arcadia.
Mr. Pasinetti
218E. Alfieri.
Mr. Chiappelli

219A-219F. Italian Literature of the Nineteenth Century.
Classes meet three hours weekly.
219A. Foscolo.
Mr. Chiappelli
219B. Leopardi.
Mr. Cecchetti
219C. Manzoni.
Mr. Pasinetti
219D. Trends in Fiction before Verga.
Mr. Betti
219E. Verga.
Mr. Cecchetti
219F. Italian Literature at the Turn of the Century.
The Staff

220A-220B-220C. The Italian Literature of the Twentieth Century.
Classes meet three hours weekly.
220A. From D'Annunzio to Futurism and the Early Twenties.
The Staff
220B. Contemporary Italian Poetry.
Mr. Cecchetti
220C. Contemporary Italian Fiction.
The Staff

M230A-230B. Folk Tradition in Italian Literature.
(Same as Folklore M230A-230B.) Course meets two hours weekly.
Mr. Speroni

Seminars

250A-250D. Seminar on Dante.
Course meets three hours weekly.
Mr. Cecchetti

251. Seminar on Petrarch.
Course meets three hours weekly.
Mr. Chiappelli

252. Seminar on Boccaccio.
Course meets three hours weekly.
Mrs. Cottino-Jones

253A-253B-253C. Seminar on Chivalric Poetry in Italy.
Course meets three hours weekly. The relationship between the genre and its French medieval sources, with a study of its evolution in Italy, through Pulci, Boiardo, Ariosto, and Tasso.
Mr. Speroni

254. Seminar on Machiavelli.
Course meets three hours weekly.
Mr. Chiappelli

255A-255B. Seminar on the Baroque.
Course meets three hours weekly.
Mrs. Cottino-Jones

256A-256B. Seminar on the Eighteenth Century.
Course meets three hours weekly.
Mr. Pasinetti

257A-257B. Seminar on Romanticism.
Course meets three hours weekly.
Mr. Pasinetti

258A-258B. Seminar on Contemporary Italian Literature.
Course meets three hours weekly.
Mr. Cecchetti

259A-259B. Studies in the History of Italian Language.
259A. History of the Italian Language. Prerequisite: graduate status. A historical survey of the development of the language from Medieval times to the unification of the country (1861). *Questione della lingua,* general acceptance of Florentine speech, and its evolution into the national language.
Mr. Tuttle
259B. The structure of Modern Italian. Prerequisite: graduate status. Various tendencies in modern and contemporary Italian. Foreign influences in today's Italian language. Relationship between the national language and the various dialects.
Mr. Tuttle

259C. Italian Dialectology.
The historical differentiation of the Italian dialects will be considered in its areal dimension. Specific geolinguistic problems and solutions will illustrate the growth of the discipline up to its present merging with sociolinguistics as Italian dialects become more vertically defined.
Mr. Tuttle

370. Problems and Methods in the Teaching of Italian.
Course meets two hours weekly.
Mrs. Cheeseman

Individual Study and Research

495. Techniques in Teaching Literature at the College and University Level.
Prerequisite: consent of instructor. Open to all graduate students at the post-M.A. level. Especially recommended for teaching assistants. Students collaborate with instructors in the study of problems and methodologies associated with instruction in the departmental subject field. May be repeated once for credit.
The Staff

596. Directed Individual Studies. (1 to 2 courses)
The Staff

597. Preparation for Comprehensive Examinations. (1 to 2 courses)
The Staff

599. Doctoral Research and Writing. (1 to 2 courses)
The Staff

■ JOURNALISM

(Department Office, 55C Dodd Hall)
Walter Wilcox, Ph.D., *Professor of Journalism.*

Joseph A. Brandt, M.A. (Oxon.), B.Litt. (Oxon.) LL.D., *Emeritus Professor of Journalism.*
Robert E. G. Harris, M.A., *Emeritus Professor of Journalism.*
William W. Johnson, M.A., *Emeritus Professor of Journalism.*

♦

Digby Diehl, M.A., *Lecturer in Journalism.*
James H. Howard, M.A., *Lecturer in Journalism (Chairman of the Department).*
John Fleischman, B.A., *Lecturer in Journalism.*
Jerome Jacobs, B.Litt., *Lecturer in Journalism.*
Wayne Kelly, M.S., *Lecturer in Journalism.*
Marshall Lumsden, B.S., *Lecturer in Journalism.*
David Noyes, *Lecturer in Journalism.*

Undergraduate Courses

The Department offers undergraduate courses, primarily upper division courses.

2. Fundamentals of Journalism.
Lectures, field trips, and workshops. Survey of journalism principles and techniques.

101A. Reporting.
Fundamentals of the news communication process.

101B. Photojournalism.
Basic graphic arts illustration, and photo-journalism for the mass media.

112. The History of American Journalism.
History of the news media and their ancillary agencies with special attention to the news and information function. Course emphasizes historical context, including the main forces in development of the free press and social responsibility concepts.

180. Radio and Television News.
Lecture, two hours; laboratory, three hours. Prerequisite: course 2 or equivalent. Fundamentals of broadcast news; FCC regulations; network, station, and news agency problems and policies. Laboratory; exercises and experiments in preparing the newscast, with emphasis on television.

181. Reporting of Public Affairs.
Prerequisite: course 2 or equivalent. Reporting governmental functions with emphasis upon judicial, legislative and administrative procedures at the city and county level.

182A. Magazine Writing.
Analysis of the general magazine. Writing non-fiction articles: research, style and structure.

182B. Magazine Writing.
Continuation of course 182A. Prerequisite: course 182A or equivalent and consent of the instructor.

190. The Foreign Press.
Analysis of the four theories of the press; study of the flow of international news; analysis of the foreign media including problems of propaganda, government control, language and economic support.

192. The Media of Mass Communications.
Institutional analysis of the mass media with emphasis upon the press and broadcasting in the mass communications process; interaction with other institutions; critical evaluation.

193. The Press, the Law and the Constitution.
Legal sanctions and constitutional freedoms affecting the printed and broadcast media.

195. The Critical Function of the Press.
Analysis and evaluation of the press in its role as critic of the popular arts, including television, books and motion pictures. Special lectures by professional critics.

199. Individual Studies. (¼ to 1 course)
Prerequisite: upper division status and consent of instructor. Individual study for upper division students wishing to do research on the performance of the news media and their relation to society. This course will permit upper division students to do research on the operation and/or influence of the mass media in areas of special interest. These areas may be coordinated with a student's major field or with various special community projects of the University. Students will be expected to develop their own study plan, execute either primary data collection or perform secondary analysis of existing data, and produce a study report.

The Staff

■ KINESIOLOGY

(Department Office, 206 Men's Gymnasium; Student Affairs Office, 124 Women's Gymnasium)

Camille Brown, Ed.D., *Professor of Kinesiology.*
Bryant J. Cratty, Ed.D., *Professor of Kinesiology.*
Glen H. Egstrom, Ph.D., *Professor of Kinesiology.*
Gerald W. Gardner, Ph.D., *Professor of Kinesiology.*
Varlerie V. Hunt, Ed.D., *Professor of Kinesiology.*
Jack F. Keogh, Ed.D., *Professor of Kinesiology (Chairperson of the Department).*
Ben W. Miller, Ph.D., *Professor of Kinesiology.*
Norman P. Miller, Ed.D., *Professor of Kinesiology.*
Laurence E. Morehouse, Ph.D., *Professor of Kinesiology.*
Raymond A. Snyder, Ed.D., *Professor of Kinesiology.*
Rosalind Cassidy, Ed.D., *Emeritus Professor of Kinesiology.*
Donald T. Handy, Ed.D., *Emeritus Professor of Kinesiology.*
Wayne W. Massey, Ph.D., *Emeritus Professor of Kinesiology.*
Carl H. Young, Ed.D., *Emeritus Professor of Kinesiology.*
Serena E. Arnold, Ed.D., *Associate Professor of Kinesiology (Vice Chairperson of the Department).*
*V. Reggie Edgerton, Ph.D., *Associate Professor of Kinesiology.*
Marjorie E. Latchaw, Ph.D., *Associate Professor of Kinesiology.*
*Judith L. Smith, Ph.D., *Associate Professor of Kinesiology.*
Tara K. Scanlan, Ph.D., *Assistant Professor of Kinesiology.*
Ronald F. Zernicke, Ph.D., *Assistant Professor of Kinesiology.*

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R. James Barnard, Ph.D., *Associate Professor of Kinesiology in Residence.*
Ethel T. Bell, Ed.D., *Supervisor of Kinesiology, Retired.*
Norman D. Duncan, M.A., *Supervisor of Kinesiology, Retired.*
Robert J. Gregor, Ph.D., *Acting Assistant Professor of Kinesiology.*
Joan L. Martin, M.S., *Supervisor of Kinesiology, Retired.*
Nanette T. McIntyre, M.S., *Superivisor of Kinesiology, Retired.*
William F. Pillich, M.S., *Supervisor of Kinesiology, Retired.*
Orsie M. Thomson, M.A., *Emeritus Supervisor of Kinesiology.*

Bachelor's Degree in Kinesiology

The requirements for and offerings in the major are intended to develop and integrate principles and concepts of human movement (Kinesiology). Upper division courses consist of a common core of requirements for all majors and are grouped into three areas of subsequent concentration which focus on the Department's concern with various aspects of human movement. The core courses in Area I emphasize the biochemical, morphological and general physiological adaptations of man to exercise and environmental conditions. Area II core courses are concerned primarily with the description of movement and the neuromuscular and biomechanical determinants of motor performance, while core courses in Area III focus on the development, acquisition and modification of motor performance.

The major provides a basic education for students who are planning careers in the area broadly defined as physical education, physical, occupational, recreational or corrective therapy, perceptual-motor education, and other occupations which demand knowledge of human movement. Students intending to major in Kinesiology must confer with a departmental adviser before enrollment in classes, and declaration of an area of concentration must be made prior to the end of the junior year. Advising appointments can be made in the Student Affairs Office, WG 124.

Preparation for the Major

Required courses in the Department: 12, 14, 16. A grade of C or better is strongly recommended for each course. The department may deny admission to any upper division course if a grade of D was received in a lower division prerequisite.

Required courses outside the Department: One introductory course in each of the following: bi-

*Member of the Brain Research Institute.

ology, chemistry, physics and statistics. One introductory course from two of the following departments: Anthropology, Philosophy, Psychology and Sociology. Students emphasizing Area I (see description below) must complete two years of chemistry (Chemistry 11A-11C, 21, 22, 24) and two quarters of calculus (Math 3A, B). A "C" average is required for all preparation courses. Lower division courses required for the major other than Kinesiology 12, 14, 16 may be taken on a P/NP basis.

Requirements of the Major

Required courses in the Department: 108, 110, 111, 130, 131, 150, 151.

Elective courses in the Department: At least two courses from one area of concentration: *Area I* 115, 117, 118, 140, 191A; *Area II* 134A, 134B, 137, 138, 140, 145, 191B; *Area III* 134C, 160, 165, 170A, 170B, 175, 178, 191C. Selection of area electives establishes the student's area of concentration within the Department. Students selecting Areas II and III are required to take four additional upper division electives from any departmental offering except 370 and 402. Students selecting Area I are required to elect only one additional elective.

Electives outside the Department: Three departmental courses which are related to the student's area of concentration are required. Lists of approved courses for each area are available in the Student Affairs Office, WG 124.

A "C" average must be maintained in all upper division courses taken in the department. If the student fails to attain these minimal standards, dismissal from the major will be recommended. All upper division courses required for the major (including extradepartmental requirements) must be taken for a letter grade.

Each major should consult a departmental adviser on a regular basis. Appointments can be made through the Student Affairs Office, WG 124.

Honors in Kinesiology

Honors in Kinesiology are intended to recognize superior academic achievement and to encourage undergraduate students with distinguished scholastic records to conduct independent research. Requirements for admission to candidacy are the same as those required for admission to the Honors Program of the College of Letters and Science. *Honors in Kinesiology* are awarded at graduation to honor students who have achieved 3.5 or better in upper division Kinesiology courses, at least 10 of which must be completed at UCLA. *Highest Honors in Kinesiology* are awarded at graduation to honor students who have satisfactorily completed an honors research project (199) and who have achieved at least 3.7 in upper division Kinesiology courses. Inquiries concerning Honors in Kinesiology should be directed to the Student Affairs Office, WG 124.

Departmental Scholar Program

Under the Departmental Scholar Program, honor students in Kinesiology (juniors and seniors) are permitted to pursue bachelor's and master's degree programs simultaneously. The Departmental Scholar must be provisionally admitted to the Graduate Division, and no course can be used to fulfill requirements for both degrees, Although the two degrees can be awarded simultaneously, it is not a requisite of the program and the master's degree can be completed after the bachelor's degree has been awarded. Inquiries concerning the Departmental Scholar Program should be directed to the Student Affairs Office WG, 124.

Admission to Graduate Status

Students seeking admission to graduate status in the Department of Kinesiology will be expected to meet the general requirements of the Graduate Division for admission, as described under "In Graduate Status". Questions should be directed to the Chairperson, Graduate Affairs Committee, Women's Gym 124.

Requirements for the Master's Degree

The degree of Master of Science is awarded in Kinesiology. Study under the Thesis Plan or the Comprehensive Examination Plan (see Index) is available.

The Master of Science degree program comprises an integrated course of study in primarily the theoretical foundations of kinesiology. The program is an interdisciplinary one with emphasis upon research and general principles. It is designed to provide the student with the intellectual orientation necessary for scholarly studies, research and professional work in the human movement field.

Requirements are based on a minimum of nine courses taken for this degree, of which six must be 200 series. Five courses in the 200 series must be taken in the Department of Kinesiology. Three courses must be selected, with the approval of the major adviser, from one of the departments of Physiology, Psychology or Sociology. Course requirements will be developed on an individual basis in conference with a faculty adviser.

Lower Division Courses

2A-2Z. Human Performance (Men and Women). (¼ course each)

Lecture, one hour; laboratory, two one-half hour sessions. Open to Kinesiology major and minor students only. The principles of conditioning and improvement of human performance. 2A, Badminton; 2B, Basketball; 2D, Dance (Folk-Social); 2F Field Sports; 2H, Football; 2J, Golf; 2K, Gymnastics; 2L, Scuba; 2M, Softball; 2N, Swimming; 2P, Tennis; 2R, Track and Field; 2S, Volleyball; 2T, Wrestling; 2U, Elementary School Activities. All sections are coeducational.

The Staff

12. Introduction to Human Physiology. (1½ courses)

Lecture, four hours; laboratory, four hours. Prerequisites: course 14, Biology 1A or 2, Chemistry 11A or 2. An introduction to human physiology.

Mr. Edgerton in charge (W, Sp)

14. Human Neuromuscular Anatomy. (1½ courses)

Lecture, four hours; laboratory, four hours. Prerequisites: Biology 1A or 2. Anatomy of the human skeletal, muscular and nervous systems. Basic concepts of sensorimotor processes in relation to neuromuscular control with particular reference to human movements are also emphasized.

Ms. Smith in charge (F,W)

16. Human Motor Performance.

Lecture three hours; laboratory two hours. Basic psycho-socio concepts in the study of human movement.

Mr. Keogh (F)

Upper Division Courses

102. Nature and Theory of Movement Experiences for Children.

Lecture, three hours; laboratory, two hours. Prerequisite: upper division standing. Exploration of varied, graded and sequential physical activities for children.

Ms. Latchaw

106. Theories of Kinesiology.

A study of ethical, logical and aesthetic valuing in human movement and human development with special consideration given to traditional and modern approaches.

Ms. Brown

108. History of Kinesiology.

Prerequisite: upper division standing or consent of the instructor. Challenges, continuity, and change underlying human movement programs.

Mr. B. Miller (F,W)

109. History of Physical Education in California.

Prerequisite: upper division standing. Challenges, continuity, and change underlying physical education programs in California during the past century.

Mr. B. Miller

Area 1: Biochemical, morphological, and general physiological adaptations of man to exercise and environmental conditions

110. Exercise Physiology.

Prerequisites: courses 12, 14, Chemistry 11A or 2, Biology 1A or 2. Response of organs and systems to chronic and acute exercise.

Mr. Edgerton, Mr. Gardner (F,Sp)

111. Laboratory in Exercise Physiology. (¼ course)

Must be taken concurrently with course 110.

Mr. Edgerton, Mr. Gardner (F,Sp)

115. Aquatic Kinesiology.

Lecture, three hours; laboratory, two hours. Prerequisites: courses 12 and 14 or consent of the instructor. A study of man's adaptation to the aquatic environment.

Mr. Egstrom

117. Conditioning for Maximum Performance.

Prerequisites: courses 110, 111, 130, 131, or consent of instructor. Study of factors and conditions accelerating and retarding levels of performance and work under various physiological and environmental conditions.

Mr. Egstrom, Mr. Gardner, Mr. Morehouse

118. Cellular Dynamics of Exercise.

Prerequisites: courses 14, 110, 111, or consent of the instructor. The study of anatomical, physiological and psychological barriers to maximal performance. Examination and evaluation of theories of conditioning.

Mr. Edgerton

119. Laboratory in Cellular Dynamics. (¼ course)

Laboratory experience with various topics in cellular dynamics of exercise.

Mr. Edgerton

Area II: Description of human movement and the neuromuscular and biomechanical determinants of motor performance

130. Biomechanics of Human Movement.

Prerequisites: courses 12 and 14; Physics 3A. Kinematic and kinetic principles underlying human movement focusing on the human neuromuscular and skeletal systems.

Mr. Gregor, Mr. Zernicke (W,Sp)

131. Laboratory in Biomechanics of Human Movement. (¼ course)
Must be taken concurrently with course 130.
Mr. Gregor, Mr. Zernicke (W,Sp)

134A. Electromyographic Assessment.
Lecture, three hours, laboratory, two hours. Prerequisites: courses 130, 131. Techniques of electromyographic analysis combining theoretical aspects with laboratory experiences.
Mr. Gregor, Mr. Zernicke

134B. Cinematographic Assessment.
Lecture, three hours; laboratory, two hours. Prerequisites: course 130, 131. High-speed motion picture films of human movement; techniques of data collection, analysis, and interpretation.
Mr. Gregor, Mr. Zernicke

134C. Performance Assessment.
Lecture, three hours; laboratory, two hours. Prerequisites: course 150 and an introductory statistics course. Critical analysis of theoretical and practical aspects of assessment techniques as well as individual and group evaluation procedures.
Mr. Keogh

137. Therapeutic Exercise.
Prerequisite: courses 110, 111, 130, 131. The role of exercise in the improvement of movement in physically handicapped individuals. Care and prevention of athletic injuries.
Mr. Gardner, Mr. Morehouse

138. Movement Taxonomy and Composition.
Lecture, three hours; laboratory, two hours. Prerequisite: course 14. Clarification and organization of movement concepts through the study of definition, classification, division and composition of human movement.
Ms. Brown

140. Mechanisms of Neuromuscular Control.
Prerequisites: courses 12, 14. Neuromuscular mechanisms of motor behavior with special emphasis on the neural correlates of volitional movement and skilled motor patterns. Some emphasis on neurologically handicapped and motor dysfunction.
Ms. Smith

145. Analysis of Expressive Movement.
Interpretation of the expressive aspects of human movement.
Ms. V. Hunt

Area III: Development, acquisition and modification of human motor performance

150. Motor Performance and Skill Acquisition.
Prerequisites: course 16 and an introductory course in statistics. An examination of motor performance and motor learning and the influence of selected psychological variables upon human movement.
Mr. Cratty, Ms. Scanlan (W,Sp)

151. Laboratory in Motor Performance and Skill Acquisition. (¼ course)
Must be taken concurrently with course 150.
Mr. Cratty, Ms. Scanlan (W,Sp)

160. Human Movement Development.
Prerequisite: course 16. Movement development throughout life with emphasis upon individual and societal determinants.
Mr. Keogh

165. Perceptual Motor Education.
Prerequisites: courses 150, 151, and 160 recommended. Movement problems of the minimally-neurologically handicapped with emphasis on the clumsy child syndrome.
Mr. Cratty

170A-170B. Theoretical Aspects of Play, Leisure and Recreation.
A consideration of the historical development, philosophical concepts and social forces influencing leisure and recreation in American life.
Ms. Arnold

175. Sports in American Life.
The national and international roles and interrelationships of American sports emphasizing socio-cultural values, changing patterns, current trends, problems and issues.
Mr. Snyder

178. Social Processes in Motor Behavior.
Prerequisites: courses 150, 151 or consent of instructor. An overview of the social psychology of motor behavior by examining the reciprocal effect of interpersonal and group influence processes and motor behavior.
Ms. Scanlan

Other Courses

190. Field Studies. (½ or 1 course)
Prerequisites: upper division standing in Kinesiology and consent of the instructor and chairman of the Department. A course application (available in WG 124) signed by the instructor shall be submitted to the chairman on or before the first day of class. Supervised experience in a professional setting. A student may count this course once to satisfy major requirements. The course may be repeated to meet University graduation requirements.
The Staff

191A-191B-191C. Proseminars in Kinesiology.
Prerequisites: upper division standing and consent of the instructor. Seminars may be taken in any order; only one seminar (four units) may be counted as a Departmental elective. Enrollment is limited to 15 students. Seminars A, B and C are related to topics in Core Areas I, II and III, respectively.
The Staff

199. Special Studies in Kinesiology. (½ or 1 course)
Prerequisites: senior standing in Kinesiology and consent of the instructor and chairman of the Department. A course application (available in WG 124) signed by the instructor shall be submitted to the chairman on or before the first day of class. The course will be identified by a two-letter code using the initials of the sponsoring instructor (see Department for code). A student may count this course once to satisfy major requirements. The course may be repeated to meet University graduation requirements.
The Staff

Graduate Courses

201A-201B. History of Human Movement Programs.
201A, U.S. History; 201B, World History. Historical development of physical education from the national and international perspectives.
Mr. B. Miller

202. Comparative Physical Education and Sports.
Comparative analysis of recent developments and of emergent characteristics of patterns and systems of Physical Education and Sports in representative nations and world regions as influenced by geographical, political, economic, socio-cultural, religious, educational and historical factors.
Mr. B. Miller

205. Human Movement Theory.
Significant theoretical formulations of the body of knowledge of human movement.
Ms. Brown

210A-210B-210C. Exercise Physiology.
210A. Cardiovascular and Respiratory Factors.
Prerequisite: course 118. Topics include coronary blood flow, cardiac contractile properties, blood flow distribution, blood pressure, vasoregulation ventilatory mechanics, and O2 and CO2 absorption and transport in exercise and training and in some diseased conditions.
Mr. Barnard, Mr. Gardner
210B. Neuromuscular and Metabolic Factors.
Prerequisite: course 118. Fundamental aspects of skeletal muscle contraction and metabolic demands under various exercise and training conditions, including neural and endocrine mechanisms potentially involved in inducing specific training effects on skeletal muscle, liver, kidney, gastrointestinal tract and brain.
Mr. Edgerton
210C. Environmental Factors.
Prerequisite: course 118. Environmental pressures of high altitude and underwater diving as well as temperature factors as they affect work performance; adaptation to unusual environments.
Mr. Egstrom

211. Advanced Exercise Cardiovascular Physiology.
Lecture, two hours; laboratory, three hours. Prerequisites: course 210A and Physiology 101. Attention is focused on cardiovascular adaptations to acute exercise as well as adaptations associated with regular exercise training.
Mr. Barnard

221. Underwater Kinesiology.
Prerequisites: courses 110 and 130 or consent of instructor. Biomechanical, physiological, methodological and behavioral limitations to underwater activities.
Mr. Egstrom

230A. Muscle Dynamics.
Prerequisites: courses 130, 131; 134A recommended. Integrated study of electrical and dynamic parameters of muscle action to include topics in length-tension and force-velocity interrelationships; critical analysis of electromyographic and digital computer techniques.
Mr. Gregor, Mr. Zernicke

230B. Musculoskeletal Mechanics.
Prerequisites: courses 130, 131, Mathematics 3A, 3B. Mechanical parameters of the moving human musculoskeletal system including the use of cinematographic, force platform and digital computer techniques; topics include physical properties of bone and fibrous connective tissues, biostatics, biodynamics, and empirical data modeling.
Mr. Gregor, Mr. Zernicke

237. Advanced Kinesiotherapy.
Prerequisite: course 137 or consent of the instructor. Selected studies in therapeutic exercises.
Mr. Morehouse

240. Neural Systems for Motor Control.
Lecture, two hours; laboratory, four hours. Prerequisites: course 140 and Psychology 115 (or equivalent). Proprioception, the skeletomotor and fusimotor systems and their control by spinal reflexes and supraspinal centers including the cerebellum, basal ganglia and cerebral cortices.
Ms. Smith

250. Motor Learning.
Analysis of selected variables which influence the learning of skills.
Mr. Cratty

255. Intra- and Inter-Personal Social Factors and Motor Behavior.
Prerequisite: course 178 or consent of the instructor. Influence of social psychological processes on motor

behavior with particular attention to the influences of situational variables in the social environment, intrapersonal intervening variables, and the interaction between these external and internal factors on motor behavior.

Ms. Scanlan

256. Movement Behavior.

Qualitative nature of movement style approached from perceptual and emotional organization, and body image, time, space and weight concepts.

Ms. Hunt

260. Motor Development.

Prerequisite: course 160. Critical analysis of behavioral approaches in the formulation of motor development theory.

Mr. Keogh

262. Movement Disorders.

Prerequisite: 160 or 165 or consent of instructor. Current research in developmental and behavioral aspects of movement disorders. Topics include early identification and intervention, perceptual and cognitive relationships, and evaluation of movement training programs.

Mr. Cratty, Mr. Keogh

270. Social Correlates of Human Movement.

A critical analysis of the social relationships between sports, games, exercise and other forms of man's movement patterns and the cultural and social structures of the American society.

Mr. Snyder

275. Social Bases of Leisure and Recreation.

A synthesis of basic concepts and processes underlying theories of leisure and recreation with implications for solution of fundamental problems.

Ms. Arnold and Mr. N. Miller

276. Play Theory.

A critical analysis of theoretical propositions explaining the phenomenon of play.

Ms. Arnold

280A-280J. Advanced Topics in Kinesiology.

The subject matter of these courses will be in a field of kinesiology in which the staff member giving the course has developed special proficiency owing to his research interest.

280B. Human Energy Fields.

Ms. Hunt

280E. Psychology and the Athlete. Prerequisites: course 250 and consent of instructor.

Mr. Cratty

280H. Physical Working Capacity. Prerequisites: course 118 and consent of instructor.

Mr. Gardner

280J. Seminar in Exercise Biology. Prerequisites: course 210A or the equivalent and consent of the instructor. Student analysis, presentation and discussion of topics dealing with biochemical and/or physiological aspects of acute and/or chronic exercise.

Mr. Barnard, Mr. Edgerton, Mr. Gardner

285. Research in Human Movement.

Application of research designs to problems in human movement.

The Staff

294A-294B. Seminars in Neuromuscular Control.

Prerequisites: courses 140 and 118, and either 210B or 240. Selected topics on the muscular and neural determinants of movement behavior.

Mr. Edgerton, Ms. Smith

Professional Courses

370. Teaching of Physical Education.

Lecture, two hours; laboratory, five hours. Prerequisite: upper division standing, assurance that activity proficiencies have been satisfied and consent of the instructor. May be taken concurrently with Education 130. Accepted as education elective for the Standard Teaching Credential. Class management, organization of teaching materials and methods of subject matter presentation.

The Staff

402. Administration of Physical Education.

Principles and policies applied to the unique organizational problems of physical education.

Mr. Snyder

Individual Study and Research

596A-596ZZ. Directed Individual Study or Research. (½ to 2 courses)

To be arranged with the member of the faculty who will direct the study or research. The course will be identified by a two-letter code using the initials of the sponsoring instructor (see department for code.) May not be used to fulfill any course requirements for the master's degree. Graded on a satisfactory/unsatisfactory basis.

The Staff

597. Preparation for Master's Comprehensive Examination. (½ to 2 courses)

Prerequisite: consent of the Department of Kinesiology Adviser. Course 597 may not be used to fulfill any of the course requirements for the master's degree. Graded on a satisfactory/unsatisfactory basis.

The Staff

598A-598ZZ. Research for and Preparation of the Master's Thesis. (½ to 4 courses)

Each member of the faculty supervises research of master's students and holds research group meetings, seminars, and discussions with students that take his master's research course which is identified by the same two-letter code used to identify the 596 course. Course 598 may not be used to fulfill any of the course requirements for the master's degree. Graded on a satisfactory/unsatisfactory basis.

The Staff

■ LATIN AMERICAN STUDIES (INTERDEPARTMENTAL)

(Office, 10359 Bunche Hall)

Charles F. Bennett, Ph.D., *Professor of Geography.*
William Bright, Ph.D., *Professor of Linguistics and Anthropology.*
Henry J. Bruman, Ph.D., *Professor of Geography.*
E. Bradford Burns, Ph.D., *Professor of History.*
Robert N. Burr, Ph.D., *Professor of History.*
David K. Eiteman, Ph.D., *Professor of Finance.*
Howard Freeman, Ph.D., *Professor of Sociology.*
John Friedmann, Ph.D., *Professor of Planning.*
Claude L. Hulet, Ph.D., *Professor of Spanish and Portuguese.*
Derrick B. Jelliffe, M.D., D.T.M.& H., D.C.H., F.R.C.P., *Professor of Health and Professor of Pediatrics.*
Kenneth L. Karst, A.B., LL.B., *Professor of Law.*
James Lockhart, Ph.D., *Professor of History.*
Clement W. Meighan, Ph.D., *Professor of Anthropology.*
Henry B. Nicholson, Ph.D., *Professor of Anthropology.*
Carlos P. Otero, Ph.D., *Professor of Spanish and Romance Linguistics.*
Harvey S. Perloff, Ph.D., *Professor of Planning.*
Stanley L. Robe, Ph.D., *Professor of Spanish.*
Milton I. Roemer, M.D., M.P.H., *Professor of Public Health and Professor of Preventive and Social Medicine.*
Allen B. Rosenstein, Ph.D., *Professor of Engineering and Applied Science.*
Anibal Sanchez-Reulet, Ph.D., *Professor of Spanish.*
Jonathan D. Sauer, Ph.D., *Professor of Geography.*
David Stea, Ph.D., *Professor of Architecture/Urban Design and Urban Planning.*
Robert M. Stevenson, Ph.D., *Professor of Music.*
Johannes Wilbert, Ph.D., *Professor of Anthropology.*
James W. Wilkie, Ph.D., *Professor of History.*
Telford H. Work, M.D., M.P.H., D.T.M.&H., *Professor of Infectious and Tropical Diseases, Professor of Microbiology and Immunology and Professor of Preventive and Social Medicine.*
Maurice Zeitlin, Ph.D., *Professor of Sociology.*
Ichak Adizes, Ph.D., *Associate Professor of Managerial Studies.*
Shirley L. Arora, Ph.D., *Associate Professor of Spanish.*
James E. Bruno, Ph.D., *Associate Professor of Education.*
Christopher Donnan, Ph.D., *Associate Professor of Anthropology.*
Edward Gonzalez, Ph.D., *Associate Professor of Political Science.*
Bruce H. Herrick, Ph.D., *Associate Professor of Economics.*
Allan Johnson, Ph.D., *Associate Professor of Anthropology.*
Thomas J. La Belle, Ph.D., *Associate Professor of Education.*
Gerardo Luzuriaga, Ph.D., *Associate Professor of Spanish.*
Alfred K. Neumann, M.D., M.P.H., *Associate Professor of Public Health in Residence.*
Richard M. Reeve, Ph.D., *Associate Professor of Spanish.*
Alfonso Cervantes, Ph.D., *Assistant Professor of Spanish.*
John R. Dominguez, Ph.D., *Assistant Professor of Business Economics.*
Fadwa El Guindi, Ph.D., *Assistant Professor of Anthropology.*
Barclay M. Hudson, Ed.D., *Assistant Professor of Planning.*

James W. Keesling, Ph.D., *Assistant Professor of Education.*
Luis M. Laosa, Ph.D., *Assistant Professor of Education.*
David E. Lopez, Ph.D., *Assistant Professor of Sociology.*
Marlys McClaran, Ph.D., *Assistant Professor of Anthropology.*
Alfred E. Osbourne, M.A., *Assistant Professor of Management.*
David O'Shea, Ph.D., *Assistant Professor of Education and Sociology.*
Susan Plann, Ph.D., *Assistant Professor of Spanish and Portuguese.*
Susan Kaufman Purcell, Ph.D., *Assistant Professor of Political Science.*
Arnold J. Rubin, Ph.D., *Assistant Professor of Art.*
Susan Scrimshaw, Ph.D., *Assistant Professor of Public Health.*
Peter Z. Snyder, Ph.D., *Assistant Professor of Anthropology.*

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Rolando Armijo, M.A., M.P.H., *Acting Professor of Epidemiology.*
Jose M. Cruz Salvadores, M.A., *Lecturer in Spanish.*
Eduardo Mayone Dias, Ph.D., *Lecturer in Spanish and Portuguese.*
Isabel Lopez de Herwig, M.A., *Lecturer in Spanish and Portuguese.*
John Hawkins, Ph.D., *Visiting Assistant Professor of Education in Residence.*
Ludwig Lauerhass, Jr., Ph.D., *Lecturer in History.*
Antonio Loera, M.A., *Lecturer in Spanish.*
Emilio Pulido-Huizar, *Lecturer in Dance.*
Jesus Sanchez, *Lecturer in Music.*
George L. Voyt, J.D., *Lecturer in Spanish.*

The Latin American Studies program, coordinated through UCLA's NDEA Latin American Studies Center, offers the Bachelor of Arts and Master of Arts degrees. Special aspects include articulated programs with professional masters and doctoral degrees.

Committee in charge of Latin American Studies: Graduate, Edward Gonzalez, Political Science (Chairman); David K. Eiteman, Management; Kenneth L. Karst, Law; Thomas J. La Belle, Education; James Lockhart, History; Richard M. Reeve, Spanish and Portuguese; Robert M. Stevenson, Music. Undergraduate, Fadwa El Guindi, Anthropology (Chairman); Shirley L. Arora, Spanish and Portuguese; James Lockhart, History; Edward Gonzalez, Political Science; Bruce H. Herrick, Economics.

The Bachelor's Degree in Latin American Studies

Undergraduate studies of the Latin American region are designed to serve the needs of (1) students desiring a general education focused on the Latin American cultural region; (2) students planning to enter business, government or international agency service; (3) students preparing to teach social science or language; and (4) students preparing for advanced academic study of Latin America.

Preparing for the Major. Economics 1-2, History 8A, 8B. Students are urged to pass the language courses by examination whenever possible.

Major Requirements. Eighteen upper division courses distributed among Core, Concentration, and Elective requirements.

Major Language Requirements. Proficiency equivalent to (a) Spanish 25 and Portuguese 3 or (b) Portuguese 25 and Spanish 5. In lieu of Portuguese 1-3 students may take Portuguese 102A-102B which is designed for persons who have a background in Spanish.

Major Core. Twelve courses, with two in six of the seven following areas:

1. Anthropology 105A or 105B or 105C, and 123C or 123D or 123E.†
2. Economics 110, 111, 112, or Special Courses†
3. Geography 121, 181, 182A, 182B, or Special Courses†
4. History 162A, 162B, 162C, 163A, 163B, 163C, 166, 168A-168B, 169, 197, 198A, or Special Courses†
5. Politcal Science 131, 163A, 163B, or Special Courses†
6. Spanish American or Brazilian Literature, two courses in one language chosen from Spanish 121A, 121B, 137, 139, 141, 142A, 142B and Special Courses, or Portuguese 121A, 121B, 127, 129, 135, 137, and Special Courses†
7. Fine Arts: Art 118B, Dance 146, Music 131A, Music 131B, Music 157, Theater Arts 106C, or Special Courses.

Major Concentration. Three additional courses in one of the above core disciplines, chosen from the List of Approved Latin American Courses.

Major Electives. Three additional courses chosen from the List of Approved Latin American Courses or from the general theory and method courses in the various disciplines.

Course Limitations. No student may take more than 8 units of 199† for letter grade credit nor more than 8 units in any single term. No courses taken on a Pass/Fail basis can be counted toward the major. In order to register in a 199 course, a student must have advanced junior standing and an overall GPA of 3.0, or senior standing.

Graduate courses. Advanced undergraduates may enroll in graduate courses, with the professor's approval.

Double Majors. Through judicious use of electives, students may find it possible to secure the B.A. degree with two majors, e.g. Latin American studies and history. Interested students who have achieved junior class standing should consult the undergraduate advisers of both departments involved, initiating the appropriate petition with the undergraduate adviser in Latin American Studies.

Study in Latin America. Students are encouraged to spend up to one year in Latin America either (a) to study with an education abroad program; (b) to study in Latin American universities; or (c) to conduct research; or (d) complete an Internship in a development agency. Full credit will be granted according to the individual programs arranged in consultation with the undergraduate adviser. Proposals must be presented in writing to the Interdepartmental Committee.

Departmental Scholar Program. Exceptionally promising undergraduate students may be nominated as Departmental Scholars to pursue bachelor's and master's degree programs simultaneously.

The Master's Degree in Latin American Studies

General Requirements. See Master's Degrees.

Preparation. The B.A. degree in Latin American Studies or the equivalent constitutes the normal basis for admission. Applicants with Latin American field experience or special methodological studies will be given special consideration. For admission to graduate status, the Latin American Studies program requires three letters of recommendation and a curriculum vitae.

The program requires Graduate Record Examinations. Information and applications for the Graduate Record Examination may be obtained by writing to the Educational Testing Service, 1947 Center Street, Berkeley, California 94704 or, for applicants east of the Rocky Mountain states, the Educational Testing Service, Box 955, Princeton, New Jersey, 08540.

Students may be admitted with subject deficiencies, but such deficiencies will have to be made up by taking courses in addition to requirements for an advanced degree program.

Plans. The comprehensive examination plan is followed, but in exceptional cases a student may petition to write a thesis. Both plans are designed to facilitate admission to Ph.D. programs.

Comprehensive Examination Plan. A minimum of nine courses is required, among three disciplines either on a 4-3-2 or 3-3-3 basis (including five graduate courses, with at least one falling in each discipline). Students prepare for the examination by developing a graduate research paper in consultation with a professor in two of the three disciplines, one professor of whom shall be the chairman under whose direction the paper is prepared, preferably in a seminar, topics course, or certain Special Courses†. These two professors form the examining committee charged with testing the candidate's ability to relate knowledge across disciplinary boundaries; a professor representing the third discipline will attend the examination mainly in the capacity of observer. In determining the result of the examination the three professors will take into consideration the candidates' (a) research paper; and (b) oral defense of the investigation and its implications; as well as (c) the rationale and record of course work for the M.A. For more complete information (including discussion of the M.A. honors program) consult a copy of the "Guidelines for the Comprehensive Examination," available at the Latin American Studies Office.

Thesis Plan. A minimum of ten courses is required as follows: (a) Four courses (including three graduate courses) in one discipline, which constitutes the area of core concentration; (b) three courses each in two minor disciplines (including one graduate course in each field). An interdisciplinary thesis is written under the direction of a faculty member in the core area, with approval also required by one professor in each minor field. For more information consult

†Special courses such as 197, 198, 199, 596, 597, 598 and any courses which occasionally have Latin American content (for example, Political Science 139, Management 297A, etc.) may be counted toward the degree by petition in which the student agrees to write a paper on a Latin American topic. In regard to these petitions, students are encouraged especially to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

the "M.A. Thesis Plan Guidelines," available at the Latin American Studies Office.

Articulated Degree Programs. The graduate program in Latin American Studies offers several articulated degree programs wherein a student may earn the M.A. in Latin American Studies and a professional degree in (1) Public Health, (2) Library Science, (3) Management. Admission to the professional degree program is not automatic. Students complete the M.A. in Latin American Studies by selecting a professional field as one of their three areas of specialization. Upon acceptance to the professional degree program, students with an M.A. in Latin American Studies will have partially fulfilled the requirements for the professional degree. Additional information on the articulated degree programs is available from the Latin Studies Office.

Professional Fields. In addition to the articulated degree programs, graduate students in Latin American Studies may choose, as one of their three areas of specialization, courses education, urban planning, and law as well as in those professions with which articulated degrees are possible.

Field Requirements. At least one of the required three disciplines must fall in the social sciences (Anthropology, Economics, Geography, History, Politcal Science or Sociology).

Language Requirements. Proficiency equivalent to Spanish 25 and Portuguese 3 *or* Portuguese 25 and Spanish 5. In lieu of Portuguese 1-3 students may take Portuguese 102A-102B which is designed for persons with a background in Spanish. Because these courses do not count toward the M.A. degree, students are encouraged to pass these proficiency levels by examination. In certain cases a major Indian language may be substituted for either Spanish or Portuguese. All of these courses must be taken for letter grade, except lower division language courses.

Course Limitations. (1) Students may include only two independent graduate study courses (596, 597, 598)† in their program. (2) Selection of courses is dictated by the Center's List of Approved Latin American Courses, except that the following are not applicable: language courses (in contrast to linguistic and literature courses), and Special Courses, except by petition.† (3) Courses numbered in the 300-400 level series are not applicable to the minimum requirements for the M.A. degree. Graduate courses usually may be repeated for credit, except graduate lecture courses.

Standards of Scholarship. Students in the M.A. in Latin American Studies program whose grade point average falls below 3.0 must bring the average up to 3.0 within one quarter or be dismissed.

Students whose aim is to enter a doctoral program folloiwng award of the M.A. in Latin American Studies are advised that most departments will consider only those applicants whose grade point average exceeds 3.5.

Time Limitation on Enrollment. All work for the M.A. degree must be completed in seven consecutive quarters (excluding summer sessions), as long as normal progress is being made toward completion of the degree. Students are expected to integrate thesis and examination studies into seminar, topic, and independent study courses. Students must be formally enrolled each quarter as they proceed to the M.A. degree in Latin American Studies, *regardless of whether or not they have finished their course work.* Only two exceptions are permitted: (1) Students who have completed all of their studies except their examination or thesis by the end of a Spring quarter are obligated to pay only a filing fee for completion of their degree provided that they complete their work before the beginning of a Fall quarter. (2) Students who are *not* using faculty time, the University libraries, or other University facilities must request a formal leave of absence.

Certificate of Resident Study for Foreign Students. This certificate may be issued to foreign students who do not seek the M.A. degree but (a) complete at least nine courses in full-time resident study with a grade-point average of at least 3.0; (b) conduct satisfactorily a program of organized studies; (c) have a student visa requiring return to their home country upon completion of study in the United States.

†Special courses such as 197, 198, 199, 596, 597, 598 and any courses which occasionally have Latin American content (for example, Political Science 139, Management 297A, etc.) may be counted toward the degree by petition in which the student agrees to write a paper on a Latin American topic. In regard to these petitions, students are encouraged especially to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

INTERDISCIPLINARY COURSES

99. Introduction to Latin American Problems.

An interdisciplinary seminar for lower division students; enrollment limited to 15 students. Since this course is not a general survey and its content varies with each section, students will be permitted to repeat it for credit.

The Staff

199. Special Studies in Latin American Studies. (1 or 2 courses)

Prerequisite: upper division standing. An intensive directed research program in which students conduct interdisciplinary research or complete an Internship with an international agency or program dealing with Latin America. Faculty sponsorship and written reports are required.

The Staff

M200. Latin American Research Resources.

(Same as History M231.) The course will acquaint students with general and specialized materials in fields concerned with Latin American Studies. Library research techniques will provide the experience and competency required for future bibliographic and research sophistication as the basis for enchanced research results.

Mr. Lauerhass

201. Statistical Resources for Latin American Research.

The course will acquaint students with the contemporary statistical materials important for research in Latin American Studies. Discussion will focus on the qualitative and interpretative aspects of the material especially as it relates to data developed for publication in the Latin American Center's *Statistical Abstract of Latin America* and its Supplement Series.

The Staff

M232. Disease Problems of Socio-Economic and Political Impact in Latin America.

(Same as Public Health M232.) Prerequisite: consent of the instructor. A graduate course for students with knowledge of the geography and social and political systems for the diverse nationalities which constitute Latin America. The focus will be on important disease problems in respect to their social, economic and political impact on Latin American countries with only a minimum of medical and technical details necessary to understand the nature of the disease as it afflicts individuals and populations.

Mr. Work

250A-250B. Interdisciplinary Seminar in Latin American Studies.

Problem-oriented on critical areas stressed in the University's cooperative programs in Latin America. Preparation of thesis and field study. This course is offered on an In Progress basis which requires students to complete the full two quarters sequence at the end of which time a grade is given for all quarters of work.

Mr. Wilbert

250C. Interdisciplinary Topics in Latin American Studies.

Prerequisite: permission of the instructor. A seminar devoted to selected topics of an interdisciplinary nature. Normally, a reading knowledge of the Spanish or Portuguese language is essential.

The Staff

Individual Study and Research

596. Directed Individual Study or Research.

Only one 4-unit course may apply toward the minimum course requirement for the master's degree.

The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree.

This course is ordinarily taken only during the quarter in which the student is being examined. A grade of Satisfactory (S) or Unsatisfactory (U) will be assigned by the Committee on the basis of the student's performance.

The Staff

598. Research for and Preparation of the Master's Thesis.

A grade of Satisfactory (S) or Unsatisfactory (U) will be assigned by the professor supervising the master's thesis. Only one course may apply toward the minimum course requirement for the degree.

The Staff

LATIN AMERICAN SOCIAL SCIENCES COURSES

Anthropology 105A. Peoples of South America.
105B. Peoples of Middle America.
105C. Latin American Societies.
119. Culture Stability and Culture Change.
*122A. Comparative Society.
*122C. Technology and Environment.
123C. Ancient Civilizations of Western Middle America (Nahuatl Sphere).
123D. Ancient Civilizations of Eastern Middle America (Maya Sphere).
123E. Ancient Civilizations of Andean South America.
*153. Economic Anthropology.
*160. Urban Anthropology.
*161. Development Anthropology.
*172. Methods and Techniques of Ethnohistory.

*Special courses which may be applied to B.A. and/or M.A. degree requirements by petition wherein the student agrees to write a paper on Latin America. In petitioning to count courses not listed here, students are *encouraged* to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

*174. Laboratory Methods in Technology and Inventions.
*175E. Laboratory Analysis in Archaeology.
*177A. Field Methods in Linguistic Anthropology; Practical Phonetics.
207. Indians of South America.
*212. Anthropological Linguistics.
*221. Social Movements and Social Crisis.
*223. Ideology and Utopia in Anthropology.
*252. Selected Topics in Higher Cultures of Nuclear America.
257. Indians of South America.
259A-259B. Contemporary Latin American Problems.
*261. Selected Topics in Ethnology.
*270. Selected Topics in Culture Change.
*271. Urban Anthropology.
*286. Selected Topics in Historical Reconstruction and Archaeology.
*287. Selected Topics in Prehistoric Non-Agricultural Societies.
*289. Selected Topics in Prehistoric Civilizations of the New World.
*291. Analysis of Field Data.
*293A. Selected Topics in Field Training in Ethnography.
*M294A. Seminar in Ethnographic Film (same as Theater Arts M209C).
*298. Research Colloquium.

Archaeology *200. Archaeology Colloquium.
*259. Field Work in Archaeology.

Economics 110. Economic Problems of Underdeveloped Countries.
111. Theories of Economic Growth and Development.
112. Policies for Economic Development.
*190. International Economics.
*191. International Trade Theory.
*192. International Finance.
212. Economic Development of Underdeveloped Areas: Theory and Policy.
213. Selected Problems of Underdeveloped Areas.
*291. International Trade Theory.
*292. International Finance.
*293. International Economics: Selected Topics.

Folklore M149. Folk Literature of the Hispanic World (same as Spanish M149).
*201A-201B. Folklore Collecting and Field Research.
248. Theory and Method in Latin American Folklore Studies.
M249. Hispanic Folk Literature (same as Spanish M249 and Portuguese M249).
M286B. Studies in Hispanic Folk Literature: Narrative and Drama (same as Spanish M286B).
M286C. Studies in Hispanic Folk Literature: Ballad, Poetry, and Speech (same as Spanish M286C).

Geography 121. Conservation of Resources: Underdeveloped World.
181. Middle America.
182A. Spanish South America.
182B. Brazil.

History **8A. Latin America: Reform and Revolution.
**8B. Latin American Social History.
162A. Latin America in the 19th Century.
162B. Latin America in the 20th Century.
162C. Topics in Latin Aerican Cultural History Since 1900.
163A-163B. The History of Brazil.
163C. Brazilian Intellectual History.
166. The Mexican Revolution since 1910.
168A-168B. Colonial Latin America.
169. Latin American International Relations Since Independence.
197. Undergraduate Colloquia: Latin America.
198Z. History of Argentina.
230I. Advanced Historiography: Latin America.
240I. Topics in History: Latin America.
266A-266B. Seminar in Latin American History: 19th and 20th Centuries.
266C-266D. Seminar in Brazilian History.
266E-266F. Seminar in Recent Latin American History.
266G-266H. Seminar in Colonial Latin American History.

Philosophy *190. Third World Political Thought.

Political Science *119A-119Z. Special Studies in Political Science.
131. Latin American International Relations.
*139. Special Studies in International Relations.
*146. Political Behavior Analysis.
*149. Special Studies in Politics.
163A-163B. Government and Politics in Latin America.
*167. Ideology and Development in World Politics.
*169. Special Studies in Comparative Government.
*183. Administration of International Agencies and Programs.
*185. Public Personnel Administration.
*186. National Policy and Administration.
*187. Law and Administration.
*188A. Comparative Public Administration.
*188B. Comparative Urban Government.
*189. Special Studies in Public Administration.
*191. Urban and Regional Planning and Development.
197B. Undergraduate Proseminar: Latin America.
*218A. Public Administration and Local Government.
*224A. Quantitative Applications.
*M229. Urban Government (same as Architecture M217).
230. Comparative Development Administration.
*235. Selected Topics in Comparative Politics.
250A. Seminar in Regional and Area Political Studies: Latin American Studies.
*256A-256B. Seminar in Comparative Government.

Sociology *123. Social Stratification.
*126. Social Demography.
131. Latin American Societies.
*235. Social Structure and Social Movements.
*M249A-249B. Sociocultural Aspects of Health and Illness (same as Public Health M249A-249B).
*292A-292B-292C. Research Development.

LANGUAGE COURSES

Spanish **1. Elementary Spanish.
**1G. Reading Course for Graduate Students (no credit).
**2. Elementary Spanish.
**2G. Reading Course for Graduate Students (no credit).
**3. Elementary Spanish.
**4. Intermediate Spanish.
**5. Intermediate Spanish.
**25. Advanced Spanish.
**M44. Civilization of Spanish America and Brazil (same as Portuguese M44).
100. Phonology and Pronunciation.
*105. Intermediate Composition.
*109. Advanced Composition.

Portuguese **1. Elementary Portuguese.
**2. Elementary Portuguese.
**3. Intermediate Portuguese.
**25. Advanced Portuguese.
**M44. Civilization of Spanish America and Brazil (same as Spanish M44).
100. Phonology and Pronunciation.
*101A. Advanced Reading and Conversation.
*101B. Advanced Composition and Style.
102A-102B. Intensive Portuguese.

Indigenous Languages of Latin America 118A-118B-118C. Elementary Quechua.

LINGUISTICS COURSES

Anthropology 212. Anthropological Linguistics.
*M276A. Linguistic Anthropology I.

Linguistics *100. Introduction to Linguistics.
*103. Introduction to General Phoenetics.
120A. Linguistic Analysis: Phonology.
*120B. Linguistic Analysis: Grammar.
*165A. Linguistic Theory: Phonology.
*165B. Linguistic Theory: Grammar.
*210A. Field Methods I.
*210B. Field Methods II.
220G. Aboriginal Latin America.
225T. Linguistic Structures: Mayan.

Spanish *103. Syntax.
*115. Applied Linguistics.
*M118. History of the Spanish and Portuguese Languages (same as Portuguese M118).
*M203A-203B. Development of the Spanish and Portuguese Languages (same as Portuguese M203A-203B).
*204A-204B. Transformational Grammar.
*206. Linguistics.
*209. Dialectology.
*256A. Studies in Linguistics.
*256B. Studies in Dialectology.

Portuguese *103. Syntax.
*M118. History of the Portuguese and Spanish Languages (same as Spanish M118).
*M203A-203B. Development of the Portuguese and Spanish Languages (same as Spanish M203A-203B).

LITERATURE COURSES

Spanish 121A-121B. Survey of Spanish American Literature.

*Special courses which may be applied to B.A. and/or M.A. degree requirements by petition wherein the student agrees to write a paper on Latin America. In petitioning to count courses not listed here, students are *encouraged* to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

**Course not applicable to M.A. degree.

**Course not applicable to M.A. degree.

137. The Literature of Colonial Spanish America.
139. 19th Century Spanish American Literature.
141. Mexican Literature.
142A. Spanish American Literature in the 20th Century: Poetry and Drama.
142B. Spanish American Literature in the 20th Century: Prose Fiction.
M149. Folk Literature of the Hispanic World (same as Folklore M149).
151. Folk Song in Spain and Spanish America.
**160B. Hispanic Literature in Translation (not applicable to B.A. if major concentration is in Literature).
M200. Bibliography (same as Portuguese M200).
237. Chroniclers of the Americas.
239. Neo-Classic and Romantic Prose and Poetry in Spanish America.
240. The Modernist Movement.
243. Contemporary Spanish American Poetry.
244. Contemporary Spanish American Novel and Short Story.
245. Contemporary Spanish American Essay.
246. Contemporary Spanish American Theater.
M249. Hispanic Folk Literature (same as Folklore M249 and Portuguese M249).
277. Studies in Colonial Spanish American Literature.
278. Studies in 19th Century Spanish American Literature.
280A. Studies in Contemporary Spanish American Literature: Modernist Poetry.
280B. Studies in Contemporary Spanish American Literature: Post-Modernist Poetry.
280C. Studies in Contemporary Spanish American Literature: Novel and Short Story.
280D. Studies in Contemporary Spanish American Literature: The Essay.
M286B. Studies in Hispanic Folk Literature: Narrative and Drama (same as Folklore M286B).
M286C. Studies in Hispanic Folk Literature: Ballad, Poetry and Speech (same as Folklore M286C).

Portuguese 121A-121B. Survey of Brazilian Literature.
127. Colonial Brazilian Literature.
129. Romanticism in Brazil.
135. Naturalism, Realism and Parnasianism in Brazil.
137. Contemporary Brazilian Literature.
243A. Colonial Literature.
243B. 19th Century Literature.
243C. 20th Century Literature.
M249. Hispanic Folk Literature (same as Folklore M249 and Spanish M249).
253A. Special Studies in Brazilian Literature: The Novel.
253B. Special Studies in Brazilian Literature: The Poetry.
253C. Special Studies in Brazilian Literature: The Theater.
253D. Special Studies in Brazilian Literature: The Short Story and the Essay.

FINE ARTS COURSES

Art 118B. The Arts of Pre-Columbian America.
220. The Arts of Africa, Oceania and Pre-Columbian America.

Dance **71J. Dance of Mexico. (½ course)
146. Dance in Latin America.
171J. Dance of Mexico. (½ course)

Music **71J. Music and Dance of Mexico. (½ course)
131A-131B. Music of Hispanic America.
157. Music of Brazil.
171J. Music and Dance of Mexico. (½ course)
259. Seminar in Music of Latin America.

Theater Arts 106C. History of African, Asian and Latin American Film.
*112. Film and Social Change.
*M209C. Seminar in Ethnographic Film (same as Anthropology M294A).

PROFESSIONAL COURSES

***Architecture and Urban Planning** 207. Public Resource Allocation.
208. Social Theory for Planning.
211A-211B. Urban-Regional Development Theory.
212A-212B. Urbanization and National Development.
216. Processes of Change.
230A-230B. Advanced Seminar in Urban-Regional Development Policy.
239. Research in Urban-Regional Development Policy.
250A-250B. Advanced Seminar in Social Development Policy.
259. Research in Social Development Policy.

Education *200B. Survey Research Methods in Education.
*204A. Schooling in Comparative Perspective.
*204B. Introduction to Comparative Education.
*204C. Education and National Development.
*204D. Minority Education in Cultural Perspective.
*204E. International Efforts in Education.
*252A. Seminar: Educational Organizations.
*252B. Seminar: Education and Social Change.
*252C. Seminar: Research Practicum.
*253A. Seminar: Current Problems in Comparative Education.
M253D. Latin American Education (same as Latin American Studies M250C).
255. Seminar: Special Topics in Measurement and Research Design.

Engineering *104C-104D. Undergraduate Research Laboratory.

Law* 216. International Law.
233. Law and Development in Latin America.
*236. International Business Transactions.
*239. Individual Research.
348. Legal Development in Latin America.
*352. International Law.

Library Service* 223. Literature of the Social Sciences.
224. Literature of the Humanities and Fine Arts.

Management* 115. Business Statistics.
116A-116B. Statistical Methods.
205A. International Business Economics.
205B. Comparative Market Structure and Competition.
205C. Business Forecasting for Foreign Economies.
208. Selected Topics in Business Economics.
233A. International Business Finance.
250C. Systems of Employee-Management Participation.
261B. International Marketing Management.
296A. International Business Management.
297A. Comparative and International Management.
297B. International Business Policy.
298B. Special Topics in International and Comparative Management.

Public Health* 161. Demography.
*202A. Governmental Health Services and Trends.
*206. Medical Care Systems in International Perspective. (½ course)
*211A-211D. Advanced Nutrition. (½ course each)
*216A-216B-216C. Infectious Diseases in Tropical Regions.
M232. Disease Problems of Socio-Economic and Political Impact in Latin America (same as Latin American Studies M232.)
*233. Change Determinants in Health-Related Behavior.
*M249A-249B. Sociocultural Aspects of Health and Illness (same as Sociology M249A-249B).
263A. Seminar on Current Issues in Maternal and Child Health.
*263B. Seminar in Maternal and Child Health. (½ course each)
266. Seminar in Epidemiology.
*284. Seminar in Nutrition. (½ course)
*286. Nutritional Problems in Developing Areas. (½ course)
*290E. Special Group Studies: Population, Family and International Health.
*290L. Special Group Studies: Public Health Nutrition.
*290Q. Special Group Studies: Infectious and Tropical Diseases.
*456A. International Health Agencies and Programs. (½ course)
*456B. Comparative Analysis of Health. Services and Disease Patterns. (½ course)
*456C. Issues in International Health Administration. (½ course)
*596. Directed Individual Study or Research.

Social Welfare* 240A-240B-240C. Theory of Social Work Method (Community Organization) I, II, III. (½ course each)

■ LAW

(Department Office, 1224 Law Building)

**Course not applicable to M.A. degree.

Note: Independent study courses such as 198, 199, 596, 597, and 598 are available in most departments and may be taken by petition to the Latin American Studies Adviser: see note immediately below.

*Special courses which may be applied to B.A. and/or M.A. degree requirements by petition wherein the student agrees to write a paper on Latin America. In petitioning to count courses not listed here, students are *encouraged* to relate theoretical or methodological course in the various disciplines to the study of Latin America.

Benjamin Aaron, A.B., LL.B., *Professor of Law.*
Richard L. Abel, A.B., LL.B., Ph.D., *Professor of Law.*
Norman Abrams, A.B., J.D., *Professor of Law.*
Reginald H. Alleyne, Jr. B.S., LL.B., LL.M., *Professor of Law.*
Michael R. Asimow, B.S., LL.B., *Professor of Law.*
John A. Bauman, B.S.L., LL.B., LL.M., Jur.Sc.D., *Professor of Law.*
David A. Binder, A.B., LL.B., *Professor of Law.*
Barbara E. Brudno, B.A., M.A., J.D., *Professor of Law.*
Jesse J. Dukeminier, A.B., J.D., *Professor of Law.*
George P. Fletcher, B.A., J.D., M.C.L., *Professor of Law.*
Kenneth W. Graham, Jr., B.A., J.D., *Professor of Law.*
Donald G. Hagman, B.S., LL.B., LL.M., *Professor of Law.*
Harold W. Horowitz, A.B., LL.B., LL.M., S.J.D., *Professor of Law.*
Edgar A. Jones, Jr., A.B., LL.B., *Professor of Law.*
Kenneth L. Karst, A.B., LL.B., *Professor of Law.*
Frederic L. Kirgis, Jr., B.A., LL.B., *Professor of Law.*
William A. Klein, A.B., LL.B., *Professor of Law.*
James E. Krier, B.S., J.D., *Professor of Law.*
Leon Letwin, Ph.B., LL.B., LL.M., *Professor of Law.*
Wesley J. Liebeler, B.A., J.D., *Professor of Law.*
Richard C. Maxwell, B.S.L., LL.B., *Professor of Law.*
Henry W. McGee, Jr., B.S., J.D., LL.M., *Professor of Law.*
William M. McGovern, Jr., A.B., LL.B., *Professor of Law.*
David Mellinkoff, A.B., LL.B., *Professor of Law.*
Herbert Morris, A.B., LL.B., D.Phil. (Oxon.), *Professor of Law and Philosophy.*
Melville B. Nimmer, A.B., LL.B., *Professor of Law.*
Monroe E. Price, B.A., LL.B., *Professor of Law.*
Joel Rabinovitz, A.B., LL.B., *Professor of Law.*
Ralph S. Rice, B.S., J.D., LL.M., *Connell Professor of Law.*
Arthur I. Rosett, B.A., LL.B., *Professor of Law.*
Gary T. Schwartz, B.A., J.D., *Professor of Law.*
Murray L. Schwartz, B.S., LL.B., *Professor of Law.*
Stanley Siegel, B.S., J.D., *Professor of Law.*
James D. Sumner, Jr., A.B., LL.B., LL.M., J.S.D., *Professor of Law.*
William D. Warren, A.B., J.D., J.S.D., *Professor of Law (Chairman of the Department).*
Richard A. Wasserstrom, B.A., M.A., Ph.D., LL.B., *Professor of Law and Philosophy.*
Kenneth H. York, A.B., LL.B., *Professor of Law.*
L. Dale Coffman, A.B., J.D., LL.M., S.J.D., *Emeritus Professor of Law.*
Addison Mueller, A.B., LL.B., *Emeritus Professor of Law.*
Rollin M. Perkins, A.B., J.D., J.S.D., *Emeritus Connell Professor of Law.*
Harold E. Verrall, A.B., M.A., LL.B., J.S.D., *Emeritus Professor of Law.*

♦

Alison Grey Anderson, B.A., J.D., *Acting Professor of Law.*
Paul B. Bergman, B.A., J.D., *Adjunct Professor of Law.*
Paul Boland, B.A., J.D., LL.M., *Adjunct Professor of Law.*
Carole E. Goldberg, B.A., J.D., *Acting Professor of Law.*
David A. Leipziger, A.B., J.D., *Acting Professor of Law.*
Robert F. Mann, B.A., J.D., *Adjunct Professor of Law.*
Michael Rappaport, B.S., J.D., *Lecturer in Law.*
Susan Westerberg Prager, A.B., M.A., J.D., *Acting Professor of Law.*
Fred L. Slaughter, B.S., M.B.A., J.D., *Lecturer in Law.*
Tracy A. Westen, A.B., M.A., J.D., *Adjunct Professor of Law.*
Gerald A. Wright, A.B., A.M., LL.B., *Acting Professor of Law.*
Stephen C. Yeazell, B.A., M.A., J.D., *Acting Professor of Law.*

■ LIBRARY AND INFORMATION SCIENCE

(Department Office, 120 Powell Library Building)

Harold Borko, Ph.D., *Professor of Library and Information Science.*
Robert M. Hayes, Ph.D., *Professor of Library and Information Science (Chairman of the Department).*
Andrew H. Horn, Ph.D., *Professor of Library and Information Science.*
Robert Vosper, M.A., LL.D., *Professor of Library and Information Science.*
Raymond F. Wood, Ph.D., *Professor of Library and Information Science.*
Page Ackerman, B.A., B.S.L.S., *Emeritus Professor of Library and Information Science.*
Robert L. Collison, B.A., F.L.A., *Emeritus Professor of Library and Information Science.*
Seymour Lubetzky, M.A., LL.D., *Emeritus Professor of Library and Information Science.*
Lawrence Clark Powell, Ph.D., Litt.D., L.H.D., H.H.D., *Emeritus Professor of Library and Information Science.*
G. Edward Evans, Ph.D., *Associate Professor of Library and Information Science.*
Kelley L. Cartwright, M.L.S., *Assistant Professor of Library and Information Science.*
Ann E. Hall, D.L.S., *Assistant Professor of Library and Information Science.*
Diana M. Thomas, Ph.D., *Assistant Professor of Library and Information Science.*

♦

Elizabeth R. Baughman, M.A., *Senior Lecturer in Library and Information Science.*
Marion K. Cobb, M.A., *Lecturer in Library and Information Science.*
Chase Dane, A.B., M.S.L.S., *Lecturer in Library and Information Science and Supervisor of Teaching in the School of Education.*
Louise Darling, M.A., *Lecturer in Library and Information Science and Medical History.*
Elizabeth R. Eisenbach, M.L.S., *Lecturer in Library and Information Science.*
James V. Mink, M.A., *Lecturer in Library and Information Science.*
Everett T. Moore, M.S., *Lecturer in Library and Information Science.*
Betty Rosenberg, M.A., *Senior Lecturer in Library and Information Science.*
Frederick E. Smith, LL.B., M.A.L.S., *Lecturer in Library and Information Science.*
Binnie L. Tate, B.A., M.S.L.S., *Lecturer in Library and Information Science.*
Rosalee I. Wright, B.S., B.L.S., *Lecturer in Library and Information Science.*

Representatives of Other Departments on the Faculty of the Graduate School of Library and Information Science.

Arthur M. Cohen, Ph.D., *Associate Professor of Education.*
Robert Starr Kinsman, Ph.D., *Professor of English.*
Archie Kleingartner, Ph.D., *Professor of Industrial Relations, and Research Economist Institute of Industrial Relations.*
Michel A. Melkanoff, Ph.D., *Professor of Engineering.*
Richard H. Rouse, Ph.D., *Associate Professor of History.*

For information regarding admission to the Graduate School of Library and Information Science and for degree and certificate requirements, refer to the paragraphs on the School of Library and Information Science under Schools and Colleges.

Graduate students of other schools or departments who wish to take courses in the School of Library and Information Science may do so with the permission of the Instructor teaching the course. Undergraduate students who wish to

enroll in 400-series courses must obtain the permission of the Dean of the School of Library and Information Science.

Graduate courses. 200-series. Consent of instructor is prerequisite to admission to all 200-series courses. For individual study courses, see 500-series. For professionally oriented courses, see 400-series.

Professional courses. 400-series. Planned primarily for the professional degree, Master of Library Science, and for specialized professional study.

Professional internship courses. 490-series. Consent of the Dean is prerequisite to admission to all 490-series internships.

Individual study courses. 500-series. Approval of the Dean of the School of Library and Information Science is prerequisite to admission to all 500-series courses. Method of instruction is by individual conferences with assigned members of the staff. Seminar courses are numbered in all 200-series.

Upper Division Courses

100. American Indian Bibliography.
Introduction to bibliographical and research tools and methods for students of American Indian history and culture. Offered in collaboration with the American Indian Culture Center. Students who enroll in Library Service 104 for credit may not take this course for credit.

104. Afro-American Bibliography.
Introduction to bibliographical and research tools and methods for students of Black history and culture in the U.S. Offered in collaboration with the Center for Afro-American Studies. Students who enroll in Library Service 100 for credit may not take this course for credit.

110. Information Resources and Libraries.
Provides an introduction to bibliographic and information resources and relevant research methodology. Covers both general and specialized materials. Designed to facilitate knowledgeable use of libraries and efficient retrieval of information. Discussion sections will focus on specific subject areas (such as Humanities, Physical Sciences, Social Sciences, Fine Arts, etc.). Grade (P/NP) based on assignments, class participation, a bibliographic project and a final examination.

Graduate Courses

205. Historiography of Librarianship, Bibliography and Information Science.
Prerequisite: approval of instructor. Identification of historical source material. Comprehensive and critical review of the historical and biographical literature. Identification of areas in need of research or reinterpretation.

206. Seminar on Library History.
Prerequisite: approval of instructor. Special studies in biography and history of librarianship. Relationships to contemporaneous social, cultural, and intellectual history. Research papers on topics identified in course 205.

207. Seminar on International and Comparative Librarianship.
Prerequisite: approval of instructor. Library development and service patterns in European and other countries; comparisons of these with librarianship in the United States. International library organizations and programs.

210. Seminar in Descriptive and Bibliographical Cataloging.
Prerequisite: courses 410 (Descriptive Cataloging) and 411 (Subject Cataloging and Classification) or equivalent. Specialized studies in selected areas of descriptive and bibliographical cataloging, e.g., purposes, principles, instructional development, potentialities of automation. May be repeated once.

211. Seminar in Subject Control of Library Materials.
Prerequisites; course 410 (Descriptive Cataloging) and 411 (Subject Cataloging and Classification) or their equivalents. Study of selected problems in the design and use of verbal headings and classification systems. Manual and mechanized systems. May be taken twice.

213. Seminar on Indexing.
Prerequisite: consent of the instructor. Development of basic concepts as reflected in the history of scholarship. Current problems in the transition from individual to large-scale indexing projects. Contribution made by automation. Future of mechanized indexing. Trend toward international standardization. Acceleration systems in indexing.

214. Seminar on Abstracting and Abstracting Services.
Prerequisite: consent of the instructor. Historical background and current situation, particularly in science and technology. Possibilities and present limitations of automation. Role in coordination of information services. Problems of standardization to achieve international coordination. Influence of changing needs.

221. Bibliography of Science, Engineering and Technology.
(Formerly numbered 217). Scientific and technical literature with emphasis on special types of publications, research material, reference and bibliographical aids to the physical sciences. Importance, purpose and nature of technical literature searches. Flow of information among scientists.

222. Bibliography of the Medical and Life Sciences.
(Formerly numbered 218.) Literature of the medical and life sciences: reference and bibliographical works; periodicals, serials and the abstracts and indexes to them; notable books in the history of the biomedical sciences; patterns of publication; applications of technological developments in the control of the biomedical literature.

223. Literature of the Social Sciences.
(Formerly numbered 219.) Seminar on the literature of the social sciences, including a review of the classics in the various fields, monumental source collections, periodicals, bibliographies, catalogs, indexes, abstracts, etc. Trends in scholarly and popular writing. Interdisciplinary nature of the literature.

224. Literature of the Humanities and Fine Arts.
(Formerly numbered 220.) Seminar on the literature of the humanities and fine arts, including a review of the classics in the various fields, comparisons of editions, periodicals, bibliographical apparatus and reviewing media. Trends in scholarly and popular writing.

228. Legal Bibliography.
Prerequisite: approval of instructor. An introduction to the source materials of the law, with emphasis on primary authority, but covering as well secondary authority and the indexes and finding aids which the lawyer and professional law librarian use to gain access to legal information.

229A. Afro-American Bibliography.
Prerequisite: consent of the instructor. Resources for the study of Afro-American history, culture and literature. Problems of identification, description, subject analysis. Bibliographical and reference apparatus.

230. History of Publishing and the Book Trade.
Publishing and book trade history, with particular reference to libraries and book collecting, changing aspects of book production and distribution within the setting of cultural history.

240. Information Systems Analysis and Design.
(Formerly numbered 243). Theories and principles of special systems development, including determination of requirements, technical design and evaluation, and internal organization.

242. Information Retrieval Systems.
Survey of principal specialized vocabularies, methods of file organization, and search strategies in the control of publications in mechanized form.

244. Information Networks.
Problems in the formulation, funding and operation of information networks are examined. A survey of some of the major networks, including institutional and computer systems.

249. Seminar in Information Science.
(Formerly numbered 293.) Specialized studies in problem areas of information science: vocabulary development, representation coding, file organization and indexing, classification systems, searching procedures, measurement of relevancy, data reduction and presentation, and communication. May be repeated once for credit.

251. Reading and Reading Interests.
(Formerly numbered 215.) Interests of the common reader, excluding children, with special reference to types of library patrons. Fiction and subject categories, popular and standard: philosophy, religion, social sciences, art, music, literature, history, science. Influence of paperbacks, best sellers and current interest books on reading habits.

253. Special Studies in Children's Literature.
(Formerly numbered 209.) Special studies in children's books and reading interests. Historical backgrounds and development of: types of children's literature, folklore and oral tradition, levels of interest, criticism and evaluation, illustration, bibliography.

260. Historical Bibliography.
(Formerly numbered 211.) Early records and the manuscript period; history of the printed book and of periodical publications and newspapers, including materials and methods and production. Parallel history of scholarship, the book trade, and book collecting in ancient, medieval and modern Western civilization.

261. Analytical Bibliography.
History and methods of analytical bibliography with emphasis on recent scholarship. The book as a physical object and its relationship to the transmission of the text. Emphasis on hand-press books. Theories of Bradshaw, Proctor, Greg, McKerrow, Pollard, Esdaile, Bowers, Stevenson, Hinman, McKenzie, and others. Recommended, but not prerequisite, is course 260 (Historical Bibliography) or its equivalent in background or experience.

271. Seminar on Intellectual Freedom.
Prerequisite: consent of the instructor. Investigation of the idea of intellectual freedom: historical and constitutional bases; civil liberties and civil rights; censorship and other restraints on freedom of speech, the press, the arts, and access to ideas and information.

272. Seminar on Current Issues in Librarianship.

Prerequisite: consent of the instructor. Identification, analysis, and discussion of critical issues currently facing the profession. May be repeated once.

290. Research Methodology.

Prerequisite: consent of the instructor. Role of research in bibliography, librarianship, and information science. Identification and design of research problems. Historical, statistical, analytical and decriptive techniques.

Professional Courses

400. Introduction to Librarianship.

Introduction to the history of libraries and information centers, including their current status, organization, and problems. Professional associations, education, and research. Library literature and its bibliographical control. Trends in administration and management, national networks, standards, legislation, technology.

402. Introduction to Bibliography.

The development and fundamentals of the several branches of bibliography: historical, physical (analytical or critical, descriptive), enumerative or systematic; and the organization, control, and elements of bibliographical apparatus. New techniques and tools, theory, methods, and trends in bibliographical research in relationship to librarianship.

404. Introduction to Information Science.

Scope of the information sciences and their relationship to libraries, information centers, information handling. Methods of systems analysis as applied to library operations; case studies of library systems, clerical operations and information retrieval. Survey of data processing equipment.

405. Automation of Library Processes.

Prerequisite: basic knowledge of a programming language, preferably PL/I or IBM System/360 assembly language. Principles of application of data processing techniques to library procedures. Problems in the design, implementation, and testing of mechanized systems for libraries. Study of programming languages for library applications with emphasis upon PL/I.

410. Descriptive Cataloging.

(Formerly numbered 201A.) Entry and description of library materials. Constitution, structure, and form of the library catalog. Cataloging services, tools, and procedures. Cataloging rules and their application.

411. Subject Cataloging and Classification.

(Formerly numbered 201B.) Subject treatment of library materials. Structure of subject heading lists and their application. Organization of the subject catalog. Structure and application of the Dewey Decimal and Library of Congress classification systems. Organization of the classed catalog and the shelflist.

412. Cataloging and Classification of Nonbook Materials.

Prerequisites: courses 410 (Descriptive Cataloging), and 411 (Subject Cataloging and Classification). Problems in cataloging and classification of selected nonbook materials (e.g., films, maps, pictorial works, sound recordings) as separate collections and integrated collections.

414. Principles of Indexing and Abstracting.

Basic professional techniques, concepts, and methods of indexing monographs, serials, and specialized materials; of preparing informative and indicative abstracts; and of analyzing secondary abstracting and indexing services as library reference tools.

420. Basic Sources of Information.

(Formerly numbered 202A.) History, methods and materials of reference service and information retrieval. Survey of devices for bibliographical control of information. Encyclopedias, dictionaries, biographical compilations, directories, etc.

421. Comprehensive Bibliography.

(Formerly numbered 202B.) Analysis and evaluation of bibliographical control of published and unpublished documents (books, periodicals, government publications, dissertations, reports, manuscripts). Systems of national bibliography, trade bibliography, indexing, abstracting, etc. American, British, French, German, Russian and other systems. Information retrieval using this apparatus. It is recommended that course 420 (Basic Sources of Information) be taken prior to course 421.

423. Library Information Service.

Prerequisite: Completion of course 420 (Basic Sources of Information) and course 421 (Comprehensive Bibliography), or evidence of competencies represented by these courses. Identification of problems in library reference services. Applications of reference interview techniques, search strategies, and methodologies of teaching use of libraries and information resources. Evaluation of competence through supervised performance. Grading is satisfactory/unsatisfactory.

429. Printing for Bibliographers.

Prerequisite 260 (Historical Bibliography) or 261 (Analytical Bibliography) and consent of the instructor. Printing processes as related to bibliography and librarianship. Discussions, demonstrations, and experiments in design, composition, and presswork with special emphasis on the 19th century handpress. To be graded S/U.

430. Selection and Acquisition of Library Materials.

(Formerly numbered 204.) Background of publishing and the book trade (new and antiquarian) pertinent to order departments of public, school, academic and special libraries. Theory and practice of selecting and ordering books and other materials. Organization and administration of order departments.

431. Special Problems in the Selection of Materials and Evaluation of Collections.

(Formerly numbered 205.) Subject and area collecting; special collections and rare books; building new collections. Evaluating and weeding collections. Cooperative collecting-regional, national and international. Storage centers; subject specialization. Special format materials: films, maps, sound recordings, etc. Copying methods; facsimile reprinting; changing character of research collections.

432. Media Librarianship.

Prerequisite: consent of the instructor. Films, filmstrips, recordings, tapes, and other non-book materials in audiovisual collections or instructional media centers. Bibliographical apparatus. Evaluation and collection development. Organization and administration.

440. Library Systems Analysis.

Analysis, design, and evaluation of data processing systems in the library. Includes management planning for automation, techniques for system description, criteria for cost/effectiveness evaluation, issues in system implementation - all in the context of library internal, technical processing.

441. Management of Libraries.

Prerequisite: consent of the instructor. Principles of management, emphasizing management techniques applicable to libraries of various types and to library systems. Special attention to aspects of technical services.

442. Library Personnel Administration.

Covers the basic principles of personnel management. Provides a survey of current personnel practices in libraries. Discusses how the basic principles apply or need to be modified to fit the library setting.

446. Library Services for Youth.

Provides an overview of programs and services which are of interest to young adults (12-18 year olds). Discusses special problems in working with young people and the psychology of the teenager as it influences library programs.

447. Library Space Planning.

Introduction to space planning and programming techniques and how they apply to libraries. Emphasis is on use of existing space, but planning new buildings is included. Reading blue prints, use of scales, contracts, use of consultants.

461. College, University and Research Libraries.

(Formerly numbered 401.) Organization, administration, collections, facilities, finances, and problems of college and university libraries and their relationships within the institutions of which they are a part. Functions of research libraries and work of their staffs in serving scholars.

463. Public Libraries.

(Formerly numbered 402.) The government, organization, and administration of municipal, county, and regional public libraries; developments in the changing patterns of public library service.

464. School Libraries.

(Formerly numbered 403.) Elementary and secondary school libraries as multimedia instructional materials centers. Relationships of school libraries to school programs and curricula. Emphasis on administration, planning materials, services, and equipment.

465. Children's Libraries.

(Formerly numbered 404.) Public library service to children and young people. Function, administration, organization, services, materials, planning and equipment of children's libraries in relation to the public and school library.

470. Special Libraries and Special Collections.

(Formerly numbered 405.) Organization, administration, collections, facilities, finances and problems of special libraries and of special collections within general libraries. Methods of handling nonbook materials. Current trends in documentation and mechanization.

471. Health and Life Sciences Libraries.

(Formerly numbered 418.) Organization, administration, services and problems of health and life sciences libraries; relationships with institutions of which they are a part, and with the community.

472. Law Librarianship.

Prerequisite: approval of instructor. An introduction to the profession of law librarianship; the organization of the professional associations and their activities; the

character and distribution of law libraries throughout the United States; the distinctive characteristics of law library problems and their solutions.

485. Archives and Manuscript Collections.
Prerequisite: consent of instructor. Identification, description, subject analysis, and organization of records contained in archives and manuscript collections. Administration. User requirements. Problems of acquisition, legal title, literary property, preservation, accessibility, and use.

489. Library Service to Special Population Groups.
Prerequisite: consent of the instructor. Special problems encountered by school, public, academic, special and research libraries in meeting the needs of minority groups in urban and rural settings. Library service to the old, the physically handicapped, and the institutionalized population.

Professional Internship Courses

490. University Library Internship.
Prerequisite: consent of the instructor. Supervised professional training in one or more departments or units of the UCLA College Library or University Library System. Field trips, when appropriate, to off-campus libraries. Minimum of 120 hours per quarter, including weekly critiques of bibliographical, administrative, and service problems. May be repeated twice. To be graded S/U.

498. Off-Campus Internship.
Prerequisite: consent of instructor. Supervised professional training in a library system, library, department of a library, or other information service agency (e.g., archives) approved by the faculty of the School. Minimum of 120 hours per quarter, including weekly critiques of bibliographical, administrative, and service problems. May be repeated twice. To be graded S/U.

Individual Study Courses

501. Cooperative Program. (½ to 2 courses)
Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Individual Study or Research.
Prerequisite: consent of the instructor. Directed special studies in the fields of bibliography, librarianship, and information science. Variable conference time depending upon nature of study or complexity of research. May be repeated once. To be graded S/U.

■ LINGUISTICS

(Office, 2113 Campbell Hall)

Raimo A. Anttila, Ph.D., *Professor of Indo-European and General Linguistics.*
William Bright, Ph.D., *Professor of Linguistics and Anthropology.*
Victoria A. Fromkin, Ph.D., *Professor of Linguistics (Chairman of the Department).*
Peter Ladefoged, Ph.D., *Professor of Phonetics.*
Paul M. Schachter, Ph.D., *Professor of Linguistics.*
Robert P. Stockwell, Ph.D., *Professor of Linguistics.*
William E. Welmers, Ph.D., *Professor of Linguistics and African Languages.*
Stephen R. Anderson, Ph.D., *Associate Professor of Linguistics (Vice Chairman of the Department).*
George D. Bedell, Ph.D., *Associate Professor of Linguistics.*
Joseph E. Emonds, Ph.D., *Associate Professor of Linguistics.*
Talmy Givón, Ph.D., *Associate Professor of Linguistics and African Languages.*
Edward L. Keenan, Ph.D., *Associate Professor of Linguistics.*
Sandra A. Thompson, Ph.D., *Associate Professor of Linguistics (Vice Chairman of Undergraduate Affairs).*
Thomas J. Hinnebusch, Ph.D., *Assistant Professor of Linguistics and African Languages.*
Alosi Moloi, Ph.D., *Assistant Professor of African Languages and Literature.*
Breyne A. Moskowitz, Ph.D., *Assistant Professor of Linguistics.*
Russell G. Schuh, Ph.D., *Assistant Professor of Linguistics and African Languages.*
Benji Wald, Ph.D., *Assistant Professor of Linguistics.*
Pamela L. Munro, Ph.D., *Adjunct Assistant Professor of Linguistics.*

♦

Mazisi R. Kunene, M.A., *Lecturer in African Languages and Literature.*

♦

Christiane A. M. Baltaxe, Ph.D., *Assistant Professor of Psychiatry in Residence.*
Henrik Birnbaum, Ph.D., *Professor of Slavic Languages.*
J. Donald Bowen, Ph.D., *Professor of English.*
Giorgio Buccellati, Ph.D., *Professor of Ancient Near East.*
Russell N. Campbell, Ph.D., *Professor of English.*
Edward C. Carterette, Ph.D., *Professor of Psychology.*
Marianne Celce-Murcia, Ph.D., *Assistant Professor of English.*
Kenneth G. Chapman, Ph.D., *Professor of Scandinavian Languages.*
Keith S. Donnellan, Ph.D., *Professor of Philosophy.*
Christopher Ehret, Ph.D., *Associate Professor of History.*
Michael S. Flier, Ph.D., *Associate Professor of Slavic Languages.*
Diane E. Larsen Freeman, Ph.D., *Assistant Professor of English.*
Patricia M. Greenfield, Ph.D., *Associate Professor of Psychology.*
Evelyn R. Hatch, Ph.D., *Assistant Professor of English.*
Robert S. Kirsner, Ph.D., *Assistant Professor of Dutch-Flemish and Afrikaans.*
Wolf Leslau, Docteur-ès-Lettres, *Emeritus Professor of Hebrew and Semitic Linguistics.*
Bengt Lofstedt, Ph.D., *Professor of Medieval Latin.*
Donald G. MacKay, Ph.D., *Associate Professor of Psychology.*
Marlys McClaran, Ph.D., *Assistant Professor of Anthropology.*
Lois McIntosh, Ph.D., *Emeritus Professor of English.*
C. P. Otero, Ph.D., *Professor of Spanish and Romance Linguistics.*
Thomas G. Penchoen, Ph.D., *Associate Professor of Near Eastern Languages.*
Clifford H. Prator, Ph.D., *Professor of English.*
Jaan Puhvel, Ph.D., *Professor of Indo-European Studies.*
Earl Rand, Ph.D., *Associate Professor of English.*
Kelyn H. Roberts, Ph.D., *Assistant Professor of Psychology.*
Emanuel A. Schegloff, Ph.D., *Associate Professor of Sociology.*
John A. Schumann, Ph.D., *Assistant Professor of English.*
Margaret E. Shaklee, Ph.D., *Assistant Professor of English.*
Michael Shapiro, Ph.D., *Professor of Slavic Languages.*
Donald Stilo, Ph.D., *Assistant Professor of Persian.*
Alan H. Timberlake, Ph.D., *Assistant Professor of Slavic Languages.*
Terence H. Wilbur, Ph.D., *Associate Professor of German.*
Robert Wilson, Ph.D., *Adjunct Associate Professor of English.*
Dean S. Worth, Ph.D., *Professor of Slavic Languages.*

Undergraduate Majors

The majors described below are of three types: (1) a major which concentrates entirely on general linguistics; (2) several majors which combine the basic courses of the general program with a language concentration or other related field; and (3) a major which concentrates entirely on an African language area. The combined majors in conjunction with teacher certification programs are especially appropriate for students who have nonuniversity teaching careers as goals; and the African major is for students with specific African interests.

The Major in Linguistics

This major should be elected only by students with an exceptional interest in and aptitude for the study of languages and linguistics. It enables the undergraduate to gain substantial familiarity with several languages and types of linguistic structure, and to become conversant with the historical study of language and formal theories of linguistics.

Preparation for the Major. In the lower division, in addition to the general University requirements, the student must complete the equivalent of the sixth quarter of work in two foreign languages, or the sixth quarter in one language and the third quarter in each of two others. In addition the student must take Linguistics 1 and two of the following three courses: Philosophy 31, Psychology 10, one course in Cultural Anthropology.

Requirements for the Major. A minimum of eleven upper division or graduate courses which must include Linguistics 100, 103, 110, 120A, 120B, 160, 195; the other four courses are electives, two of which must be upper division Linguistics courses, to be selected by the student subject to the approval of his adviser. These electives have typically been selected from the following list, though it is not exhaustive: Linguistics 130, 140, 145, M146, M150, 165A, 165B, 170, 180, 199 (if four units), African Languages 190, Anthropology 177B, Indo-European Studies 160, 161, 162, Philosophy 127A, 127B, 172, 192, Psychology 122, 123, Speech 103, 104, English 121, 122, 123; or advanced courses in a foreign language or literature (those beyond the sixth quarter of language instruction). In addition to the eleven upper division courses, at least three courses (which may be either upper or lower division) are required in a language other than those in the Romance, Slavic, or Germanic families. These courses may be applied toward fulfillment of the foreign language requirement described above under *Preparation for the Major.* A student who completes an advanced language course is considered to have completed the equivalent of whatever courses are prerequisite to that one: e.g., if he completes French 101, he has automatically satisfied the requirement of the sixth quarter of work in one language. 165A-165B are required of students planning to pursue graduate work in linguistics at UCLA.

Linguistics 195 is the course in which the student writes his Senior Essay. It may be taken during any of the student's last three quarters. The Senior Essay is a term paper written on a linguistic topic of interest to the student under the guidance of a faculty member, who usually is, but need not be, in the Department of Linguistics. To enroll in 195, the student must consult with the department's Senior Essay Counselor.

The Major in Linguistics and English

Preparation for the Major. Linguistics 1; English 2, 10A, 10B, 10C; Philosophy 31; completion of the sixth quarter of work in two foreign languages, or the sixth quarter in one foreign language and the third quarter in each of two other foreign languages.

Requirements for the Major. Fifteen upper division courses as follows: Linguistics 100, 103, 110, 120A, 120B, 160, and two upper division electives from other Linguistics courses or English 123; and English 121, 122, 140, and four electives chosen from 141, 142A, 142B, 143, the 150 series (one course only), the 160 series (one course only), the 170 series (one course only).

The Major in Linguistics and French

Preparation for the Major. Linguistics 1; French 1-6, 12A, 12B, 15; and completion of the sixth quarter of work in one other foreign language or the third quarter in each of two other foreign languages.

Requirements for the Major. Fifteen upper division courses as follows: Linguistics 100, 103, 110, 120A, 120B, 160, and two upper division electives in Linguistics; and French 100A, 100B, 100C, 103, 105, 106, and two elective upper division literature courses.

The Major in Linguistics and Italian

Preparation for the Major. Linguistics 1, Italian 1-6, Latin 1-3, and completion of the third quarter in another foreign language, or the sixth quarter in Latin; Philosophy 31; and one course in Cultural Anthropology.

Requirements for the Major. Fourteen upper division courses as follows: Linguistics 100, 103, 110, 120A, 120B, 160, and two upper division electives in Linguistics; and Italian 102A, 130A, 130B, and three additional upper division electives in Italian.

The Major in Linguistics and Oriental Languages

Preparation for the Major. Completion of the sixth quarter in either Chinese or Japanese; Linguistics 1; Philosophy 31; one course in Cultural Anthropology; either Oriental Languages 40A or Oriental Languages 40B, as appropriate; and completion of the sixth quarter in another foreign language, or the third in each of two others.

Requirements for the Major. Linguistics 100, 103, 110, 120A, 120B, 160, and one upper division elective in Linguistics; and for the classical Japanese track, Oriental Languages 119A, 119B, 129, 139, 179A, 179B, and one upper division elective in Oriental Languages; for the modern Japanese track, Oriental Languages 119A, 119B, 119C, 134A, 134B, 142A, 142B, in addition to which 175 is recommended; for the classical Chinese track, Oriental Languages 13A, 13B, 13C, 113A, 113B, 152, 163A, 163B, 163C; for the modern Chinese track, Oriental Languages 121A, 121B, 121C, 122, 124A, 124B, 124C.

The Major in Linguistics and Philosophy

Preparation for the Major. Linguistics 1; Philosphy 31 and two out of Philosophy 1, 6, 7, 21; completion of the sixth quarter in each of two foreign languages or the sixth quarter in one language and the third quarter in each of two others.

Requirements for the Major. Fourteen upper division courses as follows: Linguistics 100, 103, 120A, 120B, 160, 165B, and two upper division electives in Linguistics; and six upper division courses in Philosophy including at least five from 125-135, 170-174, and 184-188, of which at least two must be from 127A, 127B, and 172.

The Major in Linguistics and Psychology

Preparation for the Major. Linguistics 1; Mathematics 2A, 2B; Psychology 10, 41; and completion of the sixth quarter in a foreign language and the third quarter in a second foreign language. Engineering 10 strongly recommended.

Requirements for the Major. Fourteen upper division courses as follows: Linguistics 100, 103, 120A, 120B, 130, 195, and two upper division electives in Linguistics (students in this major must enroll in a special section of course 195 designed specifically for this major and offered only in the spring quarter); and Psychology 110, 120, 121; 122 or 123; 130; and the remaining elective to be chosen from 112, 115, 116, 124, 135, 137 (½ course).

The Major in Linguistics and Spanish

Preparation for the Major. Linguistics 1; Spanish 1-5, 25, M42, M44; and completion of a sixth quarter of work in one other foreign language, or the third quarter in each of two other foreign languages.

Requirements for the Major. Fifteen upper division courses distributed as follows: Linguistics 100, 103, 110, 120A, 120B, 160, and two additional upper division courses in Linguistics, preferably 130 and 170; and Spanish 100, 103, 115 or 118, 119, and three additional upper division courses in Spanish.

The Major in African Languages

Preparation for the Major. In the lower division, in addition to the general University requirements, the student must complete Linguistics 1 and six courses in African Languages (101-143, 199), not fewer than three in any one language.

Requirements for the Major. A minimum of fifteen upper division courses which must include six additional courses in African languages, at least six courses in all being in one language (e.g., three counting as preparation, three further counting as requirements for the major); African Languages 150A, 150B, 190, 192, Linguistics 100, 103; and three courses selected from Anthropology 107A, 107B, English 114, 123, Geography 189, History 125A, 125B, 125C, 126A, 126B, 127A, 127B, 128A, 128B, Linguistics 110, 120A, 120B, 140, M146, 170, Music 143A, 143B, Political Science 166A, 166B, 166C, 166D. Completion of the sixth quarter in one of the following non-African languages is strongly recommended: French, Dutch-Flemish-Afrikaans, German, Portuguese, Arabic. Also recommended: three additional courses in African languages.

The Graduate Linguistics Program

The programs leading to the M.A. and Ph.D. degrees in linguistics are open to qualified graduate students who are interested in the theory and methods of structural and historical linguistics. Preparation for graduate study in linguistics should be equivalent in as many respects as possible to the undergraduate curriculum in linguistics.

Admission to the Program

In addition to meeting the requirements of the Graduate Division, the applicant should have (1) an A.B. degree in linguistics or in a language or social science field, and (2) must have completed Linguistics 100, 103, 110, 120A-120B, and 165A-165B, or their equivalent. Letters from the applicant's former instructors should be provided and the applicant should submit to the Chairman a detailed account of his aims in graduate study of linguistics and his background for it. Scores on the Graduate Record Examination (verbal and quantitative) must be submitted with the application. A sample of the applicant's research should be submitted to the chairman where feasible (e.g., a term paper from some relevant course). Students will be admitted to begin residence in the fall quarter only (i.e. no winter and spring admissions) except by decision of the department chairman. Upon admission to graduate status, the student must consult a graduate adviser about the planning of his studies.

Requirements for the Master's Degree

General Requirements. See those of the Graduate Division.

The M.A. degree may be obtained either by the Thesis Plan or by the Comprehensive Examination Plan. Under both the student is required to complete nine graduate courses, with a grade average of B or better. Of the nine, six must be distributed among three areas: syntax-semantics, phonology-phonetics, and language change-variation-typology (at least one course in the lat-

ter area must be a course in historical linguistics). Each student must take at least three courses in one area, two in a second, and one in the third. The courses which may be taken to fulfill these requirements are: syntax-semantics: 206, 252A-B; phonology-phonetics: 201, 204, 251A-B; language change-variation-typology: 202, 253A-B (any course in the 250 series may be repeated for credit). The additional three courses may be selected in any area of interest.

Thesis Plan. After completing the required courses, the student will submit a thesis based on original research to his Thesis Committee for approval. The Committee, consisting of three faculty members, is to be established at least one quarter prior to the quarter in which the thesis is submitted, and is responsible for its final approval. *All students intending to proceed to the Ph.D. must adopt this plan.*

Comprehensive Examination Plan. After completing the required courses, the student will satisfactorily pass a comprehensive examination administered by a committee of the Linguistics faculty. This will normally be an oral examination, and result in a terminal M.A. degree.

Courses 103, 110, 120A, 120B, 165A, 165B are considered as undergraduate deficiency courses and are prerequisite to graduate courses in the corresponding areas. These courses may not be applied toward fulfillment of the nine courses requirement. Course 103 must be passed with a grade of B or better as prerequisite to 210A-210B, and if waived on the basis of training elsewhere the student must pass an examination in practical phonetics at the B level or better in order to take 210A-210B.

A student who enters the program without prior training in linguistics beyond the basic deficiency courses should expect to spend six quarters (two years) in the M.A. program. A student with one to three deficiencies will normally spend seven quarters in the program, and one with more than three deficiencies nine quarters.

The Language Requirement. All candidates for the M.A. must pass a reading examination, administered by a committee of the Department, in one foreign language. Languages other than standard research languages are acceptable only if approved by the committee, upon petition. Speakers of languages other than English are permitted to use English to meet the foreign language requirement, unless English was the language of instruction in their elementary and secondary education. The student should fulfill this requirement as early as possible in his graduate career, but in any case prior to taking the comprehensive examination or submitting the M.A. thesis.

Transfer Credit. No more than two courses (with grades of B or above) may be transferred toward the M.A. from institutions outside the University of California, though equivalent training elsewhere provides the basis for determining what courses the student would be well-advised to take.

Grades and Probationary Status. An average of 3.00 must be maintained in all course work. Students with grade records fractionally below 3.00 in a given term are considered to be on probation for the following term, during which term their grade record must be brought up to 3.00. Students whose grade records do not meet these minimal standards are subject to dismissal.

Requirements for the Doctor's Degree

Admission into the Ph.D. program of a student who has received the M.A. degree in Linguistics at UCLA will be contingent on the quality of the M.A. thesis and the faculty's evaluation of the student's overall work and promise. A student entering the graduate program who has already received an M.A. in Linguistics from another department or institution must fulfill all the requirements expected of entering students. This means the required course work, unless work elsewhere is considered equivalent and satisfies the course requirements. A student may submit a Master's thesis written at another institution or department for evaluation after the other requirements are fulfilled. Admission into the doctoral program may be contingent on a revision of the submitted M.A. thesis should the evaluating committee so recommend. A student with an M.A. in Linguistics from another institution who has not written a thesis elsewhere is not required to formally submit a thesis but is required to submit to the evaluation committee a paper equal in depth and scope to a thesis.

Candidates for the Ph.D. are required to take 32 units of graduate course work beyond the M.A. requirements. Eight of these units must be in supervised field work for which 210A-210B may serve, and eight in an area distinct from that of the student's major area of concentration. The 32 units may not include courses 597, 599, or 275 (colloquium). Of the 32 units, no more than twelve units may be in 596A. If the field methods or directed informant work (210A-B, 596B) were taken in fulfillment of the nine M.A. courses, they may not be included in the 32 additional units for the Ph.D. In order to be advanced to candidacy a student is required to present two substantive research papers of publishable quality in different areas of linguistics and to pass an oral qualifying examination in those areas of linguistics primarily relevant to his dissertation.

(The dissertation and the final oral examination are required in accordance with the requirements of the Graduate Division.) Before the dissertation is begun, the subject must be approved by the faculty of the Department, on the basis of a prospectus submitted to the candidate's doctoral committee, with a copy to the Department. Prerequisite to such approval is a presentation by the candidate of the proposal and the preliminary research at a meeting of the Linguistics Colloquium. The Linguistics Colloquium has meetings throughout the year. Advanced graduate students are required to participate.

The Ph.D. candidate must either (1) demonstrate a reading knowledge of two languages by passing examinations administered by a departmental committee (languages other than standard research languages are acceptable only if approved by the committee, upon petition); or (2) demonstrate a reading knowledge of one language at a high level of proficiency, as measured by an examination administered by a departmental committee (if the language does not have a substantial body of linguistic literature, the proficiency must include oral proficiency).

For information on student support in the form of fellowships, research assistantships, and teaching assistantships, consult the Chairman of the Department.

Language Sections of the Department

The African Languages section of the Linguistics Department offers instruction in many of the major languages of Africa, relevant comparative-linguistics courses, and courses in African literature. The section on Indigenous Languages of the Americas offers instruction in Quechua and native American languages, such as Navajo, when staffing permits. The section on South Asian Languages offers instruction in Thai, Tagalog and Hindi, when staffing permits.

■ General Linguistics

Lower Division Courses

1. Introduction to the Study of Language.

A summary, for the general undergraduate, of what is known about human language: the unique nature of human language, its structure, its universality, and its diversity; language in its social and cultural setting; language in relation to other aspects of human inquiry and knowledge.

Ms. Fromkin, Mr. Ladefoged, Ms. Thompson

2. Linguistics and Minority Dialects.

Prerequisite: course 1 or consent of the instructor. A survey of the main features of vocabulary, grammar, and pronunciation which distinguish the usage of Afro-American and Chicano-American speakers of English.

Mr. Wald

Upper Division Courses

100. Introduction to Linguistics.

An introduction to the theory and methods of linguistics: universal properties of human language; phonetic, phonological, morphological, syntactic, and semantic structures and analysis; the nature and form of grammar.

The Staff

103. Introduction to General Phonetics.

Prerequisite: course 100 or equivalent (100 may be taken concurrently with 103). The phonetics of a variety of languages and the phonetic phenomena that occur in languages of the world. Extensive practice in the perception and production of such phenomena. A special section emphasizes those languages likely to be of interest to teachers of English as a Second Language.

Ms. Fromkin, Mr. Ladefoged, Ms. Moskowitz

110. Introduction to Historical Linguistics.

Prerequisite: courses 100 and 103. The methods and theories appropriate to the historical study of language, such as the comparative method and method of internal reconstruction. Sound change, grammatical change, semantic change.

Mr. Anttila, Mr. Schuh, Mr. Stockwell

120A. Linguistic Analysis: Phonology.

Prerequisite: courses 100 and 103. Course 120A is not prerequisite to 120B. Descriptive analysis of phonological structures in natural languages: emphasis on insight into the nature of such structures rather than linguistic formalization.

Mr. Anderson, Mr. Bedell, Mr. Bright

120B. Linguistic Analysis: Grammar.

Prerequisite: course 100; course 120A is not prerequisite to 120B. Descriptive analysis of morphological and syntactic structures in natural languages: emphasis on insight into the nature of such structures rather than linguistic formalization.

Mr. Emonds, Mr. Bright, Ms. Thompson

130. Child Language Acquisition: Introduction.

Prerequisite: courses 100; 120A-120B or consent of instructor. A survey of contemporary research and theoretical perspectives in the acquisition of language. Emphasis on linguistic interpretation of existing data with some attention to relationship with second language learning, cognitive development, and other topics. Includes discussion of acquisition of English and other languages, and universals of linguistic development.

Ms. Moskowitz

131. Child Language Acquisition (for non-majors).

Prerequisite: course 1 strongly recommended. A survey of current knowledge of the acquisition of a first language by children, including some general processes of language learning and some specific cases from several languages. Some attention to animal communication, relation between language learning and teaching. Not open to Linguistics majors or Linguistics graduate students.

Ms. Moskowitz, Ms. Thompson

140. Linguistics in Relation to Language Teaching.

Prerequisite: course 100. Aspects of linguistics in relation to the teaching of language with particular focus on the special problems entailed in the teaching of non-European languages.

Mr. Stockwell

*145. Introduction to Computation in Linguistics.

Prerequisite: courses 100, 120A-120B. Introduction to the uses to which computers are put in linguistics and to such applications as mechanical translation and information retrieval; development of basic familiarity with programming and programming languages for linguistics purposes.

The Staff

M146. Language in Culture.

(Same as Anthropology M146.) Prerequisite: course 1 or Anthropology 177A-177B. The study of language as an aspect of culture; the relation of habitual thought and behavior to language; the problem of meaning.

Mr. Bright, Ms. McClaran

M150. Introduction to Indo-European Linguistics.

(Same as Indo-European Studies M150.) Prerequisite: one year of college level study (course 3 or better, 8 units minimum) of either Greek or Latin and either German or Russian. A survey of the Indo-European languages from ancient to modern times; their relationships and their chief characteristics.

Mr. Anttila, Mr. Puhvel

160. History of Linguistics Through the 19th Century.

Prerequisite: courses 120A-120B. Historical survey of the development of linguistics from Panini through the 19th century, including approaches to grammar, phonology, and language universals.

Mr. Anttila, Mr. Bedell, Ms. Fromkin

165A. Linguistic Theory: Phonology.

Prerequisite: course 120A. The theory of generative phonology; the form of phonological rules; formal and substantive phonological universals.

Mr. Anderson, Mr. Bedell, Ms. Fromkin

165B. Linguistic Theory: Grammar.

Prerequisite: course 120B. The form of grammars; word formation and sentence formation; formal and substantive universals in syntax; relation between syntax and semantics.

Mr. Bedell, Mr. Schachter, Ms. Thompson

170. Language and Society: Introduction to Sociolinguistics.

Prerequisite: course 100 or consent of instructor. Study of the patterned covariation of language and society; social dialects and social styles in language; problems of multilingual societies.

Mr. Bright, Mr. Wald

180. Mathematical Backgrounds for Linguistics.

Prerequisite: courses 120A, 120B. Introduction to selected topics in set theory, logic and formal systems, modern algebra, and automata theory, with elementary applications to linguistics. In any given quarter one or more of these topics may be emphasized. No previous mathematics assumed.

Mr. Emonds, Mr. Keenan

195. Senior Essay.

Prerequisite: consent of instructor; open only to Linguistics majors in their senior year. An extended piece of writing will be undertaken on a linguistic topic selected by the student to be completed under the supervision of a member of the faculty in Linguistics (either Linguistics Department or, as appropriate, some faculty of other departments). To enroll in this course the student must consult the professor in charge.

The Staff

199. Special Studies in Linguistics. (½ to 1 course)

Prerequisite: courses 120A, 120B, and consent of instructor. May be repeated for credit.

The Staff

Graduate Courses

201. Phonological Theory.

Prerequisite: courses 120A, 165A. Survey of current issues in phonological theory.

Mr. Anderson, Ms. Fromkin

202. Theory of Language Change.

Prerequisite: course 110. Survey of current issues in language change.

Mr. Anttila, Mr. Schuh

204. Experimental Bases of Linguistics.

Prerequisite: course 165A. Theory and practice in experimental research in phonetics and linguistics.

Ms. Fromkin, Mr. Ladefoged

206. Syntactic Theory.

Prerequisite: courses 120B, 165B. Survey of current issues in syntactic theory.

Mr. Emonds, Ms. Thompson, Mr. Schachter

210A. Field Methods I.

Prerequisite: courses 165A, 165B. A language unknown to members of the class to be analyzed from data elicited from an informant. The term papers will be relatively full descriptive sketches of the language of the informant. May be repeated for credit when a different language is under investigation.

Mr. Bright, Mr. Givón, Mr. Schachter

210B. Field Methods II.

Prerequisite: course 210A in the preceding quarter. Because different languages will be investigated in different years, 210B can only be taken as a direct continuation of 210A in the same year. When there are multiple sections, continuation must be in the same section. May be repeated for credit when a different language is under investigation.

Mr. Bright, Mr. Givón, Mr. Schachter

220A-220H. Linguistic Areas.

Prerequisite: courses 120A, 120B; recommended preparation: courses 165A and 165B. May be repeated, in different sections, for credit. Analysis and classification of languages spoken in a particular area. Offered in one or more of the following sections each year.

The Staff

220A. Africa.
220B. The Balkans.
220C. South Asia.
220D. Southeast Asia.
220E. Australia.
220F. Aboriginal North America.
220G. Aboriginal Latin America.
220H. The Far East.

225A-225Z. Linguistic Structures.

Prerequisite: courses 120A, 120B; recommended preparation: courses 165A and 165B; may be repeated, in different sections, for credit. Phonological and grammatical structure of a selected language, and its genetic relationships to others of its family. Though sectioned by families, the same language will not necessarily be the subject of the study each time that family is offered. Offered in one or more of the following sections each year.

The Staff

225A. Indo-European.
225B. Germanic.
225BB. Caucasian. Prerequisite: reading knowledge of at least one of French, German, or Russian.
225C. Slavic.
225D. Dravidian.
225E. Indo-Aryan.
225F. Uto-Aztecan.
225G. Romance.
225H. Japanese.
225J. Tai.
225K. Malayo-Polynesian.
225L. Finno-Ugric.
225M. Berber.
225N. Athabascan.
225P. Chinese.
225R. English Phonology.
225S. Swahili.
225T. Mayan.
225U. Persian Phonology and Syntax.
225V. Persian Syntax. Prerequisite: course 225U.
225W. Chadic.
225Y. Yoruba. Prerequisite: two years of Yoruba or consent of the instructor.
M225Z. The Structure of Modern Standard Dutch. (Same as Dutch M234.)

M246A. Linguistic Anthropology I.

(Same as Anthropology M276A.) Prerequisite: consent of instructor. Research in verbal interaction, emphasizing the use of conversational structures.

Mr. Moerman

M246B. Linguistic Anthropology II.

(Same as Anthropology M276B.) Prerequisite: consent of instructor. This seminar aims to provide interested students basic information on Black American English, an important minority dialect in the United States. The social implications of minority dialects will be examined from the perspectives of their genesis, maintenance and social functions. The seminar also aims to acquaint students with problems and issues in the field of sociolinguistics through a case study approach.

Ms. Mitchell-Kernan

M246C. Linguistic Anthropology III.

(Same as Anthropology M276C.) Prerequisite: consent of instructor. Problems in the relations of language to culture.

Ms. McClaran

Proseminars and Seminars (numbered 250 and above) may be repeated for credit, having been approved by the Graduate Council as nonrepetitive in content.

251A-251B. Topics in Phonetics and Phonology. Proseminar.

Prerequisite: course 165A. Course 251A is prerequisite to 251B. When there are multiple sections, continuation must be in the same section in the same year. Specialized topics in phonetics or phonology.

The Staff

252A-252B. Topics in Syntax and Semantics. Proseminar.

Prerequisite: course 165B. Course 252A is prerequisite to 252B. When there are multiple sections, continuation must be in the same section in the same year. Specialized topics in syntax and semantics.

The Staff

253A-253B. Topics in Language Variation. Proseminar.

Prerequisite: course 110. Course 253A is prerequisite to 253B. When there are multiple sections, continuation

*Not to be given 1976-1977.

must be in the same section in the same year. Specialized topics in language variation.

The Staff

254A-254B. Topics in Linguistics. Proseminar.

Prerequisite: courses 165A, 165B, and consent of instructor. When there are multiple sections, continuation must be in the same section in the same year. Individual proseminars will deal with such topics as child language, sociolinguistics, history of linguistic theory, neurolinguistics, languages of the world, psycholinguistics, etc.

261A-261B-261C. Seminar in Phonology. (½ or 1 course)

Prerequisite: completion of at least twelve units of graduate courses in phonology. 261A, 261B, and 261C may be taken independently of each other. Graded satisfactory/unsatisfactory.

The Staff

262A-262B-262C. Seminar in Syntax and Semantics. (½ or 1 course)

Prerequisite: completion of at least twelve units of graduate courses in syntax and semantics. 262A, 262B, and 262C may be taken independently of each other. Graded satisfactory/unsatisfactory.

The Staff

263A-263B-263C. Seminar in Language Variation. (½ or 1 course)

Prerequisite: completion of at least twelve units of graduate courses in language variation. 263A, 263B, and 263C may be taken independently of each other. Graded satisfactory/unsatisfactory.

The Staff

264A-264B-264C. Seminar in Special Topics in Linguistic Theory. (½ or 1 course)

Prerequisite: consent of instructor. 264A, 264B, and 264C may be taken independently of each other. Special topics may include child language, phonetics, neurolinguistics, psycholinguistics, sociolinguistics, etc. Graded satisfactory/unsatisfactory.

The Staff

275. Linguistics Colloquium.

Prerequisite: fulfillment of the M.A. requirements. Varied linguistic topics, generally presentations of new research by students, faculty, and visiting scholars. Graded satisfactory/unsatisfactory.

276. Linguistics Colloquium. (non-credit course)

Prerequisite: fulfillment of the M.A. requirements. Same as course 275, taken without credit by students not presenting a colloquium. Graded satsifactory/unsatisfactory.

The Staff

501. Cooperative Program. (½ to 2 courses)

Prerequisite: approval of UCLA graduate adviser and graduate dean. Approval of host campus instructor, department chairman, and graduate dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. Graded satisfactory/unsatisfactory.

Individual Study and Research

596A. Directed Studies. (¼ to 2 courses)

Prerequisite: completion of all undergraduate deficiency courses. May be applied toward fulfillment of M.A. course requirements. Directed individual study or research. May be repeated for credit. Graded satisfactory/unsatisfactory.

The Staff

596B. Directed Informant Work. (¼ to 2 courses)

Prerequisite: fulfillment of the M.A. requirements. Intensive informant work by students individually. May be repeated for credit. Graded satisfactory/unsatisfactory.

The Staff

597. Preparation for Master's Comprehensive and Doctoral Qualifying Examinations. (¼ to 2 courses)

Prerequisite: at least six graduate courses in linguistics. Can be taken *only* in the quarters in which the student expects to stand for his comprehensive or qualifying examinations. May not be applied toward fulfillment of M.A. course requirements. May be repeated for credit. Graded satisfactory/unsatisfactory.

The Staff

598. Research for Master's Thesis. (¼ to 2 courses)

Prerequisite: consent of chairman of guidance committee. Research and preparation of the M.A. thesis. May not be applied toward fulfillment of M.A. course requirements. May be repeated for credit, for a maximum of 8 units credit. Graded satisfactory/unsatisfactory.

The Staff

599. Research for Dissertation. (¼ to 4 courses)

Prerequisite: advancement to candidacy for the Ph.D. degree. May not be applied toward fulfillment of Ph.D. course requirements. May be repeated for credit. Graded satisfactory/unsatisfactory.

The Staff

■ African Languages

Upper Division Courses

101A-101B-101C. Elementary Swahili.

Five hours. The major language of East Africa, particularly Tanzania.

Mr. Hinnebusch

102A-102B-102C. Intermediate Swahili.

Five hours. Prerequisite: courses 101A-101B-101C or consent of the instructor.

Mr. Hinnebusch

103A-103B-103C. Advanced Swahili.

Prerequisite: courses 102A-102B-102C or consent of the instructor. Readings in Swahili literature and the contemporary press. Discussions mainly in Swahili.

Mr. Hinnebusch

***104A-104B-104C. Elementary Luganda.**

Five hours. A major language of Uganda.

Mr. Givón

***105A-105B-105C. Elementary Sotho.**

Five hours. Southern Sotho, spoken primarily in Basutoland and Orange Free State, mutually intelligible with adjacent Northern Sotho and Tswana.

Mr. Moloi

***106A-106B-106C. Intermediate Sotho.**

Five hours. Prerequisite: courses 105A-105B-105C or consent of instructor.

Mr. Moloi

***107A-107B-107C. Elementary Zulu.**

Five hours. The most widely spoken of the Nguni languages of South Africa, mutually intelligible with other members of this group.

Mr. Moloi

***108A-108B-108C. Intermediate Zulu.**

Five hours. Prerequisite: course 107A-107B-107C or consent of instructor.

Mr. Moloi

***109A-109B-109C. Elementary Xhosa.**

Five hours. A major Nguni language of South Africa, mutually intelligible with other members of this group.

Mr. Moloi

***110A-110B-110C. Intermediate Xhosa.**

Five hours. Prerequisite: courses 109A-109B-109C or consent of the instructor.

Mr. Moloi

111A-111B-111C. Elementary Yoruba.

Five hours. Prerequisite: consent of the instructor. The major language of western Nigeria.

The Staff

112A-112B-112C. Intermediate Yoruba.

Five hours. Prerequisite: courses 111A-111B-111C or consent of the instructor.

The Staff

113A-113B-113C. Elementary Igbo.

Five hours. The major language of eastern Nigeria.

Mr. Welmers

***114A-114B-114C. Intermediate Igbo.**

Five hours. Prerequisite: courses 113A-113B-113C or consent of the instructor.

Mr. Welmers

***115A-115B-115C. Elementary Twi.**

Five hours. The major language of Ghana, including Ashanti, Fante, and other mutually intelligible dialects.

The Staff

***121A-121B-121C. Elementary Fula.**

Five hours. The language of the Fulani, spoken in widely scattered areas of West Africa, including major concentrations in Guinea and the Nigeria-Cameroon area.

The Staff

***131A-131B-131C. Elementary Bambara.**

Five hours. Prerequisite: consent of the instructor. The major language of Mali, also widely spoken in adjacent parts of west Africa; includes Maninka (Malinke), Dyula, and other mutually intelligible dialects.

The Staff

***132A-132B-132C. Intermediate Bambara.**

Prerequisite: courses 131A-131B-131C or consent of instructor.

The Staff

***133A-133B-133C. Advanced Bambara.**

Prerequisite: courses 132A-132B-132C or consent of instructor. Readings in Bambara literature and the contemporary press. Discussions mainly in Bambara.

The Staff

141A-141B-141C. Elementary Hausa.

Five hours. The major language of northern Nigeria and adjacent areas.

Mr. Schuh

142A-142B-142C. Intermediate Hausa.

Five hours. Prerequisite: courses 141A-141B-141C or consent of the instructor.

Mr. Schuh

143A-143B-143C. Advanced Hausa.

Prerequisite: courses 142A-142B-142C or consent of the instructor. Readings in Hausa literature and the contemporary press. Discussions mainly in Hausa.

Mr. Schuh

150A-150B. African Literature in English Translation.

Courses 150A and 150B may be taken independently for credit. Narrative and didactic oral prose and poetry

*Not offered every year.

of sub-Saharan Africa, and written prose and poetry of South Africa.

Mr. Moloi

190. Survey of African Languages.
An introduction to the languages of Africa, their distribution and classification, and their phonological and grammatical structures; illustrations from several representative languages, with appropriate language laboratory demonstrations and drills.

Mr. Welmers

192. Comparative Studies in African Languages.
Prerequisite: two quarter courses in an African language, or course 190; Linguistics 110 is recommended as a prior or concurrent course. Comparison of structural and lexical features of a group of closely related languages, such as southern Bantu, southwestern Mande, Akan, or Senufo.

The Staff

199. Special Studies in African Languages. (¼ to 1½ courses)
Prerequisite: consent of the instructor. Instruction or supervised research based on the needs of the individual student, in any language or group of languages for which appropriate facilities are available.

The Staff

Graduate Courses

201A-201B. Comparative Niger-Congo.
Prerequisite: Linguistics 165A, 165B, 220A; recommended preparation: Linguistics 202; three quarter courses in one language selected from courses 101-132, 199. Investigation of relationships within the Niger-Congo family as a whole, or within selected branches of the family.

Mr. Welmers

202A-202B-202C. Comparative Bantu.
Prerequisite: Linguistics 165A, 165B, 220A; recommended preparation: Linguistics 202; three quarter courses in one Bantu language selected from African Languages 101-110, 199. Investigation of relationships among the Bantu languages; the extent and external relationships of Bantu.

Mr. Givón

270. Seminar in African Literature.

Mr. Moloi

Individual Study and Research

596. Directed Studies. (¼ to 2 courses)
Directed individual study or research. Up to one full course may be applied toward fulfillment of M.A. course requirements. May be repeated for credit. Graded satisfactory/unsatisfactory.

The Staff

Indigenous Languages of the Americas

Upper Division Courses

118A-118B-118C. Elementary Quechua.
Five hours. The language of the Incas and its present day dialects, as spoken in Andean South America.

Ms. McClaran

South Asian Languages

Upper Division Courses

***151A-151B-151C. Elementary Thai.**
Five hours. The major language of Thailand.

Mr. Campbell

***152A-152B-152C. Intermediate Thai.**
Prerequisite: courses 151A-151B-151C or consent of instructor.

Mr. Campbell

***161A-161B-161C. Elementary Tagalog.**
Five hours. The national language of the Philippines.

Mr. Bowen, Mr. Wilson

171A-171B-171C. Hindi.
Five hours.

Mr. Bright

Related Courses in Other Departments

(Other than Language Courses)

Anthropology 177A. Field Methods in Linguistic Anthropology: Practical Phonetics.
177B. Field Methods in Linguistic Anthropology: Descriptive Semantics.
276. Ethnolinguistics.

Arabic (Department of Near Eastern Languages) 280. Structure of Classical Arabic.

Armenian (Department of Near Eastern Languages) 210. History of the Armenian Language.

Czechoslovak (Department of Slavic Languages) 222. The Structure of Slovak.

English 121. The History of the English Language.
122. Introduction to the Structure of Present-day English.
210. History of the English Language.
215. The Structure of Present-Day English.
218. Celtic Linguistics.
240. Studies in the History of the English Language.
241. Studies in the Structure of the English Language.
250K. Contrastive Analysis of English and Other Languages. Seminar.
251K. Bilingual Comparative Studies. Seminar.
260K. Psycholinguistics and Language Teaching. Seminar.
270K. Language Policy in Developing Countries. Seminar.

Folklore 217. Folk Speech.

French 204A. Phonology and Morphology from Vulgar Latin to French Classicism.
204B. Syntax and Semantics from Vulgar Latin to French Classicism.
206A. French Grammatical Theory.
206B. Problems in French Syntax.

Germanic Languages 117. Language and Linguistics.
217. History of the German Language.
230. Survey of Germanic Philology.
251. Seminar in Syntax and Phonology of German.
252. Seminar in Historical and Comparative German Linguistics.

Hebrew (Department of Near Eastern Languages) 190A-190B. Survey of Hebrew Grammar.
210A-210B-210C. History of the Hebrew Language.

Indo-European Studies 210. Indo-European Linguistics. Advanced Course.
280A-280B. Seminar in Indo-European Linguistics.

Iranian (Department of Near Eastern Languages) 210A-210B. The History of the Persian Language.
211A-211B. Modern Iranian Dialects.

Italian 259A. History of the Italian Language.
259B. The Structure of Modern Italian.

Latin (Department of Classics) 240. History of the Latin Language.

Oriental Languages 175. The Structure of the Japanese Language.
223. History of the Japanese Language.

Philosophy 127A-127B. Philosophy of Language.
172. Philosophy of Language.
287. Seminar: Philosophy of Language.

Portuguese (Department of Spanish and Portuguese) 100. Phonology and Pronunciation.
103. Syntax.
M118. History of the Portuguese and Spanish Languages.
M203A-203B. The Development of the Portuguese and Spanish Languages.
M251. Studies in Galegan-Portuguese and Old Spanish.

Psychiatry 322. Language Disorders of Childhood.

Psychology 122. Language and Communication.
123. Psycholinguistics.
231. Seminar in Language and Communication.
260A. Psycholinguistics I. Seminar.
260B. Psycholinguistics II. Seminar.

Russian (Department of Slavic Languages)
121. Russian Phonology.
122. Russian Morphology.
123. Historical Commentary to Modern Russian.
204. Introduction to the History of the Russian Literary Language.
241. Russian Phonology.
242. Russian Morphology.
243A-243B. Historical Phonology and Morphology of Russian.
263. Russian Dialectology.
264. The Evolution of Literary Russian.
265. Russian Syntax.
266. Russian Lexicology.

Scandinavian Languages (Department of Germanic Languages) 210. History and Description of the Scandinavian Languages.

Semitics (Department of Near Eastern Languages) 209A-209B-209C. Comparative Study of the Ethiopian Languages.
280A-280B-280C. Seminar in Comparative Semitics.
290A-290B-290C. Comparative Morphology of the Semitic Languages.

Slavic Languages 202. Introduction to Comparative Slavic Linguistics.
242. Comparative Slavic Linguistics.
251. Introduction to Baltic Linguistics.
262A-262B. Western Slavic Linguistics.
263A-263B. Southern Slavic Linguistics.
281. Seminar in Slavic Linguistics.
282. Seminar in Structural Analysis.

Sociology 144. Conversational Structures.
266. Selected Problems in the Analysis of Conversation.
267. Selected Problems in Communication.

Spanish (Department of Spanish and Portuguese) 100. Phonology and Pronunciation.
103. Syntax.
115. Applied Linguistics.

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*Not offered every year.

M118. History of the Portuguese and Spanish Languages.
M203A-203B. The Development of the Portuguese and Spanish Languages.
204A-204B. Transformational Grammar.
206. Linguistics.
209. Dialectology.
M251. Studies in Galegan-Portuguese and Old Spanish.
256A-256B. Studies in Linguistics and Dialectology.

Speech 103. Phonetics of English.
104. Science of Speech.

Turkic Languages (Department of Near Eastern Languages) 230A-230B-230C. A Historical and Comparative Survey of the Turkic Languages.

■ MANAGEMENT

(Department Office, 3250 Graduate School of Management)

Robert B. Andrews, Ph.D., *Professor of Management.*
William F. Brown, Ph.D., *Professor of Marketing.*
John W. Buckley, Ph.D., *Professor of Accounting and Information Systems.*
Elwood S. Buffa, Ph.D., *Professor of Management Science and Operations Management.*
Leland S. Burns, Ph.D., *Professor of Urban Planning.*
Joseph D. Carrabino, Ph.D., P.E., *Professor of Management.*
Fred E. Case, D.B.A., *Professor of Urban Land Economics.*
Louis E. Davis, M.S., *Professor of Organizational Sciences and Research Socio-Technical Scientist.*
David K. Eiteman, Ph.D., *Professor of Finance.*
Hy Faine, J.D., *Adjunct Professor of Arts Management.*
Donald E. Farrar, Ph.D., *Professor of Finance in Residence.*
Walter A. Fogel, Ph.D., *Professor of Industrial Relations, and Research Economist, Institute of Industrial Relations.*
Arthur M. Geoffrion, Ph.D., *Professor of Management Science.*
Glenn W. Graves, Ph.D., *Professor of Quantitative Methods.*
James N. Hodgson, A.B., *Adjunct Professor of Management.*
Alfred E. Hofflander, Ph.D., *Professor of Finance and Insurance.*
John E. Hutchinson, Ph.D., *Professor of Industrial Relations, and Research Political Scientist, Institute of Industrial Relations.*
James R. Jackson, Ph.D., *Professor of Management.*
Raymond J. Jessen, Ph.D., *Professor of Business Statistics and Professor of Public Health.*
Harold H. Kassarjian, Ph.D., *Professor of Management.*
Paul Kircher, Ph.D., C.P.A., *Professor of Accounting and Information Systems.*
Archie Kleingartner, Ph.D., *Professor of Industrial Relations.*
James B. MacQueen, Ph.D., *Professor of Management.*
Robert Hal Mason, Ph.D., *Professor of International Business and Business Policy.*
Fred Massarik, Ph.D., *Professor of Behavioral Science and Industrial Relations, and Research Behavioral Scientist, Institute of Industrial Relations.*
Frederic Meyers, Ph.D., *Professor of Industrial Relations.*
Frank G. Mittelbach, M.A., *Professor of Management and Research Economist.*
Rosser T. Nelson, Ph.D., *Professor of Management.*
Alfred Nicols, Ph.D., *Professor of Business Economics.*
Anthony P. Raia, Ph.D., *Professor of Management.*
Barry M. Richman, Ph.D., *Professor of Management and Industrial Business.*
John P. Shelton, Ph.D., *Professor of Finance.*
Keith V. Smith, Ph.D., *Professor of Finance and Business Economics.*
R. Clay Sprowls, Ph.D., *Professor of Computers and Information Systems.*
George A. Steiner, Ph.D., Litt.D., *Professor of Management and Public Policy.*
Robert Tannenbaum, Ph.D., *Professor of the Development of Human Systems.*
J. Fred Weston, Ph.D., *Professor of Finance and Business Economics.*
Harold M. Williams, J.D., *Professor of Management.*
Robert M. Williams, Ph.D., *Professor of Business Economics and Statistics.*
Ralph M. Barnes, Ph.D., *Emeritus Professor of Engineering and Production Management.*
A. B. Carson, Ph.D., C.P.A., *Emeritus Professor of Accounting.*
Ralph Cassady, Jr., Ph.D., *Emeritus Professor of Marketing.*
John C. Clendenin, Ph.D., *Emeritus Professor of Finance.*
Ira N. Frisbee, M.B.A., C.P.A., LL.D., *Emeritus Professor of Accounting.*
Leo Grebler, Ph.D., *Emeritus Professor of Urban Land Economics.*
Ralph C. Hoeber, J.D., Ph.D., *Emeritus Professor of Business Law.*
†Neil H. Jacoby, Ph.D., LL.D., *Emeritus Armand Hammer Professor of Business Economics and Policy.*
Erwin M. Keithley, Ed.D., *Emeritus Professor of Management.*
†Harold Koontz, Ph.D., *Emeritus Mead Johnson Professor of Management.*
†Jacob Marschak, Ph.D., *Emeritus Professor of Management Science and Economics.*
Wayne L. McNaughton, Ph.D., *Emeritus Professor of Management.*

†Recalled to active service.

George W. Robbins, M.B.A., *Emeritus Professor of Marketing.*
Harry Simons, M.A., C.P.A., *Emeritus Professor of Accounting.*
Ichak Adizes, Ph.D., *Associate Professor of Managerial Studies.*
Theodore A. Andersen, Ph.D., *Associate Professor of Business Economics and Finance.*
James R. Bettman, Ph.D., *Associate Professor of Management.*
Lee G. Cooper, Ph.D., *Associate Professor of Human Systems Development.*
Samuel A. Culbert, Ph.D., *Associate Professor of Human Systems Development.*
John R. Dominguez, Ph.D., *Associate Professor of Business Economics.*
James S. Dyer, Ph.D., *Associate Professor of Management Science.*
Donald Erlenkotter, Ph.D., *Associate Professor of Planning and Decision Sciences.*
Eric Flamholtz, Ph.D., *Associate Professor of Accounting and Information Systems.*
Richard A. Goodman, D.B.A., *Associate Professor of Management.*
J. Morgan Jones, Ph.D., *Associate Professor of Management Science.*
Larry J. Kimbell, Ph.D., *Associate Professor of Business Economics.*
Clement Krouse, Ph.D., *Associate Professor of Business Economics.*
Bennett P. Lientz, Ph.D., *Associate Professor of Computers and Information Systems.*
Steven A. Lippman, Ph.D., *Associate Professor of Quantitative Methods.*
Richard O. Mason, Ph.D., *Associate Professor of Information Systems.*
Marvin May, Ph.D., *Adjunct Associate Professor of Management.*
John J. McDonough, D.B.A., *Associate Professor of Accounting and Information Systems.*
Bill McKelvey, Ph.D., *Associate Professor of Management and Organization Design.*
Ephraim R. McLean, Ph.D., *Associate Professor of Information Systems.*
Daniel J. B. Mitchell, Ph.D., *Associate Professor of Industrial Relations.*
John J. Morse, Ph.D., *Associate Professor of Organizational Behavior.*
Masao Nakanishi, Ph.D., *Associate Professor of Management.*
Frank E. Norton, Ph.D., *Associate Professor of Business Economics.*
Hans Schöllhammer, D.B.A., *Associate Professor of Management Theory and International Business.*
Shahid L. Ansari, Ph.D., *Assistant Professor of Accounting and Information Systems.*
Jerry L. Arnold, Ph.D., *Assistant Professor of Accounting and Information Systems.*
Benjamin Bobo, Ph.D., *Assistant Professor of Management in Residence.*

Noel Capon, Ph.D., *Assistant Professor of Management.*
John M. Clapp, Ph.D., *Assistant Professor of Management.*
Thomas E. Copeland, Ph.D., *Assistant Professor of Finance.*
Michael E. Granfield, Ph.D., *Assistant Professor of Urban Land Economics.*
Anne S. Huff, Ph.D., *Assistant Professor of Management.*
Richard J. Lutz, Ph.D., *Assistant Professor of Marketing.*
David Mayers, Ph.D., *Assistant Professor of Management.*
Alfred E. Osborne, Jr., Ph.D., *Assistant Professor of Management.*
Kenneth Siler, Ph.D., *Assistant Professor of Computers and Information Systems.*
James Taylor, Ph.D., *Assistant Professor of Socio-Technical Systems.*
Kenneth W. Thomas, Ph.D., *Assistant Professor of Conflict Management.*

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William T. Bailey, M.P.A., *Acting Assistant Professor of Accounting and Information Systems.*
Robert S. Bolan, M.S., *Lecturer in Management.*
William H. Broesamle, M.B.A., *Lecturer in Management.*
Gerald F. Corrigan, M.B.A., *Lecturer in Management.*
Carol Kovach, M.P.A., *Lecturer in Management.*
Joan K. Lasko, Ph.D., *Lecturer in Behavioral Science.*
James G. Manegold, M.B.A., *Acting Assistant Professor of Accounting and Information Systems.*
Vinay V. Marathe, M.S., M.B.A., *Acting Assistant Professor of Management.*
Paul Prasow, Ph.D., *Senior Lecturer in Industrial Relations and Research Economist, Institute of Industrial Relations.*
Warren H. Schmidt, Ph.D., *Senior Lecturer in Behavioral Science.*
Edward V. Sedgwick, Ph.D., *Lecturer in Management.*
E. Burton Swanson, Ph.D., *Acting Assistant Professor of Management.*

Lower Division Courses

1A-1B. Elementary Accounting.

Prerequisite: sophomore standing. Course 1A is prerequisite to course 1B. An introduction to accounting theory and practice. The first quarter presents the recording, analyzing and summarizing procedures used in preparing balance sheets and income statements. The second quarter includes payroll and tax accounting, partnership and corporation accounts, manufacturing and cost accounting and supplementary statements.

The Staff

13G. Computer Programming for Graduate Students.

Designed to provide the graduate student with a programming skill in a particular computer language. (e.g., APL, FORTRAN, COBOL, JCL). The selection of the language to be taught in any given quarter will depend upon demand and available resources. May be repeated.

Mr. McLean in charge

Upper Division Courses

Upper division courses in management are open to all University students who have completed the necessary prerequisites.

100. Business Economics.

Prerequisite: Mathematics 2A-2B-2C, course 115A (may be taken concurrently). 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, capital budgeting.

Mr. Krouse, Mr. Nichols, Mr. Smith

101. Business Fluctuations and Forecasting.

Prerequisite: courses 100, 115A, and Economics 160 (may be taken concurrently). How the enterprise reacts to general economic fluctuations and how its decisions, in turn, affect them. Important forces in past fluctuations. Behavior of indexes of business activity. Appraisal of forecasting techniques. Entrepreneurial and public policies to mitigate business fluctuations.

Mr. Granfield, Mr. Norton

108. Legal Analysis for Business Managers.

Must be completed in the first year of residence. Significance and growth of the law; the 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.

The Staff

109. Business Communications.

The development of information, skills, and attitudes as they relate to the types of communication required in the management of enterprises.

The Staff

111. Introduction to Operations Research.

Prerequisite: course 430, 431B, or equivalent. Survey of operations research from an applied rather than theoretical viewpoint. Emphasis on the formulation of mathematical models and the most basic techniques for obtaining useful results. Problem types discussed: allocation, competition, inventories, networks, project management, waiting lines, replacement, sequencing, transportation.

Mr. Bettman, Mr. MacQueen, Mr. Nelson

113A. Computer Data Processing.

An introduction to computer data processing for students with little or no previous experience with computing. Computer hardware and software concepts are discussed, as well as the application of computers to business problems. Computer programming problems, using COBOL, are assigned.

Mr. Siler, Mr. Sprowls

113B. Computer Programming Methods.

Prerequisite: Engineering 10, course 113A or 413, or equivalent experience with some general purpose programming language. Use of PL/1 for programming business applications and for use in management problem-solving. Extensive programming assignments are designed to prepare the student for undertaking substantial data processing projects.

Mr. Siler, Mr. Sprowls

115. Business Statistics.

Prerequisite: Mathematics 2A-2B-2C or the equivalent. Elements of probability, probability distributions, estimation and confidence intervals, tests of significance and of hypotheses, linear regression and correlation, time series analysis and principles of index numbers. Applications to the analysis of and the decision-making aspects of everyday business problems.

Mr. Jessen and the Staff

116A. Statistical Methods: Decision.

Prerequisite: course 115 or graduate status. Statistical decision under uncertainty; statistical decision rules and their evaluation; Bayesian inference; applications to business problems.

Mr. Jones, Mr. Lippman, Mr. Nelson

116B. Statistical Methods: Analysis.

Prerequisite: course 115 or equivalent. Analysis of variance; design and analysis of statistical experiments and surveys; multiple regression and correlation, curvilinear regression; analysis of enumeration data; nonparametric methods.

Mr. Jessen

120. Intermediate Accounting.

Prerequisite: courses 1A-1B or consent of the instructor. The preparation of the principal accounting statements. Recording, valuation, and presentation of cash, temporary investments, receivables, inventories, investments, plant and equipment, intangibles, current obligations, long-term debt, paid-in capital and retained earnings. Statement analysis. Statement of application of funds.

The Staff

120M. Management Accounting.

Prerequisite: course 120 or consent of the instructor. Not open to students who have credit for course 403. Management Accounting theory and methods; formulation and analysis of management reports; internal control; planning and budgeting; cost-volumes—profit analysis; elements of cost accounting; price-level accounting; learning curves and capital budgeting.

The Staff

122. Cost Accounting.

Prerequisite: course 120M or consent of the instructor. The nature, objectives, and procedures of cost accounting and control; job costing and process costing; accounting for manufacturing overhead; cost budgeting; cost reports; joint-product costing; distribution cost; standard costs; differential cost analysis; profit-volume relationships and break-even analysis.

The Staff

124. Advanced Accounting.

Prerequisite: courses 120, 122 or consent of the instructor. Partnerships and joint ventures; installment sales and consignment sales, home, office and branch relationships; corporate combinations; the preparation of consolidated statements; foreign branches and subsidiaries; receiverships; estates and trusts; governmental units; actuarial science.

Mr. Bailey

130. Business Finance.

A study of the forms and sources of financing business firms large and small, corporate and noncorporate. The emphasis is on financial planning and developing judgment in formulating decisions on financial problems. Financial problems are also considered in their social, legal and economic effects.

Mr. Copeland, Mr. Dominguez, Mr. May

133. Investment Principles and Policies.

Principles underlying investment analysis and policy; salient characteristics of governmental and corporate securities; policies of investment companies and investing institutions; relation of investment policy to money markets and business fluctuations; security price-making forces; construction of personal investment programs.

Mr. Elteman, Mr. Smith

135. Principles of Insurance.

Basic principles of risk and insurance and their applications to business management and personal affairs. Analysis of concepts and methods of handling risks; insurance carriers, contracts and underwriting; loss prevention and settlement; government insurance programs; economic functions of insurance.

Mr. Hofflander

140. Elements of Production and Operations Research.

Prerequisite: course 115 or consent of the instructor. Principles and decision analysis related to the effective utilization of the factors of production in manufacturing and nonmanufacturing activities for both intermittent and continuous systems. The study of production organizations, analytical models and methods, facilities design, and the design of control systems for production operations.

The Staff

150. Elements of Industrial Relations.

Principles and methods of effectively utilizing human resources in organizations. The relationship between social, economic, and other environmental factors and current problems in industrial relations.

Mr. Fogel, Mr. Hutchinson, Mr. Mitchell

160. Elements of Marketing.

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.

Mr. Kassarjian, Mr. Nakanishi

163. Advertising Principles and Policies.

Prerequisite: course 160. The preparation, use and administration of advertising, emphasizing the use of research to direct and measure the effectiveness of each stage in the operation. The economic and social implications of advertising also are evaluated.

Mr. Kassarjian

175. Elements of Real Estate and Urban Land Economics.

An examination of business decision making as related to logical forces shaping cities and influencing real estate market functions and land uses. Emphasis is placed on decision making as it relates to appraising, building, financing, managing, marketing and using urban property.

Mr. Case, Mr. Clapp, Mr. Mittelbach

180. Behavioral Science Foundations.

An introduction to selected concepts in behavioral science, their integration and application to management. Organization, group, cultural, individual behavior in relation to managerial environment and functional fields of business administration. Simulations and demonstrations of behavioral science principles.

Ms. Lasko, Mr. McKelvey, Mr. Morse

182. Leadership Principles and Practice.

Knowledge and skills leading to effectiveness in interpersonal relations. Understanding oneself as a leader, and others as individuals and as members of working groups. Understanding of group process, including group leadership. Lectures and "sensitivity training" laboratory.

Mr. Culbert, Ms. Lasko, Mr. Tannenbaum

190. Management Theory and Policy.

Prerequisite: consent of instructor. A study of the basic concepts and theory of management. Emphasis is on an operational analysis of the manager's role in all types of organizations. The course deals with management issues in the areas of planning, organizing, staffing, directing and controlling.

Mr. Carrabino and the Staff

M191. Judgment of Systems and Systems of Judgment.

Prerequisite: upper-division standing; well qualified lower-division students may be admitted with consent of the instructor. Action-oriented decision making, from the "systems" viewpoint, with attention focused on the crucial issue of "asking the right questions." Emphasizes complex social/political/economic/professional problems where pertinent facts, goals and action alternatives are largely matters of judgment.

Mr. Jackson

197. Special Topics in Management.

Topics of special interest to undergraduate students. Specific subjects to be covered may change each quarter depending on particular interest of instructors or students. May be repeated for credit.

The Staff

199. Special Studies in Management. (¼ to 2 courses)

Prerequisite: senior standing and consent of the instructor and the dean by special petition available in the Student Affairs Office.

The Staff

Graduate Courses

200A. Techniques of Business Economics Analysis: Marginalist Models.

Prerequisite: courses 401 or 432A, and Economics 145 or consent of instructor. Contemporary business economic principles of resource allocation and the price system are developed. Classical optimization and comparative static techniques are set forth and applied to the models of consumer choice and firm and general production-exchange equilibrium models.

Mr. Granfield, Mr. Krouse, Mr. Osborne

200B. Techniques of Business Economic Analysis: Econometrics.

Prerequisite: course 218C or consent of instructor. Standard topics in applied econometric modeling are developed. The assumptions underlying the classical normal linear regression model, special problems in application, and interpretation of results are stressed. Practical applications are extensively developed in student projects.

Mr. Kimbell, Mr. Krouse, Mr. Mayers

201A. Business Forecasting.

Prerequisite: courses 100, 101, or 401, 406 and 115 or 407. 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.

Mr. Kimbell, Mr. Norton, Mr. R. Williams

201B. Industry Forecasting.

Prequisite: course 201A. Evaluation of various methodologies found useful in preparing industry forecasts; differences between short- and long-range forecasting techniques, etc.

Mr. Andersen, Mr. Kimbell

201C. Regional Economic Forecasting.

Prerequisite: course 201A. Forecasting of economic activity in a region; emphasizing special problems such as population and industry migration; the effects of external forces on the regional economy.

Mr. Granfield, Mr. Kimbell, Mr. R. Williams

201D. Economic Policy and Business Environment.

Prerequisite: consent of instructor. Analysis of economic policies shaping the business policy: stabilizing policy instruments; structural policies for efficiency and progress; policy needs for the future. Treats policy formation and administration as well as design.

Mr. Jacoby, Mr. Nicols, Mr. Norton

202A. Economic Theories of Business Behavior: Marginal, Managerial and Behavioral.

Prerequisite: course 200A. The economic behavior of the firm and firm groups is considered. Theories extending from those which retain marginal analysis to treat alternative corporate objectives to those viewing the firm as an adaptive mechanism with limited cognitive and information processing capabilities.

Mr. Krouse, Mr. Nicols, Mr. Weston

202B. Principles of Industrial Organization.

Prerequisite: course 200A. The course develops analysis principles necessary for understanding the economic structure and behavior of industries. Topics range from substitutability criteria for industry definition and a comparison of alternative classification schemes to the relationships among industry structure, conduct and performance.

Mr. Granfield, Mr. Krouse, Mr. Weston

202C. Empirical Studies in Industrial Organization.

Prerequisite: course 202B. Analyses of factors influencing the size of industries, their size distribution, and the conditions of entry and exit are investigated. Implications of such industry characteristics are derived for decisions having to do with firm output, prices, advertising, and research/development.

Mr. Krouse, Mr. Nicols, Mr. Weston

202D. The Organization of Industry and Business Policy.

Prerequisite: consent of instructor. Analysis of economic aspects of long-range planning of firms with respect to horizontal expansion, vertical integration and diversification, especially the review of statutory and legal decisions affecting internal and external expansion policies.

Mr. Granfield, Mr. Nichols, Mr. Weston

M203A. Economics of Decision.

(Same as Economics M203A). Prerequisite: rudiments of economic theory, calculus, and probabilities of statistics (e.g., course 116A). Norms and facts of decision making in household, business, and government. Consistent behavior in terms of personal utilities and probabilities. Departures from consistency: stochastic theories of behavior and resulting econometric models.

Mr. Dyer, Mr. Erlenkotter, Mr. Marschak

M203B. Economics of Information.

(Same as Economics M203B.) Prerequisite: rudiments of economic theory of the firm, and of calculus and probabilities or statistics (e.g., course 116A); course M203A, or consent of the instructor. Optimal decision and information rules. Amount, cost and value of information.

Mr. Marschak

M203C. Economics of Organization.

(Same as Economics M203C.) Prerequisite: course 203A-203B. Rational models of teams. Relation to the theory of games.

Mr. Marschak

205A. International Business Economics.

Prerequisite: courses 401, 406 or consent of the instructor. The international business environment, international economic institutions, national and regional trade policies and developments, trends in foreign markets, international monetary problems are studied for their influence on the organization and operation of the international corporation.

Mr. R. H. Mason, Mr. Mitchell, Mr. Schollhammer

205B. Comparative Market Structure and Competition.

Prerequisite: course 205A or consent of the instructor. A comparative study of public policies toward competition, market structures and competitive practices in key industries in selected countries.

Mr. Nicols, Mr. Osborne, Mr. R. Williams

205C. Business Forecasting for Foreign Economies.

Prerequisite: course 201A or consent of the instructor. Forecasting changes in business activity, population, industrial structure, productivity, Gross National Product and its components for selected countries.

Mr. Osborne, Mr. R. Williams

207A. Resource Administration of Nonmarket Activities.

Prerequisite: courses 401 and 406, or consent of instructor. Examination of the proper economic role of

nonmarket institutions, and of the allocation of societal resources between the public and private sectors via market and nonmarket mechanisms. Definition and application of economic efficiency to resource allocations.

Mr. Granfield, Mr. Nicols

207B. Public Services and Private Functions.

Prerequisite: courses 401, 406, or course 175, or consent of instructor. Sources and uses of federal, state, and local revenues and their impacts on public and private resource allocations. Examination of the proper roles of government and the private sector in the financing and provision of public goods and services.

Mr. Granfield, Mr. Osborne

208. Selected Topics in Business Economics.

Prerequisite: consent of instructor. Special topics in business economics. Current development in theory or practice in business economics. May be repeated for credit.

The Staff

210A. Mathematical Programming.

Prerequisite: Mathematics 12A. A comprehensive development of the theory and computational methods of linear programming, with applications to business and related disciplinary areas.

Mr. Graves

210B. Applied Stochastic Processes.

Prerequisite: Mathematics 150A or Engineering 120A. Sequential stochastic (usually Markovian) decision processes in discrete and continuous time, emphasis is on problem formulation and the characterization and computation of optimal policies, often via dynamic programming; application to inventory, queueing, maintenance, reliability, and replacement problems.

Mr. Lippman

M210C. Network Flows and Combinatorial Programming.

(Same as Engineering M299D.) Prerequisite: course 210A. Theory and techniques of discrete models in Operations Research. Integer programming, combinatorial programming, and network flows. Applications to various allocation, coordination, scheduling, and sequencing problems.

Mr. Geoffrion, Mr. Graves

211A. Nonlinear Mathematical Programming.

Prerequisite: Mathematics 12B. Theory, methods, and application of the optimization of nonlinear systems. Review of classical optimization methods; optimality and duality theory for convex programs; main computational approaches to convex programming; survey of current computer codes and computational experience.

Mr. Dyer, Mr. Geoffrion, Mr. Graves

M211B. Large-Scale Mathematical Programming.

(Same as Engineering M299C.) Prerequisite: two quarters of previous work in linear and nonlinear programming. Theory and computational methods for optimizing large-scale linear and nonlinear programs. Exploitation of special structures with combinatorial, dynamic, multidivisional, and stochastic aspects to obtain practical solution procedures in spite of large numbers of variables and/or constraints.

Mr. Geoffrion, Mr. Graves

213A. Intermediate Probability and Statistics.

Prerequisite: previous course work in statistics and mathematics. An introduction to probability theory and hypothesis testing as applied to management.

Mr. Jones, Mr. Lippman

213B. Statistical Methods in Management.

Prerequisite: courses 213A, 402 or consent of instructor. An introduction to parameter and interval estimation, simple and multiple linear regression and correlation, fixed, random, and mixed effects analysis of variance models and non parametric statistics, all as they apply to management studies.

Mr. Cooper, Mr. Jones, Mr. Lippman

213C. Introduction to Multivariate Analysis.

Prerequisite: course 213B or consent of instructor. Introduction to multivariate technology used in research in socio-technical systems, marketing, psychology, education, and sociology. This course will provide a basic understanding of multiple regression, analysis of covariance, multivariate analysis of variance, discriminant analysis, canonical correlation, and factor analysis.

Mr. Cooper

214B. Behavioral Science Models.

Prerequisite: consent of the instructor. Formulation, analysis, and interpretation of mathematical models in the behavioral sciences. Emphasis is on stochastic process models for aspects of individual and group behavior such as learning, problem solving, classification, communication, bargaining, and social exchange systems.

Mr. MacQueen

215D. Time Series Analysis.

Prerequisite: course 116B or consent of the instructor. Econometric models and advanced time series analysis in measuring trends and fluctuations in business series, electronic computers in the analysis of business series; input-output analysis; the learning curve.

Mr. Granfield

215E. Statistical Design of Surveys.

Prerequisite: course 116B or equivalent. Mathematical theory and practices of statistical survey design and analysis.

Mr. Jessen

M215F. Statistical Design of Experiments.

(Same as Engineering M275A.) Prerequisite: course 116B and Mathematics 11C. Matrix treatment of linear hypotheses in statistical experimentation. Statistical estimation, tests of hypotheses, analysis of variance, regression models. Randomized blocks, factorial. Latin square, multiple factor and level experiments. Principles of orthogonality, confounding, fractional replication, incomplete block designs with applications.

Mr. Coleman

M216A. Queueing Systems: Theory and Applications.

(Same as Engineering M223A.) Prerequisite: course 210B or Engineering 120A. Analysis of queueing (waiting line) systems. Discrete and continuous time Markov processes; birth and death processes; equilibrium results for single and multiple server queues; method of stages. Priority queueing systems. Applications to communication systems, data-processing systems, time-shared processors, networks of computer and communication systems.

Mr. Kleinrock

M216B. Advanced Queueing Theory and Applications.

(Same as Engineering M223B.) Prerequisite: course M216A. Advanced topics in queueing theory, including Lindley's Integral Equation, Pollaczek method, busy period and virtual waiting time. Method of collective marks. Inequalities and bounds in queueing theory. Tandem queues. An algebra for queues. Applications to communication nets, computer systems and time-sharing systems.

Mr. Kleinrock

217A. Statistical Decision Theory.

Prerequisite: course 116A or equivalent; Mathematics 152A recommended. Relationships among statistical decision theory, game theory, and classical statistical inference, with emphasis on sequential analysis and dynamic decision processes; axiomatic foundations, Bayes' and minimax solutions, applications to selected models of dynamic decision problems in business.

Mr. Lippman, Mr. MacQueen

217B. Game Theory.

Prerequisite: course 116A; Mathematics 152A recommended. Nature of models for rational behavior in presence of conflicts of interests, zero-sum and nonzero-sum games, two-person and many-person games, state of the art, philosophical and computational limitations, relations with individual and group decision making.

Mr. Jackson, Mr. MacQueen

218A. Selected Topics in Operations Research. (¼ to 1 course)

Prerequisite: consent of the instructor. Newly developing topics and viewpoints. Topics have included reliability and optimal maintenance theory, large-scale distribution/inventory systems, and Markovian decision processes under uncertainty. May be repeated for credit.

The Staff

218C. Selected Topics in Business Statistics. (¼ to 1 course)

Prerequisite: consent of the instructor. Special topics in statistical methods. Current developments in statistical theory and practice. Analysis of recent literature. Topics and instructors will be announced when they become known. May be repeated for credit.

The Staff

218D. Current Problems in Operations Research. (¼ to 1 course)

Current research on a variety of topics in the general area of operations research, presented by invited university and outside speakers. May be repeated for credit.

The Staff

218XYZ. Current Issues in Operations Research. (¼ to 1 course)

Current issues and research on a variety of topics in the general area of operations research. May be repeated for credit.

The Staff

220A. Technical Foundations in Accounting.

Prerequisite: course 403 or consent of instructor. The role of accounting in the internal management of enterprises is emphasized. Topics include accounting information in production, marketing, and human resources management; investment analysis, cost accounting systems; role of accounting in tax planning, forecasting, budgeting; financial and operational auditing.

Mr. Arnold, Mr. Buckley, Mr. Manegold

220B. Financial Accounting I.

Prerequisite: consent of instructor. The course deals with concepts and principles of financial accounting with emphasis upon the pronouncements of the AICPA. Current practice in the recording, valuation, and presentation of financial statements is reviewed. Application of these principles to contemporary problems is stressed.

Mr. Arnold, Mr. Bailey, Mr. Manegold

220C. Financial Accounting II.

Prerequisite: consent of instructor. In addition to providing a continuation of 220B, this course gives special attention to a range of topics which include accounting for partnerships, mergers, combinations, and parent-subsidiary relationships. Litigation procedures are reviewed including reorganizations, receiverships, and bankruptcy.

Mr. Bailey

221. Current Issues in Accounting Information Systems.

Prerequisite: consent of instructor. Using a colloquium format, the course provides a forum for the discussion of contemporary issues in accounting and information systems. Drawing on prominent speakers in the field, the course requires the student to formulate a position paper on each topic presented.

The Staff

222. Cost Accounting.
Prerequisite: course 220A or consent of instructor. The nature, objectives, and procedure of cost accounting and control; job costing and process costing; joint product costing, standard costs; theories of cost allocation and absorption; uses of cost accounting data for management decision making.
Mr. Ansari, Mr. McDonough

223. Verification of Financial Statements.
Problems of examination, verification, and presentation of financial statements from the standpoint of the independent public accountant. Legal and professional responsibilities of public accountants; professional ethics. Operational and management auditing.
Mr. Arnold, Mr. Kircher

224A. Computer Systems.
Prerequisite: course 113B or 413 or consent of the instructor. The specification and configuration of computer-based systems for management applications. Methods for costing system hardware and software and for assessing computer performance. Trade-off analysis of comparative computer configurations. Case materials and/or actual examples are used.
Mr. Lientz, Mr. McLean, Mr. Siler

224B. Management of Computer-Based Information Systems.
Prerequisite: course 224A or consent of the instructor. An in-depth coverage of the problems in managing computer-based information systems. Focuses on the definition, evaluation, installation, and continuing management of EDP systems. Issues of planning and control, as well as the organizational impact of computer systems, are stressed.
Mr. McLean, Mr. Sprowls

224C. Systems Analysis For Computer-Based Information Systems.
Prerequisite: courses 224A and 225A or consent of the instructor. The detailed design and specification of computer-based management information systems. Includes studies of existing systems, economic and organizational analyses of alternatives, and tools for determining user requirements. Case materials and/or actual examples are used.
Mr. Lientz, Mr. McLean, Mr. Siler

224D. Generalized Data Base Management Systems.
Prerequisite: course 113B or consent of instructor. Examines the features and capabilities of generalized data base management systems. Includes system classification, comparison of software features, and evaluation of specific systems. Emphasis is upon management uses of such systems. A field study project may be required.
Mr. Lientz, Mr. Siler, Mr. Sprowls

224E. Computer Simulation for Management.
Prerequisite: Engineering 20 or course 113B or 413 or consent of the instructor. Introduction to computer simulation and to general purpose simulation languages (e.g., GPSS, SIMSCRIPT, DYNAMO). Emphasis upon the managerial use of simulation and the development of computer-based models for problem solving and policy analysis. Programming assignments are included.
Mr. Lientz, Mr. McLean, Mr. Siler

224F. Special Topics in Computing.
Prerequisite: consent of instructor. An examination in depth of issues or problems concerned with the theory and practice of computing and the management use of EDP systems. Course may have a single theme or may deal with a number of topics. May be repeated for credit.
The Staff

225A. Introduction To Information Systems.
Basic concepts and uses of information systems in organizations. Fundamental design considerations. The role of data processing. Examples of information systems in profit and not-for-profit organizations.
Mr. Lientz, Mr. R. O. Mason

225B. Information Systems for Planning and Control.
Prerequisites: course 113A, 225A, or consent of instructor. Design of systems to produce information for planning and control. Survey of approaches and techniques employed at the strategic, managerial, and operational levels. Special consideration of accounting and budgeting methods. Impact of planning and control information on human behavior.
Mr. Flamholtz, Mr. Lientz

225C. Measurement in Information Systems.
Prerequisite: familiarity with basic statistics, probability theory, set theory, and accounting, or consent of instructor. A study of the role of measurement in accounting and information systems, from the standpoint of mathematical, economic, behavioral and organizational consideration.
Mr. R. O. Mason and the Staff

225D. Special Topics in Information Systems.
Prerequisite: open primarily to Ph.D. candidates or with consent of the instructor. An examination in depth of problems or issues of current concern in information systems. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit.
The Staff

226. International Accounting.
Prerequisite: graduate status. Comparative analysis of accounting concepts and practices in other countries; study of contrasts between various systems; problems of accounting for international corporations including transfers of funds and income measurement; and accounting influences on economic development.
Mr. Buckley, Mr. Kircher

227A. Tax Accounting.
Prerequisite: course 220A or consent of instructor. A study of the fundamentals of income taxation with emphasis on problems in federal and state income, franchise, gift, and estate taxes, study of source material and research methods for ascertaining current rulings and trends in laws and regulations.
The Staff

227B. Taxation and Business Policy.
Tax systems, tax shifting and burden theory. Impact of taxation law and theory on business decisions. Corporate tax planning. The businessman and tax reform.
The Staff

229A. Accounting Theory.
Prerequisite: consent of the instructor. 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.
Mr. Ansari, Mr. Kircher

229B. Research Methodology in Accounting.
Prerequisite: course 229A or consent of the instructor. Design of empirical and theoretical research in accounting. Sources of research problems. Research conduct and methodology in accounting and other fields as they relate to accounting.
Mr. Buckley, Mr. Flamholtz, Mr. R. O. Mason

229C. Special Topics in Accounting.
Prerequisite: open primarily to Ph.D. candidates or with consent of the instructor. An examination in-depth of problems or issues of current concern in accounting. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit.
The Staff

230A. Money and Capital Markets.
Prerequisite: course 432B or 406, or consent of the instructor. Application of interest theory and flow of funds analysis to the price determination process in the markets for bonds, mortgages, stocks and other financial instruments. An historical and cross-sectional study of the role of financial markets in economic development.
Mr. Andersen, Mr. Farrar, Mr. Norton

230B. Financial Institutions.
Prerequisite: course 230A, or consent of the instructor. Study of the financial policies and practices of commercial banks, savings and loan associations, pension funds, insurance companies and other major financial institutions. Analysis of the sources and uses of funds, their cost and return, and government regulation of the financial sector.
Mr. Andersen, Mr. Dominguez, Mr. Farrar

230C. Money and Capital Market Theory.
Prerequisite: course 230A or 230B. Study of selected aspects of financial institutions and markets, their operation and regulation. Discussion of data sources and research methodology in this area.
Mr. Farrar, Mr. Krouse, Mr. Marathe

231A. Business Financial Policies.
Prerequisite: course 130 or 408, 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, analysis of business case problems, and individual student reports of financial problems of particular corporations.
Mr. Copeland, Mr. Mayers, Mr. Weston

231B. Business Finance Theory.
Prerequisite: course 130 or 408, or consent of the instructor. Normally taken after course 231A. The social and economic consequences of business financial policies. 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.
Mr. Copeland, Mr. Marathe, Mr. Mayers

231C. Theory of Finance.
Prerequisite: courses 231A and 231B, or consent of instructor. Methodology in the development of theories of finance. Influence of assumptions on the resulting structure and implications of financial models. Empirical testing of financial models.
Mr. Marathe, Mr. Mayers, Mr. Weston

232A. Investment Analysis.
Prerequisite: course 130 or 408 or consent of the instructor. 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 reports of business corporations and current cases are studied.
Mr. Eiteman, Mr. May, Mr. Shelton

232B. Investment Portfolios.
Prerequisite: course 130 or 408 or consent of the instructor. Normally taken after course 232A. Focus on entire portfolios rather than individual securities. Review of existing literature on portfolio selection, revision, and measurement and evaluation. Term report involves empirical testing of portfolio strategy or hypothesis.
Mr. Shelton, Mr. Smith

232C. Investment Theory.
Prerequisite: courses 232A and 232B or consent of the instructor. Review of theoretical literature on investment analysis, valuation, and management. Topics include mathematical techniques for valuation of

growth securities, competitive returns on alternative investments, the investment decison process, computers in investment decision making, and functioning of securities markets in the U.S. and abroad.

Mr. Krouse, Mr. Shelton, Mr. Smith

233A. International Business Finance.

Prerequisite: courses 130 or 408 and 205A, or consent of the instructor. Financial problems of multinational businesses are studied. Included are the international financial environment, problems surrounding the decision to commit long-term capital to an international venture, and financial techniques for the operation of a multinational firm.

Mr. Dominguez, Mr. Elteman, Mr. Weston

235A. Problems in Insurance Management.

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.

Mr. Hofflander

235B. Risk and Risk Bearing.

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.

Mr. Hofflander

236. Life Insurance in Business and Estate Management.

Prerequisite: course 135 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.

Mr. Hofflander

237. Property and Casualty Insurance in Business Management.

Prerequisite: course 135 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.

Mr. Hofflander

238. Selected Topics in Finance and Insurance.

Selected topics in the study of financial theories and policies. Models of financial behavior. Study of financial institutions. Relations between theory and institutional practices. May be repeated for credit.

The Staff

240A. Linear Models of Operational Systems.

Prerequisite: Mathematics 31C, course 111, or equivalent. The use of linear models and their extensions for the analysis of operational systems. Formulation and application of linear, network, and integer models in illustrative examples and case studies. Fundamentals of solution methods and their use in analysis.

Mr. Bettman, Mr. Dyer, Mr. Erlenkotter

240B. Nonlinear and Dynamic Models of Operational Systems.

Prerequisites: Mathematics 11C, course 240A or equivalent. The use of nonlinear and dynamic models for the analysis of operational systems. Examples of actual and potential applications to problems of managerial concern. A survey of nonlinear and dynamic programming solution techniques.

Mr. Bettman, Mr. Dyer, Mr. Erlenkotter

240C. Stochastic Models of Operational Systems.

Prerequisite: courses 116A, 240A and 240B. Analytic techniques for stochastic operational systems. Formulation and application of stochastic programming, probabilistic dynamic programming. Markovian, waiting line and information models.

Mr. Dyer, Mr. Erlenkotter, Mr. Jones

240E. Synthesis of Operational Systems.

Prerequisite: Mathematics 11C and course 115C. Examination of the design process, alternative design methodologies, value systems and search techniques. Special emphasis on broad aspects of the synthesizing processes underlying the creation of operational systems.

Mr. Andrews, Mr. Dyer, Mr. Erlenkotter

241A. Simulation of Operational Systems.

Prerequisite: course 113A or 113B, 407 or equivalent. Introduction to the design of computer simulations and to special purpose simulation languages. Emphasis upon the managerial use of simulation, sensitivity analysis, and the use of models for policy testing. Programming assignments as well as case material will be used.

Mr. McLean, Mr. Nelson, Mr. Siler

241B. Advanced Computer Simulation.

Prequisite: course 241A. Advanced use of computer simulation techniques. Major term projects will be undertaken, either singly or in groups, with the object of developing in students the ability to accomplish all phases of the design and execution of computer simulation.

Mr. Nelson

242A. Planning for Facilities Systems.

Prerequisite: courses 240A, or equivalent. Planning of location, expansion and replacement for interdependent systems of facilities. Examination of spatial and dynamic economic considerations. Applications in selected industries and public systems.

Mr. Erlenkotter

242B. Planning for Processes and Facilities.

Prerequisite: course 240A or equivalent. Planning and design for individual processes or facilities to transform inputs into desired products or services. Examination of process selection, materials flow, relative location of facilities, and line balancing.

The Staff

243A. Operations Planning and Control.

Prerequisite: course 240A or equivalent. Planning and control models and methods applicable in continuous, intermittent and one-time systems for both manufacturing and nonmanufacturing situations. Forecasting, the role of inventories, aggregate planning, and scheduling.

Mr. Buffa

243B. Inventory Theory.

Prerequisite: course 210B or consent of instructor. General discussion of inventory models with emphasis upon characterizing the form of optimal policies and efficient computational methods. Both deterministic and stochastic and discrete and continuous time models are considered.

Mr. Lippman

243C. Scheduling Theory.

Prerequisite: courses 240A, 241A, or equivalent. Scheduling results for single machine, flow shop, job shop, and labor and machine limited systems. Recent research results on heuristic approaches to job shop scheduling with due dates. Current research in coupling of machine programs and man-machine interactive approaches to scheduling.

Mr. Nelson

243D. Integrated Operational Systems.

Prerequisite: courses 243A-243B. Design and analysis of models of integrated operational systems. Business games and applications of simulation techniques.

Mr. Nelson

244A. Research and Development Policy.

Examination of research and development as a process and as an element of a goal oriented organization. Factors affecting invention and innovation; transfer of technology; organizational and behavioral considerations; coupling of science, technology and organizational goals; assessing and forecasting technological futures.

Mr. Goodman

244B. Project Management.

Prerequisite: course 111 or equivalent. Management of development projects. Decision-making environment, economic analysis, network analysis, scheduling and control of development projects. Sequential and aggregate development decisions.

Mr. Dyer

246. Management of Operations.

Prerequisite: courses 240A and 241A, or equivalent. Case analyses centering on the operations phases of enterprises. Cases selected are at the policy level and are drawn from service, nonmanufacturing, and manufacturing industries.

Mr. Buffa

247A-247B. Survey of Operations Management.

Prerequisite: enrollment in the master's or the doctoral programs. Survey of the research literature in operations management. Seminar reports dealing with special topics.

The Staff

248. Special Topics in Operations Management.

Studies of advanced subjects of current interest in operational management. Emphasis is on recent developments and the application of specialized knowledge to operational problems. Topics change each offering, and in the absence of significant duplication, the course may be repeated.

The Staff

250A. Human Resource Management.

Prerequisite: consent of instructor. First part of a two-course sequence focusing upon the processes and problems of managing human resources. Topics include people as resources; nature of human resource management; human resource planning; designing and organizing tasks and roles; and acquiring and allocating people.

Mr. Kleingartner, Mr. Massarik

250B. Human Resource Management.

Prerequisite: course 250A. Topics include development and training: human resources accounting; behavioral foundations of participating management; motivation, productivity, and satisfaction; designing reward systems; and evaluation of organization effectiveness. Emphasis on understanding, predicting, and influencing human behavior in organizations.

Mr. Kleingartner, Mr. Massarik

250C. Systems of Employee-Management Participation.

Prerequisite: consent of the instructor. Course designed to provide understanding of systems of employee-management participation around the world (apart from traditional collective bargaining systems). Specific concepts such as worker participation in decision making, industrial democracy, joint consultation, workers' councils, profit sharing will be covered.

Mr. Adizes, Mr. Kleingartner, Mr. Taylor

251. The Management of Labor Relations.

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.

Mr. Hutchinson, Mr. Meyers

252. Law and Governmental Policy in Industrial Relations.

Prerequisite: course 150. Governmental policies on employer-employee relations; historical background; constitutional and common law principles; application

of Taft-Hartley, Labor Reform, Antitrust, Anti-Injunction, Fair Labor Standards, Workmen's Compensation and other acts; trends and proposed legislation on labor-management affairs.

Mr. Fogel, Mr. Mitchell

253A. Negotiation and Conflict in Organizations.

Prerequisite: graduate status. The occurrence and management of differences throughout the organization. Furnishes a multidisciplinary understanding of conflict phenomena in general, plus an appreciation of critical parameters shaping conflict in specific organizational arenas. Also reviews the arsenal of conflict-management techniques.

Mr. Thomas

253B. Conflict Resolution in Labor-Management Relations.

Prerequisite: graduate status. Analysis of conflict in the employment relationship. Theoretical and empirical findings are examined. Principles and philosophies that underlie resolution of labor-management impasses are considered with emphasis on grievance procedures, arbitration, mediation, and factfinding.

Mr. Prasow

254. Analysis of Labor Markets.

Prerequisite: consent of the instructor. Problems of verifying hypotheses concerning labor market behavior and the application of data to managerial problems. Problems of operationally defining labor market concepts. Critical evaulation of available labor market data. Case studies applying these data to managerial problems.

Mr. Fogel, Mr. Mitchell

255. Comparative Industrial Relations.

Prerequisite: course 150 or an elementary knowledge of labor economics. At national and international level historical and contemporary analytical comparison of industrial relations systems within their political, social and economic environments. Included are: the institutions, philosophies and ideologies of labor, management and government and the interaction of their power relationships; the substance and manner of determination of "web of rules" governing the rights and obligations of the parties, and the resolution of conflicts.

Mr. Hutchinson, Mr. Meyers

256. Technological Bases of Jobs and Organizations.

Prerequisite: consent of the instructor. Technological determinants of operating systems and jobs; productive system design models; behavioral models underlying operating system design, technology and social system design; operating system variability, control and measurement.

Mr. Davis

257. Labor-Management Relations in Public and Nonprofit Sectors.

Prerequisite: graduate status. Analysis of labor-management relations in government, including public education, and in nonprofit institutions (i.e., artistic, cultural, recreational, and health care). Emphasis is on negotiations and group relationships rather than on public personnel administration.

Mr. Prasow and the Staff

258. Selected Topics in Industrial Relations. (1/4 to 1 course)

Prerequisite: open primarily to Ph.D. candidates, but also to others with consent of the instructor. An examination in depth of problems or issues of current concern in industrial relations. Emphasis on recent contributions to theory, research, and methodology of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit.

The Staff

259A. Manpower Planning and Evaluation.

Prerequisite: course 254 recommended. The developments of programs and practices to meet manpower goals of individual labor force participants, business firms, and communities. Examination of techniques for the evaluation of such programs.

Mr. Fogel, Mr. Mitchell

259B. Utilization of Minority Manpower.

Prerequisite: course 254 recommended. Examination of the experience of minority groups — blacks, Chicanos, women, teenagers — in labor markets and employing institutions (business firms, governments, unions). Consideration of equal employment opportunity programs in firms and of societal antidiscrimination programs. Guest speakers as appropriate.

Mr. Fogel

260A. Advanced Marketing Management I.

Prerequisite: course 411 or consent of the instructor. A decision oriented course concerned with the solution of product, price, promotion and distribution channel problems. Extensive use will be made of case studies.

Mr. Brown, Mr. Capon, Mr. Nakanishi

260B. Advanced Marketing Management II.

Prerequisite: course 260A or consent of the instructor. This course examines the marketing function in the face of rapidly changing economic, legal, sociocultural and technological environments. It focuses on the development of marketing objectives, strategies, plans, and programs, and on how the necessary information is collected, analyzed and interpreted.

Mr. Brown, Mr. Capon, Mr. Nakanishi

261A. Management in the Distribution Channel.

Prerequisite: course 260A or consent of the instructor. An examination of decisions in the distribution channel. Issues of power in the distribution channel and the tradeoffs between alternative channel systems are discussed.

Mr. Brown

261B. International Marketing Management.

Prerequisite: course 260A, or consent of the instructor. Opportunities, distinctive characteristics, and emerging trends in foreign markets are analyzed. Including an exploration of alternative methods and strategies, organizational planning and control, impact of social, cultural, economic, and political differences, and problems of adapting American marketing concepts and methods.

Mr. Capon, Mr. Richman

262. Price Policies.

Prerequisite: course 260A or consent of the instructor. Consideration of such concepts as product classification, demand, competition, and costs, as they apply to price making. The theory of price leadership, geographical pricing, price discrimination, price warfare, and leader pricing are also studied in relation to the price-making process. In addition, some attention is given to the price policies of individual firms in which these concepts are applicable.

Mr. Brown, Mr. Nicols

263A. Consumer Behavior.

Prerequisite: course 411, or consent of the instructor. A study of the nature and determinants of consumer behavior. Attention will be focused on the influence of socio-psychological factors such as personality, small groups, demographic variables, social class, and culture on the formation of consumers' attitudes, consumption and purchasing behavior.

Mr. Cooper, Mr. Kassarjian, Mr. Lutz

263B. Theory of Marketing Stimulation.

Prerequisite: course 263A. Analysis of factors influencing consumer demand. Techniques for stimulating demand are evaluated in relation to specific marketing objectives. Material is drawn from economics, psychology, sociology, anthropology, and marketing research.

Mr. Kassarjian, Mr. Lutz

264A. Marketing Research: Design and Evaluation.

Prerequisite: course 411 or consent of the instructor. Methods of measuring and predicting the forces affecting marketing, including quantitative aspects of demand, consumer reaction to product characteristics, effectiveness of advertising and other promotional devices, influence of rewards and organizational systems on sales efficiency, and effectiveness of competitors' strategies.

Mr. Kassarjian, Mr. Lutz, Mr. Nakanishi

264B. Mathematical Models in Marketing.

Prerequisite: course 260A, or equivalent or consent of the instructor. A study of the utilization of models for the solution of marketing problems. Discussion will be focused on models concerned with such problems as brand switching, media selection, pricing, competitive strategy, scheduling, allocation problems, and waiting time.

Mr. Bettman, Mr. Jones, Mr. Nakanishi

264C. Seminar in Multidimensional Scaling.

Prerequisite: consent of instructor. A seminar providing for the study of recent developments in metric and nonmetric multidimensional scaling.

Mr. Cooper

265A. Marketing and the Law.

Prerequisite: course 260A, or consent of the instructor. A detailed study of the legislative enactments (federal, state, or local) which influence the operation of institutions engaged in marketing activities, together with an analysis of the judicial decisions which have interpreted these laws.

Mr. Brown

265B. Social Issues in Marketing.

Prerequisite: course 260A or consent of instructor. Environmental impact of marketing in society; study of theories, methods and relationships for evaluating transaction behavior in a scientific and humanistic context; macroanalytic perspectives in marketing.

The Staff

266A. Product Management.

Prerequisite: course 260A. This course develops a framework for identifying and appraising alternative growth strategies of the firm. Product addition, modification and deletion decisions are examined and the processes by which these decisions can be made in an optimal manner are discussed.

Mr. Brown, Mr. Capon

266B. Advertising Policy.

Prerequisite: courses 260A, 263A, or consent of the instructor. A study of the formulation of advertising policies, involving an analysis of cases dealing with: the role of advertising in marketing, the definition of advertising objectives, strategy, appropriation policy, media selection, evaluating advertising results, and the organization of the advertising function.

Mr. Brown, Mr. Capon, Mr. Nakanishi

266C. Sales Force Management.

Prerequisite: course 411 or consent of the instructor. This course develops a logical framework for the solution of problems in sales force management. It covers the role of selling in the marketing *mix*, the selling interaction and key problems in planning, organizing, evaluating, and controlling the sales force.

Mr. Capon

267. Macromethodological Issues in Research on People.

Prerequisite: consent of instructor. This course provides a systematic approach to the special issues concerning research on people: criteria for evaluating macromethodologies; development of scientific concepts, models, theories, and law; the problem of private report, and the question of data language.

Mr. Cooper

268. Selected Topics in Marketing. (¼ to 1½ courses)

Prerequisite: course 260A, or consent of the instructor. A study of selected areas of marketing knowledge and thought. Specific subjects discussed to be changed each quarter depending on the particular interests of the instructor and students. Individual projects and reports. May be repeated for credit.

The Staff

270. Environment of the Art World.

Prerequisite: consent of instructor. Consideration and analysis of the political, social, economic and environmental forces in American society as they affect the existence and development of arts institutions in the U.S. The aim is to explore present policies and trends and potential future developments.

Mr. Faine

271. Law and the Arts.

Prerequisite: consent of instructor. Exploration of the way in which law and the arts relate, the role of the lawyer *vis-a-vis* artist and arts manager, policy underpinnings of the law and effects on the arts, and unsolved problems and issues in areas of interaction.

The Staff

272A. The Role of Management in Artistic Decision Making.

Prerequisite: consent of instructor. A descriptive study of the criteria for decision making in artistic institutions including the role of the institution in society, the economic environment of the arts, and the artistic value systems of arts organizations.

Mr. Adizes

272B. Programming and Planning Policies in Arts Organization.

Prerequisite: consent of instructor. An analysis of the social, artistic and economic roles of the arts as reflected in programming policy. An examination of the social goals pursued in establishing relationships between the arts and their environment.

The Staff

273. Synthesis of Field Experience in Arts Management.

Prerequisite: courses 444A-444B, 453. Joint examination and diagnosis of field study organizations by instructor and students. Analysis of environments, identification of commonalities, comparison of problems and processes of design and operation. Critical evaluation of students' field study project reports and proposed comprehensive research papers.

Mr. Faine, Ms. Huff

274. Current Issues in Arts Management.

Prerequisite: consent of instructor. The seminar of the final quarter is viewed as the major vehicle integrating the academic program and current issues in the management of artistic institutions. Relevant combinations of lectures, discussions, case studies and team research projects are employed.

Mr. Adizes, Mr. Faine, Ms. Huff

275A. Urban Issues and Problems.

Prerequisite: course 175 or consent of instructor. Study of urban problems and issues including demand for and supply of private and public goods, environmental pollution, transportation, recreational facilities, poverty, housing the poor, city size and efficiency, urban sprawl, taxation, new towns, real estate and building industries.

Mr. Clapp and the Staff

275B. Urban Land Economics.

Prerequisite: course 175, 401 or consent of instructor. Introduction to development and use of economics and management principles in identifying and analyzing the determinants of urban land use and land values, public policies affecting the urban land market, and the private sector's role in shaping the urban environment.

Mr. Clapp, Mr. Mittelbach

275C. Alternative Urban Futures.

Prerequisite: consent of instructor. The use of economic tools and business techniques for planning and forecasting alternative urban futures. Urban and World Dynamics models are used to analyze future urban life under various assumptions about the shape, structure, and functions of future cities.

Mr. Case, Mr. Mittelbach

276A. Theory and Methods of Urban Space Allocations.

Prerequisite: courses 175, 401, or equivalent or consent of the instructor. Systematic analysis of determinants of real property values and allocation of land uses over urban space. Emphasis given to the role of entrepreneurial decisions in shaping the urban land use structure within the context of public powers and policies.

Mr. Case, Mr. Clapp, Mr. Granfield

276B. Comparative and International Urban Land Studies.

Analysis of private and public decision making shaping urban development and redevelopment in selected countries. Emphasis on the economic, social and institutional factors which determine urban growth, structure, and patterns on the land in developed and underdeveloped nations.

Mr. Case, Mr. Mittelbach

276C. Urban Dynamics: Degeneration and Regeneration.

Prerequisite: consent of instructor. Seminar which identifies, analyzes and evaluates problems and solutions concerning urban blight, rehabilitation, redevelopment, new towns, inner-city revitalization and inter-governmental relations in the American city, with particular emphasis on the role of private enterprise in dealing with these problems.

Mr. Mittelbach

277A. Housing Economics.

Prerequisite: consent of instructor. Consideration of determinants of private and public demand for housing. Housing programs and relationships between construction and economic trends are examined in detail.

Mr. Case, Mr. Granfield, Mr. Mittelbach

277B. Housing Policy.

Prerequisite: consent of instructor. U.S. and foreign housing programs. Housing low-income groups, new town legislation, improving environment-urban renewal and development and related topics. Criteria for assessing public policy, policy implementation, policy and stages of national economic development, the role of private enterprise.

Mr. Case, Mr. Mittelbach

278A. Urban Real Estate Financing and Investing.

Prerequisite: consent of instructor. Theoretical and pragmatic analyses are used to determine the differences between real property and other investments. Real estate investment opportunities are evaluated for their effectiveness in balancing personal and business investment objectives and public land use goals.

Mr. Case, Mr. Clapp

278B. Sources, Uses and Flows of Real Estate Capital.

Identification and analysis of sources and uses of real estate credit and equity funds. Policies and programs of lenders are related to real estate construction and market trends, and governmental economic and housing policies and programs.

Mr. Case, Mr. Mittelbach

279A. Special Studies in Urban Land Economics.

Open to master's or doctoral candidates working on thesis or dissertation related research. May be repeated for credit.

The Staff

279B. Selected Topics in Urban Land Economics.

Open to all graduate students who wish to pursue a particular topic in housing, real estate or urban land economics in depth on an individual or cooperative basis. May be repeated for credit.

The Staff

279X-279Y-279Z. Urban Research and Development. (½ to 1 course)

Prerequisite: consent of instructor, graduate status. Exploration of urbania and its problems; prospects and prescriptions for the delivery of a quality life. The exploration will be both macroscopic and microscopic as related to problems of a selected urban area.

The Staff

280A. Important Studies in Human Systems.

Prerequisite: enrollment in Ph.D. program or consent of instructor. Surveys seminal studies of human systems. Summarizes and critiques literature focal to the evolution and current status of the field. Reviews such topics as personality, motivation, group and intergroup behavior, systems theory, and organizational design and development.

Mr. Massarik, Mr. Morse

280B. Survey of Research Philosophies and Methods.

Prerequisite: enrollment in Ph.D. program or consent of instructor. Offers a broad introduction to objectivist and subjectivist philosophies of science, and the psychology and sociology of science. Critiques laboratory and field experiments; field studies, analytical and descriptive methods; interview, participant observation, questionaire and ubobtrusive methods of data collection.

Mr. Cooper, Mr. Massarik, Mr. McKelvey

280C. Personal and Professional Development.

Prerequisite: enrollment in Ph.D. program or consent of instructor. Provides a setting where students may explore their own professional values in the process of testing and learning the values and standards important in the Human Systems Ph.D. program and held by the broader community of system researchers and interveners.

Mr. Culbert, Ms. Lasko, Mr. Tannenbaum

280D. Research Design for Human Systems Studies.

Prerequisite: course 280A, 280C, or consent of instructor. Acquaints students with temporal and logical sequences in the process of designing studies of human systems, including optimizing the fit of research topic, observation and data collection methods, and data analysis techniques. Actively involves students in the preparation of research proposals.

Mr. Cooper, Mr. Taylor

280E. Tutorial in Human Systems Research.

Prerequisite: course 280D or consent of instructor. Provides an opportunity for students to offer and receive constructive comment on the design, data analysis, and writing of their doctoral research paper.

Mr. McKelvey, Mr. Thomas

280F. Human Systems Research Seminar.

Prerequisite: course 280D or consent of instructor. Exploration of various research methods and problems encountered in applying them. Students are actively involved in seminar reports and in class critique of course members' dissertation research designs. May be repeated for credit.

Ms. Lasko

281A. Socio-Technical Systems.

Prerequisite: graduate status. Introduces systems concepts and views work organizations as interacting social and technical systems open to forces from the surrounding environment. Focus is on developing the socio-technical systems analytic approach and understanding the advantages of this approach for designing and managing organizations.

Mr. Davis, Mr. McKelvey, Mr. Taylor

281B. People in Organizations.

Prerequisite: graduate status. Introduces different philosophical perspectives for understanding human behavior. Theories and concepts important for understanding human behavior in organizations are presented as well as managerial implications of individual, group, and social behavior. Special attention given to knowledge about satisfaction motivation and productivity in organizations.

Mr. Massarik, Mr. Schmidt, Mr. Thomas

281C. Situational Factors in Management.

Prerequisite: graduate status. Applies a situational, contingency, or "it all depends" perspective to important managerial issues such as personality, motivation, leadership, conflict management, and design of jobs and organizations. Develops a diagnostic way of thinking that is fundamental to managerial effectiveness in diverse organizational situations.

Mr. McKelvey, Mr. Morse

282. Task Group Processes.

Prerequisite: courses 281A, 281B or consent of instructor. Focuses on the structures, processes and interrelations of work groups in socio-technical systems. Emphasizes an understanding of how group activities interrelate with the physical/technical environment. Imparts a practical knowledge of task group functioning through class exercises and field observations.

Mr. Culbert, Mr. McKelvey, Mr. Taylor

283A. Environmental Settings of Socio-Technical Systems.

Prerequisite: course 281A or consent of the instructor. Focuses on the complexity and uncertainty of organizational environments. Analyzes environments along socio-cultural, political and economic dimensions, their interrelationships and their relations to technology. Diagnoses organizational responses to various environments.

Mr. Davis, Ms. Huff

284A. Organization Design.

Prerequisite: course 281A or consent of the instructor. Survey of organizational design theories and methods, including bureaucratic, participative and cognitive models. Develops specific methods ranging from the micro-design of jobs to the macro-design of total organizational structures. Special emphasis on socio-technical and differentiation/integration models.

Mr. McKelvey, Mr. Morse

284B. Organization Development.

Prerequisite: course 281B or consent of the instructor. Analyzes effects of managerial practices on individual self-fulfillment and organizational effectiveness. Presents theories of organization change and the action-research methods of organization development practitioners. Merges theory with practice through seminar discussions of field observations.

Mr. Culbert, Mr. Raia, Mr. Tannenbaum

285A. Leadership, Motivation and Power.

Prerequisite: course 281B or consent of the instructor. Studies theoretical and practical approaches to influencing and motivating people. Explores the relative effectiveness of various leadership styles, different motivation theories and power tactics from a managerial point of view. Uses experience based learning methods to aid diagnosis and understanding of one's own influence styles.

Mr. Goodman, Mr. Schmidt, Mr. Thomas

285B. Managerial Interpersonal Communication.

Prerequisite: course 281B or consent of the instructor. Focuses on organizational, interpersonal and personality factors affecting managerial communications. Analyzes styles and modes of communication in one-to-one, group and indirect communication settings. Offers opportunities to deepen understanding of one's own communication styles and skills.

Ms. Kovach, Ms. Lasko, Mr. Schmidt

287. Sensitivity Training Groups and Their Facilitation.

Prerequisite: consent of the instructor through prior application in Department. Develops cognitive and experiential understanding of the dynamics of sensitivity training groups and their facilitation. Analyzes relevant theory, research findings and case studies; stresses translating these inputs into practice.

Ms. Lasko, Mr. Massarik, Mr. Tannenbaum

288A. Special Studies in Managing Organization Behavior.

Prerequisite: open primarily to MBA students but also to others with consent of the instructor. An examination, in depth, of problems or issues of current concern in managing organizational behavior. Emphasis on recent theories, research findings, and professional applications of special interest to MBA students and the faculty. May be repeated for credit.

The Staff

288B. Selected Topics in Behavioral Science.

Prerequisite: enrollment in Ph.D. program or consent of instructor. Focuses on philosophies and theories of human behavior fundamental to the study of individual, group, organizational, and cultural behavior. Explores in depth selected theoretic positions, extending and consolidating behavioral science knowledge and applications. May be repeated for credit.

The Staff

288C. Current Issues in Socio-Technical Systems and Organization Design.

Prerequisite: enrollment in Ph.D. program or consent of instructor. Covers current topics in the analysis and design of organizations as socio-technical systems engaged with various technologies and environments, emphasizing design approaches emanating primarily from Europe and the United States. Includes in depth comparisons of selected job and organizational design approaches. May be repeated for credit.

The Staff

288D. Current Issues in Human Systems Change and Development through Consulting.

Prerequisite: enrollment in Ph.D. program or consent of instructor. Current topics in philosophy, art, and technology of improving organizations and increasing managerial effectiveness through consulting interventions. In depth treatment of consultant entry and leaving, diagnosing, process consultation, consciousness raising, team building, values, etc., depending on student and faculty preferences. May be repeated for credit.

The Staff

288E. Selected Topics in Organization Theory.

Prerequisite: enrollment in Ph.D. program or consent of instructor. In depth treatment of organizations as units of analysis. Emphasizes recent theoretical and empirical development, methodological issues in organizational research, and concepts of organization structure, process, and effectiveness. May be repeated for credit.

The Staff

288F. Selected Topics in Organizational Behavior.

Prerequisite: enrollment in Ph.D. program or consent of instructor. Explores psychological and social psychological aspects of human behavior and performance in organizations. Covers theoretical models, empirical findings, and applications of such topics as attitudes and values, cognitive and perceptual processes, behavioral conflict and individual change processes. May be repeated for credit.

The Staff

288G. Current Issues in Human Systems Studies.

Prerequisite: enrollment in Ph.D. program or consent of instructor. In depth study of theory and research pertaining to a particular subject matter or such topics as cross-cultural, organization change, action, and multivariate research, depending on student and faculty interest. May be repeated for credit.

The Staff

290. Organization Theory.

Prerequisite: course 423 or consent of the instructor. Analysis of the theory and practice of the managerial function of organizing through study of the literature, case analyses, and seminar discussion. Individual projects and reports.

Mr. Koontz, Mr. McKelvey, Mr. Sedgwick

291. Planning and Control.

Prerequisite: course 423 or consent of the instructor. Analysis of the theory and practice of the managerial function of planning and control. The implementation of objectives through policy formulation, decision making, and control. Individual projects and reports.

Mr. Carrabino, Mr. Koontz, Mr. Steiner

292B. Models of Organization Behavior.

Prerequisite: consent of the instructor. Theoretical frameworks for developing explanatory and predictive models of complex organizations. Exercises in constructing formal models, usually in mathematical or stochastic form and, where appropriate, using materials from field studies to develop empirical tests. These models may be used to discover implications for the systems changes recommended in the socio-technical field study.

The Staff

292C. Comprehensive Planning in the Public Sector.

Prerequisite: consent of instructor. Evolving modes of planning under complexity with particular emphasis on the public sector. Development of policy through standard setting, bargaining, and regulating governing relationships; reality and value judgments; social and technical dimensions of alternatives; and social and technological forecasting.

Mr. Andrews, Mr. Dyer

292D. Management in the Not-for-Profit Sector.

Prerequisite: graduate status. A study of the not-for-profit sector, the institutions within it, and its relationship to the governmental and business sectors. Special emphasis on management problems peculiar to the not-for-profit sector.

Mr. Case, Ms. Kovach

293. Business and Society.

Prerequisite: consent of instructor. 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 reponsibilities of the business manager.

Mr. Steiner

294A. Strategy Formulation and Implementation.

Prerequisite: General Management Concentration prerequisites or the equivalent or consent of instructor. Case course dealing with strategy decisions and their implementation, executive action, and administrative behavior involved in managing total enterprises. The student is confronted with complex company situations to develop ideas essential to overall managerial direction.

Mr. Carrabino, Mr. Sedgwick, Mr. Steiner

294B. Environmental Impacts on Management.

Prerequisite: General Management Concentration prerequisite or the equivalent or consent of instructor.

Examination of ways in which business, government, labor and consumer organizational managers might respond to external environmental problems. Methods are studied for developing and evaluating alternative managerial solutions which permit organizations to assist in improving current and future environmental quality.

Ms. Huff, Mr. Steiner

295A. Entrepreneurship and Venture Initiation.

Prerequisite: consent of instructor. An exploration in entrepreneurship particularly concerned with the formation and operation of new business ventures. Significant and crucial aspects of exploring new business opportunities and starting a business.

Mr. Schollhammer and the Staff

295B. Small Business Management.

Prerequisite: consent of instructor. Exploration of crucial aspects in managing small business enterprises. Emphasis is placed on the identification and analysis of characteristic operating problems of small firms and the application of appropriate methods or techniques for their solution.

Mr. Schollhammer and the Staff

296A. International Business Management.

Prerequisite: course 205A or consent of the instructor. Identification, analysis, and resolution of managerial issues of policy and action within the context of an international corporation, with emphasis on problems of adaptation to different sociological, cultural, legal, political, and economic environmental characteristics.

Mr. Dominguez, Mr. Richman, Mr. Schollhammer

296B. International Business Economics and Management.

Prerequisite: General Management Concentration requirements, or the equivalent, or consent of instructor. Study of economic and business problems in international context with emphasis upon application of economic theory to various international economics and managerial issues affecting multinational enterprises. Analysis of concepts of international trade, investments, monetary relations; management of multi-national business firms.

Mr. Dominguez, Mr. R. H. Mason, Mr. Schollhammer

297A. Comparative and International Management.

Prerequisite: courses 190A-190B or 409. A comparative study of the practice of management in selected foreign countries, as affected by their social environments and the development of management theory.

Mr. Richman, Mr. Schollhammer

297B. International Business Policy.

Prerequisite: course 205A and the consent of the instructor. Analysis of key managerial problems encountered in a multinational corporation. Concepts and theories acquired in other courses in International Business and Comparative Management will be applied to a series of complex cases and simulations of international business operation.

Mr. Nicols, Mr. Richman, Mr. Schollhammer

297C. International Business Law.

Prerequisite: courses 205A and 296A. Legal environments in which international business operates; overseas business relationships and organizations; antitrust, taxation, transfer of capital and technology relations; patent, trademark and copyright safeguards; arbitration of international business disputes; expropriation of foreign investments; international business and government relations.

The Staff

298A. Special Topics in Management Theory.

Prerequisite: open primarily to Ph.D. candidates or with consent of the instructor. An examination in depth of problems or issues of current concern in management theory. Emphasis on recent contribution to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit.

The Staff

298B. Special Topics in International and Comparative Management.

Prerequisite: open primarily to Ph.D. candidates or with consent of the instructor. An examination in depth of problems or issues of current concern in international and comparative management. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit.

The Staff

298C. Special Topics in Socio-Technical Systems.

Prerequisite: open primarily to Ph.D. candidates or with consent of the instructor. An examination in depth of problems or issues of current concern in socio-technical systems. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit.

The Staff

298D. Special Topics in Management.

Prerequisite: open primarily to Ph.D. candidates or with consent of the instructor. An examination in depth of problems or issues of current concern in management. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff or distinguished visiting faculty. May be repeated for credit.

The Staff

299R. Research Methods in Management.

Prerequisite: Ph.D. Candidate. Provide feedback and evaluation of papers prepared for the research requirement. Quarterly meetings will be held to discuss expectations of the research committee and the Doctoral Office. Students must enroll the quarter in which they are submitting their research paper. May be repeated for credit.

The Staff

Professional Courses

401. Business Economics.

Analysis of decision making in the firm, competitive policies and market structure, revenue and cost behavior.

Mr. Kimbell, Mr. Nicols, Mr. Osborne

402. Mathematics for Management.

Fundamental mathematics for business, including topics from matrix algebra, probability, and calculus; with applications to model building and decision making in business firms.

Mr. Jones, Mr. Lippman, Mr. MacQueen

403. Survey of Financial and Managerial Accounting.

An introduction to fundamental systems and procedures in financial and managerial accounting, with an emphasis on income measurement, marginal analysis, standard and direct costing.

Mr. Buckley, Mr. Flamholtz, Mr. McDonough

406. Business Fluctuations.

Sales, costs, and profit forecasting. General business forecasting and cyclical mechanisms.

Mr. Nicols, Mr. Norton

407. Business Statistics.

An introduction to statistics for graduate students who have had no previous course in which emphasis is upon applications to business problems.

Mr. Jessen and the Staff

408. Business Finance.

Contents include business financial planning, financial management, securities and other financial instruments, securities markets and securities valuation.

Mr. Copeland, Mr. Hofflander, Mr. Smith

409. Management Theory and Policy.

An analysis of the functions of managers, emphasizing underlying principles applicable to general rather than functional management.

The Staff

410A. Operations Management.

Prerequisite: course 111 or equivalent. Principles and decision analysis related to the effective utilization of the factors of production in manufacturing and nonmanufacturing activities for both intermittent and continuous systems. The study of production organizations, analytical models and methods, facilities design, and the design of control systems for production operations.

Mr. Buffa and the Staff

410B. Management of Operational Systems. (½ course)

Prerequisite: course 111 or equivalent. The study of operational systems and their interrelations with the total organization. Design, planning, and control of operational systems in such areas as inventory, production, scheduling and project management. Managerial orientation with emphasis on applications, including case studies.

Mr. Andrews and the Staff

411. Elements of Marketing.

A study of institutions and functions as they relate to 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.

Mr. Kassarjian, Mr. Lutz, and the Staff

412. The Employment Relationship. (½ course)

Prerequisite: consent of instructor. Internal labor markets and how they function in the allocation of labor within an enterprise. The allocative structure is examined both for those enterprises that have a collective bargaining relationship with a labor union and those that do not.

Mr. Kleingartner, Mr. Mitchell, and the Staff

413. Interactive Computing for Management.

Prerequisite: graduate status or consent of the instructor. An introductory course in computing concepts and the APL interactive computer language. Historical background and present applications of computers are reviewed. Computer hardware and software concepts are discussed. Extensive programming problems are assigned in APL.

Mr. McLean, Mr. Siler

421. Manpower Management and Labor Relations.

Prerequisite: graduate status. An introduction to the study of the world of work and employee-management relations. Examines nonmanagerial work cultures and policies and practices for effectively utilizing nonmanagerial manpower in private and public organization. Emphasis given to work problems of youth, women, low-wage workers and elderly persons.

Mr. Kleingartner, Mr. Meyers, Mr. Mitchell

422. Business Economic Policies.

Major government policies affecting the economic environment of the business firm. Monetary and fiscal policies to achieve economic stability and growth. Public policies toward competition and its regulation. Social and economic rationale for regulation. Measuring competition and monopoly.

The Staff

423. Advanced Management Theory.
Advanced study of management theory in formally organized enterprise through significant readings; discussing advanced approaches and techniques developed from applying theory; using theory to integrate methods and findings of quantitative and behavioral sciences; lectures on sophisticated application of management theory in practice.
Mr. Koontz, Ms. Kovach, Mr. Raia

430. Introduction to Managerial Statistics. (½ course)
Prerequisite: graduate status. An introduction to probability theory and classical statistics. Statistical description of data. Basic concepts of probability theory. The use of sampling for decision making. Interpretation of tests of hypotheses. Overview in managerial terms of more advanced statistical methods.
The Staff

431A. Introduction to Model Building. (½ course)
Prerequisite: graduate status. An introduction to formal model building. Use of mathematical models as system descriptors. Characteristics of the major "classes" of models. Formulation of problems in terms of mathematical models. Interpretation of solutions provided by the computer.
The Staff

431B. Mathematical Tools for Management. (½ course)
Prerequisite: graduate status. An introduction to several basic concepts of mathematics, including sets and functions, linear equations and inequalities, polynomial and exponential functions, and some elements of differential calculus.
The Staff

432A. Managerial Economics: The Firm. (¾ course)
Prerequisite: graduate status. Study of resource allocation in market and nonmarket environments; role of prices in allocations and their determination via demand and supply; models of the firm in a demand-supply framework with emphasis on their use in managerial decision making.
The Staff

432B. Managerial Economics: Forecasting. (¾ course)
Prerequisite: graduate status. Exposition of the economic system which exists in current environment. Analyses of the interactions of economic units, their effects upon prices, output, and employment, and short- and long-term economic forecasting for use in managerial decision making.
The Staff

433. Computing Laboratory. (½ course)
Prerequisite: graduate status. Use of the computer as an aid in solving management-related problems; interactive, time-shared processing utilizing remote terminals; and the APL computer language.
The Staff

434. Managerial Accounting and Finance.
Prerequisite: graduate status. An introduction to the fundamentals of accounting and finance with emphasis on the preparation of basic financial statements and the techniques of financial analysis.
The Staff

435. Organizational Behavior and Management Processes.
Prerequisite: graduate status. A system approach to the theory and practice of management in complex organizations. Provides an integrated view of human behavior and managerial processes in a dynamic organizational society.
The Staff

436. Policy and Organizational Environment.
Prerequisite: course 441. Environmental settings of organizations; interrelationships among and roles of various sectors of society with special emphasis on business; issues facing managers and management-related specialists; and formulation of organizational strategies and policies.
The Staff

440. Individual Decision Making. (¼ to ½ course)
Prerequisite: graduate status. Study and practice of making individual decisions, including individual personality, motivation, decision-making techniques and interpersonal communications. Experience in the collection of data for decision making and critique of action plans and programs to attain individual goals.
The Staff

441. Managerial Decision Making.
Prerequisite: graduate status. The study and practice of organizational decision making which centers around a computerized management game. Topics and content areas will be appropriately sequenced to correspond with the experience and development of the game.
The Staff

442. Complex Systems: Methods of Analysis. (¼ to ½ course)
Prerequisite: courses 433A and 440. Introduction to systems models, with emphasis on formal representations; rational approaches to decision under uncertainty, stressing fundamentals relevant to problems at all levels of complexity.
The Staff

443A-443B. Complex Systems: Problem Identification and Solution. (¼ to ½ course each)
Prerequisite: graduate status. Application of whole systems thinking, computer modeling and uncertainty analyses to contemporary problems. Approaches to problem solving, including identification, formulation, data collection, decision analysis, modeling, simulation, forecasting, assumption testing, solution methods and implementation.
The Staff

444A-444B. Management Field Study.
Prerequisite: course 436 or 294A; usually beginning the student's last two quarters of residence, normally Winter Quarter, second year. Supervised study of an organization including establishment of client organization/student consultant relationship, identification of problem, design of study, collection and analysis of data, development and reporting of implementable recommendations. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for both quarters of work.
The Staff

450. Field Work in Behavioral Science Management Development. (1 or 2 courses)
Prerequisite: course 282B and consent of the instructor. Supervised practical work in all phases of laboratory education for management development, such as sensitivity training laboratories, creativity and personal growth laboratories, simulated managerial behavior laboratories, etc.
The Staff

451. Field Work in Organizational Development. (½ to 3 courses)
Prerequisite: courses 282B, 283 and/or consent of the instructor. Supervised practical field work in organizational development consultation in interpersonal, group, intergroup, total organization and interorganizational settings.
The Staff

452. Field Work in Technical Assistance for Minority Business Enterprise. (¼ to 1 course)
Prerequisite: completion of first year of master's program or consent of instructor. Supervised field experience in business consulting and other forms of technical assistance for business firms and management in ethnic communities; seminars and other shared learning experiences in transmitting business administration technology to the urban ghetto.
The Staff

453. Field Work in Arts Management. (1 to 3 courses)
Prerequisite: consent of instructor. Supervised field experience and practical work in all phases of an arts organization (pictorial, performing, or community), concentrating on its managerial problems and its relationship to the community and society in general.
The Staff

Individual Study and Research

501. Cooperative Program. (½ to 2 courses)
Prerequisite: approval of UCLA School of Management Graduate Adviser and Assistant Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596A-596N. Research in Management. (¼ to 2 courses)
Prerequisite: consent of Director of Master's Programs or Director of Doctoral Program by special petition. Directed individual study or research.
The Staff

597. Preparation for Qualifying Examinations. (1 or 2 courses)
Prerequisite: consent of Director of Master's Programs or Director of Doctoral Program by special petition. Preparation for comprehensive examination for the master's degree or the qualifying examination for the Ph.D. degree.
The Staff

598. Thesis Research in Management. (1 or 2 courses)
Prerequisite: consent of Director of Master's Program by special petition. Research for and preparation of the master's thesis.
The Staff

599. Dissertation Research in Management. (1 or 2 courses)
Prerequisite: consent of Director of Doctoral Program by special petition. Research for and preparation of the doctoral dissertation.
The Staff

■ MATHEMATICS

(Department Office, 6364 Mathematical Sciences Building)

Richard F. Arens, Ph.D., *Professor of Mathematics.*

Donald G. Babbitt, Ph.D., *Professor of Mathematics.*

Kirby A. Baker, Ph.D., *Professor of Mathematics.*

A. V. Balakrishnan, Ph.D., *Professor of Mathematics and Engineering.*

Robert J. Blattner, Ph.D., *Professor of Mathematics.*

Robert F. Brown, Ph.D., *Professor of Mathematics (Vice Chairman of the Department).*

David G. Cantor, Ph.D., *Professor of Mathematics and Engineering and Applied Science.*
C. C. Chang, Ph.D., *Professor of Mathematics.*
Alonzo Church, Ph.D., *Professor of Mathematics and Philosophy in Residence.*
Earl A. Coddington, Ph.D., *Professor of Mathematics.*
Julian D. Cole, Ph.D., *Professor of Mathematics and Engineering and Applied Science.*
Michael G. Crandall, Ph.D., *Professor of Mathematics.*
Philip C. Curtis, Jr., Ph.D., *Professor of Mathematics.*
Henry A. Dye, Ph.D., *Professor of Mathematics (Chairman of the Department).*
Thomas S. Ferguson, Ph.D., *Professor of Mathematics.*
Theodore Gamelin, Ph.D., *Professor of Mathematics (Vice Chairman of the Department).*
John Garnett, Ph.D., *Professor of Mathematics.*
Basil Gordon, Ph.D., *Professor of Mathematics.*
John W. Green, Ph.D., *Professor of Mathematics.*
Robert E. Greene, Ph.D., *Professor of Mathematics.*
Nathaniel Grossman, Ph.D., *Professor of Mathematics.*
Alfred Hales, Ph.D., *Professor of Mathematics (Vice Chairman of the Department).*
Alfred Horn, Ph.D., *Professor of Mathematics.*
S. T. Hu., Ph.D., D.Sc., *Professor of Mathematics.*
Robert I. Jennrich, Ph.D., *Professor of Mathematics and Biomathematics.*
Paul B. Johnson, Ph.D., *Professor of Mathematics.*
Paul J. Koosis, Ph.D., *Professor of Mathematics.*
Thomas M. Liggett, Ph.D., *Professor of Mathematics.*
Ronald Miech, Ph.D., *Professor of Mathematics.*
Yiannis N. Moschovakis, Ph.D., *Professor of Mathematics.*
Barrett O'Neill, Ph.D., *Professor of Mathematics.*
Sidney Port, Ph.D., *Professor of Mathematics.*
Raymond M. Redheffer, Ph.D., *Professor of Mathematics.*
Bruce L. Rothschild, Ph.D., *Professor of Mathematics.*
David Sanchez, Ph.D., *Professor of Mathematics.*
Leo Sario, Ph.D., *Professor of Mathematics.*
Murray Schacher, Ph.D., *Professor of Mathematics.*
Robert H. Sorgenfrey, Ph.D., *Professor of Mathematics.*
Robert Steinberg, Ph.D., *Professor of Mathematics.*
Charles J. Stone, Ph.D., *Professor of Mathematics and Biomathematics.*
Ernst G. Straus, Ph.D., *Professor of Mathematics.*
Masamichi Takesaki, Ph.D., *Professor of Mathematics.*
V. S. Varadarajan, Ph.D., *Professor of Mathematics.*
N. Donald Ylvisaker, Ph.D., *Professor of Mathematics.*
E. F. Beckenbach, Ph.D., *Emeritus Professor of Mathematics.*
M. R. Hestenes, Ph.D., *Emeritus Professor of Mathematics.*
Paul G. Hoel, Ph.D., *Emeritus Professor of Mathematics.*
William T. Puckett, Ph.D., *Emeritus Professor of Mathematics.*
Frederick A. Valentine, Ph.D., *Emeritus Professor of Mathematics.*
Rodolfo DeSapio, Ph.D., *Associate Professor of Mathematics.*
Robert Edwards, Ph.D., *Associate Professor of Mathematics.*
Hector Fattorini, Ph.D., *Associate Professor of Mathematics and Engineering and Applied Science.*
David Gieseker, Ph.D., *Associate Professor of Mathematics.*
David Gillman, Ph.D., *Associate Professor of Mathematics.*
Charles G. Lange, Ph.D., *Associate Professor of Mathematics.*
James V. Ralston, Jr., Ph.D., *Associate Professor of Mathematics.*
James White, Ph.D., *Associate Professor of Mathematics.*
Sun-Yung Alice Chang, Ph.D., *E.R. Hedrick Assistant Professor of Mathematics.*
Pamela Cook-Ioannidis, Ph.D., *Assistant Professor of Mathematics.*
Richard T. Durrett, Ph.D., *E.R. Hedrick Assistant Professor of Mathematics.*
Richard S. Elman, Ph.D., *Assistant Professor of Mathematics.*
Robert J. Epp, Ph.D., *Assistant Professor of Mathematics.*
Moshe Goldberg, Ph.D., *Assistant Professor of Mathematics.*
Mark Green, Ph.D., *Assistant Professor of Mathematics.*
Robert R. Jensen, Ph.D., E. R. *Hedrick Assistant Professor of Mathematics.*
Steven Krantz, Ph.D., *Assistant Professor of Mathematics.*
Andrew Majda, Ph.D., *Assistant Professor of Mathematics.*
William Meeks, Ph.D., E. R. *Hedrick Assistant Professor of Mathematics.*
Telis K. Menas, Ph.D., *Assistant Professor of Mathematics.*
Peter C. Trombi, Ph.D., *Assistant Professor of Mathematics.*
Guy H. Hunt, C.E., *Assistant Professor of Mathematics, Emeritus.*

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David Cohen, M.A., *Lecturer in Mathematics.*
Herbert Enderton, Ph.D., *Lecturer in Mathematics.*
John McGhee, M.A., *Lecturer in Mathematics.*
Jaime Milstein, Ph.D., *Adjunct Assistant Professor of Mathematics.*

Undergraduate Programs

Students who wish advice or current information on any of the undergraduate mathematics programs should inquire at the Undergraduate Mathematics Office, MS 6356.

Courses taken to fulfill any of the requirements for any of the Mathematics Department's majors must be taken for a letter grade and not Pass/Not Pass.

Preparation for the Major

Courses 31A-31B-31C, 32A-32B-32C or the corresponding courses in the honors sequence. These courses must be completed with an average grade of C or higher. Prospective majors who qualify are strongly urged to take the honors sequence Mathematics 31AH-31BH-31CH, 32AH-32BH-32CH. *Engineering 10 and **three courses in physical sciences chosen from Chemistry 11 or 13 sequences (formerly Chemistry 1 or 3), Physics 6, 8 or 8H sequences, Astronomy 101, Meteorology 10, 40A, 40B, or approved upper division courses in Chemistry, Meteorology, Planetary and Space Science, and Physics. Recommended: courses in physics. (*Students with 36 quarter units prior to Fall 1973 are exempt from the Engineering 10 requirement. **Students may apply physical science courses from the former (1973-1974) list if the courses were completed prior to Fall 1974.)

Transfer Students

Transfer students, and UCLA students wishing to change their major to mathematics, with 60 or more quarter units of credit must have completed one year of calculus and have a C average or better in all college level mathematics courses completed. Transfer students should consult with a departmental adviser at their earliest opportunity. Particular areas where evaluation and direction may be necessary are linear algebra and differential equations.

The Major

Courses 110A, 115, 120A, 131A, 131B, and at least five additional courses numbered between 105 and 199. Highly recommended for students who may wish to obtain a graduate degree: courses 110B-110C. A reading knowledge of French, Russian or German is strongly recommended for students intending to pursue graduate work.

Honors Calculus Sequence

The first and second year honors sequence, Mathematics 31AH-31BH-31CH-32AH-32BH-32CH, is intended for students (not necessarily mathematics majors) who have a strong interest in mathematics and desire a broader and more comprehensive and demanding introduction to

university-level topics. On occasion, the courses may range beyond the stated topics of calculus, linear algebra, and differential equations. Admission to the sequence is by permission of the instructor, and the departmental placement test, advanced placement examinations, or other evidence. Students who have done unusually well in the standard sequence are welcome to apply for transfer to the honors sequence. (The honors sequence is not connected with the Undergraduate Honors Program described below.) In Fall 1976, Mathematics 31AH, 31CH and 32AH will be offered.

Undergraduate Honors Program

A student majoring in mathematics and wishing to graduate with Honors in Mathematics should apply for admission to the Honors Program. This may be done any time after the fourth undergraduate quarter. Minimum entrance requirements for fifth quarter students are the completion of courses 31A-31B-31C and 32A with three A's and one B. Applications from students past the fifth quarter and from transfer students will be judged on prospects for successful completion of the program. Honors will be granted to students in the program who in addition to the usual course requirements: (a) complete courses 110B-110C or approved graduate substitutes; (b) complete course 190, Honors Mathematics Seminar; (c) earn a grade-point average of at least 3.6 in approved upper division and graduate mathematics courses. Students who demonstrate exceptional achievement will be awarded Highest Honors.

Departmental Scholar Program in Mathematics

This program allows exceptionally promising undergraduates to enroll in graduate courses and begin work towards the Master's degree in mathematics. See Departmental Scholar Program.

The Major in the Teaching of Mathematics

Courses 101A-101B-101C, 102A-102B, 152A, 370 and at least three other courses in the 100 series beyond 105. Highly recommended are courses 106, 111A-111B-111C, 115, 120A-120B, 131A-131B, 132, 140A, 142, 144, 152B. A knowledge of Spanish is recommended for students who intend to teach in the Southwest.

Teaching Credentials

Students interested in course requirements for the single subject teaching credential in mathematics should inquire at the Undergraduate Mathematics Office, MS 6356.

The Major in Mathematics-Applied Science

This is a program designed for students with a substantial interest both in mathematics and its applications to related fields.

Preparation for the Major. Mathematics 31A-31B-31C, 32A-32B-32C with an average grade of "C" or better.

The Major. Seven courses in Mathematics in the 100 series chosen from those numbered 110 and above, with an average grade of "C" or better. Seven upper division courses chosen from not more than two related departments approved by the Mathematics-Applied Science Curriculum Committee of the Mathematics Department.

Students contemplating this major should apply during their sophomore year. An adviser in the Mathematics Department will be appointed and a proposed program of study drawn up. Upon approval of the program by the Mathematics-Applied Science Curriculum Committee, the student will be accepted into the program.

The Major in Mathematics-Computer Science

This is described under the College of Letters and Science.

Departmental Scholar Program in Mathematics-Computer Science

This program allows exceptionally promising Mathematics-Computer Science undergraduates to enroll in graduate courses and begin work towards the Master's degree in Computer Science. See Departmental Scholar Program.

The Major in Mathematics-System Science

This is described under the College of Letters and Science.

Course Repetition

A student may not take a mathematics course for credit if he has credit for a more advanced course which has the first course as a prerequisite.

Conflicts or Duplication of Calculus Sequences

Since each of the sequences 3A-3B-3C, 4A-4B, 31A-31B-31C-32A-32B-32C (and the previous 11A-11B-11C-12A-12B-12C, 11A-11B-11C-13A-13B-13C) has been designed in accordance with the requirements of majors in a particular group of departments, it will be difficult for students to transfer from one sequence to another. Good students who wish to pursue advanced mathematics should be able to enter 31C after completing 3C. Students wishing to continue in mathematics after completing 4B (formerly 2C) should take 3C, followed by 31C. Credit will be given for at most one course in each of the following groups: 1. 11A, 11AH, 31A, 31AH, 4A, 3A, 2B; 2. 11B, 11BH, 31B, 31BH, 4B, 3B, 2C; 3. 11C, 11CH, 31C, 31CH; 4. 12A, 12AH, 31C, 31CH; 5. 12B, 12BH, 13B, 32A, 32AH; 6. 12C, 12CH, 13C, 32B, 32BH; 7. 13A, 130A, 32C, 32CH.

Other changes should be made only with the concurrence of a departmental adviser who will determine the total allowable credit. Similar caution applies to transfer students entering with incomplete calculus sequences. Such students should be prepared to supply complete information as to texts used and chapters covered in their previous work. A placement examination, described below, may be required.

Undergraduate Placement Examinations

Placement into 2, 4A, 3A or 31A: An examination covering high school algebra and trigonometry is given in the fall quarter during registration week. This examination determines which students may be exempt from the prerequisites to 2, 4A, 3A and 31A.

Placement into 3B, 3C, 31B, 31C or 32A: Students entering from high school who believe they know the equivalent of a calculus course offered by the Department of Mathematics may demonstrate their proficiency in the course by taking an examination. The different examinations will be given during registration week of the fall quarter. Departmental advisers may request transfer students to take one of these examinations as an aid in determining the correct sequence and course for initial placement.

Placement in 31AH, 31CH, or 32AH: Interested students should contact the Mathematics Department for admission requirements.

Advanced Placement Calculus AB and BC Tests: Students who pass the AB Examination with a score of 3, 4, or 5 receive 5 units of credit and Mathematics 31A equivalency. Students who score 3, 4, or 5 on the BC Examination receive 10 units of credit and Mathematics 31AB equivalency. Students who take both examinations will receive at most 10 units of credit.

Graduate Programs

All mathematics graduate programs are administered by the Graduate Mathematics Office, MS 6375.

Requirements for the Master's Degree

Candidates for the degree of Master of Arts in mathematics must qualify under The Comprehensive Examination Plan. For the general requirements, see Master's Degrees. Eleven quarter courses must be offered. One alternative is to offer eight or more courses in the graduate list; the remainder may be approved upper division courses. The other alternative involves the preparation of a report under the direction of some member of the Department. This is a project designed to train the student in independent study of mathematical literature and the reduction to orderly form of the knowledge thus gained. This alternative requires six or more graduate courses and the remainder approved undergraduate courses; the preparation of the report may be given credit as one of the graduate courses. The candidate must pass a set of qualifying written examinations, one in basic analysis and one in basic algebra.

Requirements for the Master of Arts in Teaching (M.A.T.) Degree

The Department also offers a program leading to the degree of Master of Arts in Teaching (M.A.T.). Seven courses in mathematics are required, of which six are in the 200 series. Recommended are several courses of particular value to teachers, one of which leads to the preparation of a Master's essay. In addition, three courses in the Department of Education are required, as well as the course in supervised teaching. The comprehensive examinations cover both subject matter based upon the mathematical requirements and the content and philosophy of school mathematics. A variation of this program is available for those interested in a junior college credential.

Requirements for the Doctor's Degree

The requirements are, in general, in accordance with those listed under general requirements for the doctor's degree. At present, the qualifying examinations which must be taken within the Department before the student is advanced to candidacy consist of an examination divided into four parts. The parts consist of (1) algebra, (2) real analysis, (3) complex analysis, and (4) mathematical electives. These written examinations are given twice each year; the student normally should take them during his second year of graduate study. There are two additional requirements for the Ph.D. Students must pass satisfactorily at least twelve mathematics courses numbered 205 through 285 but

excluding 210A-210B, 245A-245B, 246A-246B; and furthermore, students are required to participate actively in at least two seminars during their graduate study. Exceptions to these requirements may be granted in special cases. A student pursuing the Ph.D. degree can obtain a Master's degree by fulfilling the eleven course requirement, and by passing the Ph.D. algebra qualifying examination and one of the other Ph.D. qualifying examinations.

Applied Mathematics

An interdisciplinary program in applied mathematics is offered leading to the M.A. and Ph.D. degrees in mathematics. The candidate for the M.A. degree must pass a set of written qualifying examinations, one in basic analysis and one chosen from applied mathematics, numerical analysis, and probability and statistics. Four qualifying examinations are required before a Ph.D. student is advanced to candidacy. The student must pass a written examination in applied real and complex analysis and one chosen from applied differential equations, numerical analysis, or probability and statistics. The third examination normally will be based on material covered in a three-course sequence in the mathematics department which is supportive to the student's specialized field. The fourth examination will be a written or oral examination in the student's specialized "outside" field. In addition to the qualifying examinations, students must pass satisfactorily at least eighteen approved graduate courses, including at least twelve mathematics courses numbered from 205 to 285.

Foreign Language

No foreign language is required for the M.A. degree. For the Ph.D. degree, two foreign languages are required. Preferred languages are French, German, and Russian. Students in the Applied Mathematics program may petition to substitute Computer Programming for the second foreign language.

Lower Division Courses

1A. Intermediate Algebra. (½ course)

Restrictions: Mathematics 1A may not be used to satisfy College breadth requirements. Not open for credit to students with three years of high school mathematics. Not open for credit to students who have credit for other mathematics courses. Arithmetical operations on the real numbers, algebraic notation, polynomials, rational exponents, linear and quadratic equations and inequalities, coordinate geometry. Intended for students requiring a review of elementary and intermediate algebra.

1B. Precalculus.

Prerequisite: course 1A or two and one half years of high school mathematics or satisfactory performance on a placement examination given the first class meeting. Not open for credit to students who have credit for other mathematics courses except 38A-38B and 100. The function concept. Linear and polynomial functions and their graphs, zeroes of polynomials. Inverse, exponential and logarithmic functions. Trigonometric functions.

2. Finite Mathematics for Social Science Students.

(Formerly Mathematics 2A) Prerequisite: three years of high school mathematics or course 1B. Finite mathematics consisting of elementary logic, sets, combinatorics, probability, vectors and matrices.

3A-3B-3C. Calculus for Life Science Students.

Lecture, three hours; discussion, two hours. Prerequisite: three years of high school mathematics (including trigonometry) or course 1B. Course 3A is not open for credit to students with credit in another calculus sequence. **3A:** techniques and applications of the differential calculus. **3B:** techniques and applications of the integral calculus. **3C:** may be taken after course 4B. Functions of several variables, vectors, partial differentiation, and multiple integration.

4A-4B. Calculus for Social Science Students.

(Formerly Mathematics 2B-2C) Prerequisite: three years of high school mathematics (including trigonometry) or course 1B. **4A:** functions, graphs, differentiation and integration with applications, transcendental functions. **4B:** sequences and series, functions of several variables, further applications of the calculus.

15. Lower Division Seminars.

Prerequisite: consent of the instructor. Each quarter the Department will offer a limited number of seminars in various branches of mathematics. The method of teaching will involve substantial student participation and enrollment will be limited to 15 students. Course may be repeated for credit.

31A-31B-31C. Calculus and Analytic Geometry.

Prerequisites: At least three years of high school mathematics including some coordinate geometry and trigonometry, or passing of placement examination. **31A:** Introduction to differentiation and integration with applications. **31B:** Transcendental functions, extremal problems, techniques and applications of integration. **31C:** Infinite series; introduction to matrix theory.

31AH-31BH-31CH. Calculus and Analytic Geometry, Honors Sequence.

Prerequisites: Satisfactory performance on a placement examination and consent of the instructor. An honors course parallel to 31A-31B-31C.

32A-32B. Introduction to Calculus of Several Variables.

Prerequisites: course 31C or 31CH or consent of the instructor. **32A:** Introduction to differential calculus of several variables. **32B:** Introduction to integral calculus of several variables.

32AH-32BH. Introduction to Calculus of Several Variables, Honors Sequence.

Prerequisites: course 31CH or 31C with grade A or consent of instructor. An honors course parallel to 32A-32B.

32C. Introduction to Differential Equations.

Prerequisites: course 31C or consent of instructor. An introduction to the theory of differential equations: separation of variables, linear equations, variation of parameters, partial differential equations, Fourier series.

32CH. Introduction to Differential Equations, Honors Sequence.

Prerequisites: course 32BH or consent of instructor. An honors course parallel to 32C.

38A-38B. Fundamentals of Arithmetic.

Lecture three hours, laboratory two hours. Prerequisite: sophomore standing; two years of high school mathematics. Designed for prospective elementary teachers (See also Mathematics 104). The real number system, its origins, development, structure, and use. Emphasis is on understanding of arithmetic procedures. The laboratory includes experience with aids and models. 38A: May not be used to fulfill Letters and Science breadth requirement. Counting numbers and other subsystems of the rational numbers; sets; operations; relations; algorithms; measurement and approximation; applications. 38B: Prerequisite: course 38A. May not be used to fulfill Letters and Science breadth requirement. The real numbers, functions, elementary ideas of number theory, probability, and statistics. Other topics appropriate for the elementary classroom.

50A-50B. Elementary Statistics.

Prerequisite to course 50A: three years of high school mathematics or course 1B or consent of the instructor. Prerequisite to course 50B: course 50A. **50A:** Descriptive statistics, elementary probability, random variables, binomial and normal distributions, large and small sample inference concerning means. **50B:** Linear regression and correlation, chi-square tests, design of experiments, analysis of variance, nonparametric statistics, computerized statistical analysis via prepackaged routines.

60. Introduction to Mathematical Methods of System Science.

Prerequisites: course 31C or consent of the instructor. Selected introductory topics pertinent to the analysis of automata, information transmission, signals, networks. Intended for students in the Mathematics-System Science major, and for other mathematics and science majors.

99. Individual Projects in Programming. (⅛ course)

Prerequisites: Mathematics 31A-31B-31C, Engineering 10 or passing of the Engineering 10 qualifying examination. Limited to majors in Mathematics, Teaching of Mathematics, Mathematics/Applied Science, Mathematics/Computer Science, Mathematics/System Science. Course may only be taken on a pass-fail basis and may be taken up to eight times. This is an unstructured course in computer programming. Students submit proposals for their own programming projects and, after approval, proceed to carry them out, either independently or in small groups. To pass this course students must submit a final report indicating what they have actually done, and evidence that they have successfully run computer programs.

Upper Division Courses

GENERAL AND TEACHER TRAINING

100. The Nature of Mathematics.

Prerequisite: junior standing. Not open to students majoring in mathematics, engineering, or physical science. A course designed to acquaint students in the arts, humanities, and social sciences with the nature of modern mathematics and the mathematical method.

101A-101B-101C. Topics in Algebra.

Prerequisite: course 31C or consent of the instructor. 101A is not open to students having credit for course 110A. A sequence intended primarily for prospective secondary teachers. Group theory, numbers and number systems, relations and equivalence, topics from elementary number theory, the rational numbers, integral domains, rings and fields, the real numbers, cardinals, complex numbers, polynomials, vector spaces, nonconstructibility, nonsolvability.

102A-102B. Topics in Geometry.

Prerequisite: course 31C or consent of the instructor. A sequence intended primarily for prospective secondary teachers. Axiomatic methods, advanced topics in Euclidean geometry, hyperbolic and other geometries, constructions, symmetries, isometry and related topics, projective geometry, map coloring, Jordan curve theorem.

104. Fundamental Concepts of Geometry.
Lecture three hours, laboratory two hours. Prerequisite: two years of high school mathematics including geometry. Designed for prospective elementary teachers (See also Mathematics 38A-38B). Plane and solid Euclidean geometry: axioms, parallels, congruence, similarity, area and volume, geometric constructions; non-Euclidean geometry.

106. History of Mathematics.
Prerequisite: course 31C or consent of the instructor. Topics in the history of mathematics with emphasis on the development of modern mathematics.

107. Mathematical Ideas.
Prerequisite: courses 32A-32B-32C or consent of the instructor. Postulational methods, sets, equivalence, cardinals; number systems, integers, reals, complex numbers; geometry, Euclid's axioms, alternative systems, non-Euclidean spaces; functions and limits; topology of convex sets, convex functions, fixed point theorem, fundamental theorem of algebra and related concepts.

ALGEBRA, NUMBER THEORY AND LOGIC

110A-110B-110C. Algebra.
Prerequisite: course 115 or consent of the instructor. Course 110A is not open for credit to students with credit for Mathematics 101A or 101B. **110A:** the ring of integers, integral domains, fields, polynomial domains, unique factorization. **110B:** groups, structure of finite groups. **110C:** further topics in rings and modules; field extensions, Galois Theory, applications to geometric constructions and solvability by radicals.

111A-111B-111C. Theory of Numbers.
Prerequisite: course 115 or consent of the instructor. Divisibility, congruences, Diophantine analysis, selected topics in the theory of primes, algebraic number theory, Diophantine equations.

112A-112B-112C. Set Theory and Logic.
Prerequisite: courses 32A-32B-32C or consent of the instructor. Course 112A deals with informal axiomatic set theory presented as a foundation for modern mathematics. 112B and 112C cover predicate logic, formalized theories. Godel's completeness and incompleteness theorems.

113. Combinatorics.
Prerequisite: course 32A or consent of the instructor. Permutations and combinations, counting principles, recurrence relations and generating functions, combinatorial designs, graphs and trees, with applications including games of complete information. Combinatorial existence theorems, Ramsey's theorem.

114. Theory of Computability.
Prerequisite: course 31C or consent of the instructor. Machines and recursive functions. Church's thesis. Godel numbers, enumeration theorem, universal machines. Unsolvable problems. Relative recursiveness. Further topics selected from: word problems, arithmetical relations, subrecursive hierarchies, primitive recursive functions, computational complexity.

115. Linear Algebra.
Prerequisite: course 31C or consent of the instructor. Abstract vector spaces; linear transformations and matrices; determinants; similarity; eigenvalues and eigenvectors; Jordan form; inner product spaces; quadratic forms.

GEOMETRY AND TOPOLOGY

120A-120B. Differential Geometry.
Prerequisite: course 32B or consent of the instructor. Curves in 3-space, Frenet formulas, surfaces in 3-space, normal curvature, Gaussian curvature. Congruence of curves and of surfaces. Intrinsic geometry of surfaces, isometries, geodesics, Gauss-Bonnet theorem.

121. Introduction to Topology.
Prerequisite: course 131A. Metric and topological spaces, topological properties, completeness, mappings and homeomorphisms, the metrization problem.

122. Projective Geometry.
Prerequisite: course 115. Projective spaces, especially lines and planes; homogeneous coordinates; the principles of duality; projectivities, the fundamental theorem, and the theorems of Desargues, Pappus, Steiner and Pascal.

ANALYSIS

131A-131B. Analysis.
Prerequisite: 131A: course 32B or consent of the instructor; 131B: courses 131A and 115 or consent of the instructor. Topology of IR; functions of one variable, limits, and continuity; differentiation and integration of function on IR; uniform convergence; theorems concerning differentiation and integration of convergent sequences of functions; numerical series and power series; the logarithmic, exponential, and trigonometric functions treated by means of power series; the algebra, geometry, and topology of IR^n; differentiation of functions of several variables; the inverse and implicit function theorems.

131C. Integration on Manifolds.
Prerequisite: course 131B; Integration theory for functions of several variables, multilinear algebra, differential forms, Stokes' Theorem on manifolds.

132. Introduction to Complex Analysis.
Prerequisite: course 32B or consent of the instructor. Complex numbers, functions, differentiability, series, extensions of elementary functions, integrals, calculus of residues, conformal maps and mapping functions with applications.

134. Measure and Integration.
Prerequisite: course 131B or consent of the instructor. An introduction to Lebesgue measure and integration.

135A-135B-135C. Differential Equations.
Prerequisite to 135A: 32C (or the discontinued 13A or 130A). Course 135A is not open for credit to students having the former 130B. Prerequisite to 135B: 135A (previously called 130B). Course 135B is not open for credit to students having the former 130C. Prerequisite to 135C: 135B (previously called 130C). Systems of differential equations, linear systems, existence theory, stability of linear and almost linear systems, Lyapunov's Second Method, Sturm-Liouville problems, applications, linear partial differential equations, the wave equation, the heat equation and Laplace's equation.

APPLIED MATHEMATICS

140A-140B-140C. Numerical Analysis.
Prerequisite: courses 31A-31B-31C, 32A-32B-32C, and Engineering 10 or consent of the instructor. **140A:** Computational methods for linear algebra; solving systems of linear equations; computing eigenvalues and eigenvectors; nonlinear equations. **140B:** Interpolation and approximation; numerical differentiation and integration; Richardson extrapolation. **140C:** Elements of numerical solutions for scalar ordinary differential equations; initial value problems.

142. Introduction to Applied Mathematics.
Prerequisite: courses 32A-32B-32C or consent of the instructor. An introduction to the fundamental principles and the spirit of applied mathematics. Emphasis is placed on the manner in which mathematical models are constructed for physical problems. Illustrations are drawn from many fields of endeavor (e.g. physical science, biology, economics, traffic dynamics, etc.).

143. Analytic Mechanics.
Prerequisite: courses 32A-32B-32C or consent of the instructor. Foundations of Newtonian mechanics, kinematics and dynamics of a rigid body, variational principles and Lagrange's equations; calculus of variations, variable mass; related topics in applied mathematics.

144. Theory of Games and Linear Programming.
Prerequisite: course 115 or consent of the instructor. The basic theorems of two person zero-sum matrix games including the minimax theorem; applications to games of chance and strategy; principles of linear programming, the duality theorem, and simplex methods; applications to industrial and business problems.

145A-145B. Methods of Applied Mathematics.
Prerequisites: course 32A-32B-32C or consent of the instructor. Calculus of variations, linear integral equations (Volterra and Fredholm) and applications to differential equations, Fourier series and integrals, elements of tensor calculus, special topics as time permits.

PROBABILITY AND STATISTICS

The 150 and 152 sequences are parallel courses and transferring between them is not permitted.

150A-150B-150C. Probability and Statistics.
Prerequisite: course 32B or consent of the instructor. 150A and the first half of 150B constitute an introduction to probability theory. The second half of 150B and 150C constitute an introduction to statistics. These courses emphasize both theory and applications.

M151. Stochastic Processes.
(Same as Engineering M120C.) Prerequisite: Engineering 120A or courses 150A-150B, or 152A and consent of the instructor. An introduction to the theory and application of stochastic models, emphasizing Markov chains and pure jump processes; illustrations from queueing systems, point processes, birth and death processes, renewal theory; Poisson processes, Brownian motion.

152A-152B. Applied Mathematical Statistics.
Prerequisite: course 32B or consent of the instructor. A basic introductory course in the theory and application of statistical methods. This course condenses 150A-150B-150C into two quarters mainly by devoting less time to the underlying theory.

190. Honors Mathematics Seminar.
Prerequisite: admission to Mathematics honors program and consent of the instructor. A participating seminar on advanced topics in mathematics.

191. Upper Division Seminars.
Prerequisite: courses 32A-32B-32C or consent of the instructor. Each quarter the Department will offer a limited number of seminars in various branches of mathematics. The method of teaching will involve substantial student participation and enrollment will be limited to 15 students. Course may be repeated for credit.

199. Special Studies in Mathematics. (¼ to 1 course)
Prerequisite: approval of the chairman and consent of the instructor. At the discretion of the chairman and

subject to the availability of staff, individuals or groups may study topics suitable for undergraduate course credit but not specifically offered as separate courses. Course may be repeated for credit, but no more than one 199 course may be counted towards the ten upper division courses required for the major.

Graduate Courses

TEACHER PREPARATION

201A-201B-201C. Topics in Algebra and Analysis.

Prerequisite: B.A. degree with mathematics major or equivalent. A course for students in the mathematics-education program. Students may not receive credit toward the M.A. degree in Mathematics for this course. Important ideas of algebra, geometry and calculus leading effectively from elementary to modern mathematics. Approaches to the number system, point sets, geometric interpretations of algebra and analysis, integration, differentiation, series and analytic functions.

202A-202B. Mathematical Models and Applications.

Prerequisite: B.A. degree with mathematics major or equivalent. A course designed for students in the mathematics-education program. Students may not receive credit toward the M.A. degree in Mathematics for this course. A development of mathematical theories describing various empirical situations. Basic characterizing postulates are discussed and a logical structure of theorems developed. Modern topics such as operations research, linear programming, game theory, learning models, models in social and life sciences.

NUMBER THEORY

205A-205B-205C. Number Theory.

Prerequisite: courses 246A and 210A or consent of the instructor. Topics from analytic algebraic and geometric number theory, including distribution of primes and factorization in algebraic number fields. Also selected topics from additive number theory, Diophantine approximation, partitions, class-field theory, lattice point problems, valuation theory, etc.

206A-206B. Combinatorial Theory.

Prerequisites: consent of the instructor. Generating functions. Probabilistic methods. Polya's theorem. Enumerative graph theory. Partition theory. Number theoretical applications. Structure of graphs, matching theory, duality theorems. Packings, pavings, coverings, statistical designs, difference sets, triple systems, finite planes. Configurations, polyhedra. Ramsey theory, finite and transfinite, and applications.

ALGEBRA

210A-210B-210C. Algebra.

Prerequisite: courses 110A-110B-110C or consent of the instructor. Students may not receive credit toward the Master's degree for both 210B and 110B and/or 210C and 110C. Group theory including the theorems of Sylow and Jordan-Hölder-Schreier; rings and ideals, factorization theory in integral domains, modules over principal ideal rings, Galois theory of fields, multilinear algebra, structure of algebras.

211. Structure of Rings.

Prerequisite: course 210A or consent of the instructor. The radical, irreducible modules and primitive rings, rings and algebras with minimum condition.

212. Homological Algebra.

Prerequisite: course 210A or consent of the instructor. Modules over a ring, homomorphisms and tensor products of modules, functors and derived functors, homological dimension of rings and modules.

213A-213B. Theory of Groups.

Prerequisite: course 210A or consent of the instructor. Topics chosen from representation theory, transfer theory, infinite Abelian groups, free products and presentations of groups, solvable and nilpotent groups, classical groups, algebraic groups.

214A-214B. Algebraic Geometry.

Prerequisite: course 210A or consent of the instructor. Preliminaries from the theory of commutative rings and algebras. Theory of algebraic varieties. Topics chosen from plane curves, resolution of singularities, invariant theory, intersection theory, divisors and linear systems.

LOGIC AND FOUNDATIONS

220A-220B-220C. Mathematical Logic.

Prerequisites: courses 112A-112B-112C or equivalent. Languages; models; compactness theorem; Lowenheim-Skolem theorems; definability; ultraproducts; preservation theorems; interpolation theorems. Recursive partial functions and functionals; Church's thesis; recursively enumerable sets; arithmetical and analytical hierarchies; degrees. Formal proofs; incompleteness, undefinability, undecidability; decidable theories; quantifier elimination. Additional topics, e.g. rich languages; saturated models; hierarchy theory; recursion in higher types; decision problems in algebra.

M221A-221B-221C. Set Theory.

(Same as Philosophy M221A-221B-221C.) Prerequisite: course 112A or Philosophy 134. Students may not receive credit for both Mathematics M221A-221B-221C and Philosophy M221A-221B-221C. Sets, relations, functions. Partial and total ordering; well-orderings. Ordinal and cardinal arithmetic, finiteness and infinity, the continuum hypothesis, inaccessible numbers. Formalization of set theory, Zermelo-Fraenkel theory, von Neumann-Gödel theory. Constructibility. Results on relative consistency and independence.

222A-222B. Distributive Lattices and Boolean Algebras.

Prerequisite: course 121 or 230 or consent of the instructor. Partially ordered sets, lattices, distributivity laws, completeness properties, ideal theory, Heyting algebras, Boolean algebras, closure algebras, representation theory, applications to topology and logic.

223. Advanced Topics in Mathematical Logic.

Prerequisite: consent of the instructor. Content will vary from quarter to quarter.

GEOMETRY

226A-226B-226C. Differential Geometry.

Prerequisite: course 231A or consent of the instructor. Manifold theory; connections, curvature, torsion, and parallelism. Riemannian manifolds; completeness, submanifolds, constant curvature. Geodesics; conjugate points, variational methods, Myers theorem, nonpositive curvature. Further topics such as: pinched manifolds, integral geometry, Kahler manifolds, symmetric spaces.

228. Convex Sets.

(Formerly numbered 228A-228B.) Prerequisite: course 121 or 245A or consent of the instructor. Basic concepts for convex sets in topological linear spaces; spearation theorems and support functions; local convexity; convex functions; Helly type theorems; duality.

229A-229B-229C. Lie Groups and Lie Algebras.

Prerequisites: Knowledge of basic theory of topological groups and knowledge of differentiable manifolds. Lie groups, Lie algebras, subgroups, subalgebras. Exponential map. Universal enveloping algebra. Campbell-Hausdorff formula. Nilpotent and solvable Lie algebras. Cohomology of Lie algebras. Theorems of Weyl, Levi-Mal'cev. Semisimple Lie algebras. Classification of simple Lie algebras. Representations. Compact groups. Weyl's character formula.

TOPOLOGY

230. General Topology.

Prerequisite: courses 131A-131B or consent of the instructor. Students may not receive credit toward the Master's degree for both 230 and 121. Topological spaces and maps, products, quotient spaces, connectedness and compactness, separation properties, local properties, completeness. Homotopy and the fundamental group.

231A-231B. Manifolds and Bundles.

Prerequisite: courses 131A-131B and 121, or 230 or consent of the instructor. Fundamental group and covering spaces, simplicial complexes, manifolds and their tangent bundles, vector bundles, vector fields and integral curves, differential forms and exterior derivative. Various additional topics in topology or geometry as time permits.

232A-232B-232C. Algebraic Topology.

Prerequisite: course 121 or 230 or consent of instructor. Fundamental group; homology theory, singular theory, cellular theory, computation of homology groups; cohomology theory, cup and cap products, duality; homotopy theory, fiberspaces, Hurewicz theorem, obstruction theory.

236. Advanced Topics in Geometric Topology.

Prerequisite: courses 231A, 231B or consent of the instructor. Handlebody theory, transversality; PL topology; surgery; topic varies from year to year.

237. Advanced Topics in Algebraic Topology.

Prerequisite: courses 232A-232B-232C or consent of the instructor. K-theory; fixed point theory; extraordinary cohomology theories; topic varies from year to year.

ANALYSIS AND DIFFERENTIAL EQUATIONS

240. Methods of Set Theory.

Prerequisites: course 131A-131B, 110A-110B. (Also Math 121 or its equivalent.) Naive, axiomatic set theory, the axiom of choice and its equivalents, wellorderings, transfinite induction, ordinal and cardinal arithmetic. Applications to algebra: Hamel bases, the Stone representation theorem. Applications to analysis and topology: the Cantor-Bendixson theorem, counterexamples in measure theory, Borel and analytic sets, Choquet's theorem.

245A-245B-245C. Real Analysis.

Prerequisites: courses 131A-131B and course 121 or the equivalent. (E.g. 230 can be taken concurrently). Students cannot receive credit toward the Master's degree for both 245A and 134. Basic measure theory. Measure theory on locally compact spaces. Fubini theorem. Elementary aspects of Banach and Hilbert spaces and linear operators. Function spaces. Radon-Nikodym theorem. Fourier transform and Plancherel on R^n and T^n.

246A-246B-246C. Complex Analysis.

Prerequisite: courses 131A-131B. Students may not receive credit toward the Master's degree for both 246A and 132. Cauchy-Riemann equations. Cauchy's theorem. Cauchy's integral formula and the residue calculus. Power series. Normal families. Harmonic functions. Linear fractional transformations. Conformal mappings. Analytic continuation. Examples of Riemann

surfaces. Infinite products. Partial fractions. The classical transcendental functions. Elliptic functions.

247A-247B. Classical Fourier Analysis.

Prerequisite: course 245 and 1 quarter of course 246. Distributions on R^n and T^n. Principal values; other examples. Distributions with submanifolds as supports. Kernel theorem. Convolution; examples of singular integrals. Tempered distributions and Fourier transform theory on R^n. Distributions with compact or one-sided supports and their complex Fourier transforms.

249A-249B-249C. Calculus of Variations and Optimal Control Theory.

Prerequisite: course 246A or consent of the instructor. Conditions for minima or maxima of functionals. The problems of Lagrange, Bolza, and Mayer, with or without inequality constraints. Mathematical aspects of optimal control theory. Multiple integral problems. The theory of quadratic forms in Hilbert space with applications to elliptic partial differential equations. Existence theorems.

250A. Ordinary Differential Equations.

Prerequisite: course 246A or consent of the instructor. Basic theory of ordinary differential equations. Existence and uniqueness of solutions. Continuity with respect to initial conditions and parameters. Linear systems and n-th order equations. Analytic systems with isolated singularities. Self-adjoint boundary value problems on finite intervals.

250B. Nonlinear Ordinary Differential Equations.

Prerequisite: course 250A. Asymptotic behavior of nonlinear systems. Stability. Existence of periodic solutions. Perturbation theory of two-dimensional real autonomous systems. The Poincaré-Bendixson theory.

250C. Advanced Topics in Ordinary Differential Equations.

Prerequisite: course 250A-250B. Selected topics, such as spectral theory or ordinary differential operators, nonlinear boundary value problems, celestial mechanics, approximation of solutions, and Volterra equations.

251A. Introductory Partial Differential Equations.

Prerequisite: consent of the instructor. Classical theory of heat, wave and potential equations; fundamental solutions, characteristics and Huygens principle, properties of harmonic functions. Classification of second order differential operators. Maximum principles, energy methods, uniqueness theorems. Additional topics as time permits.

251B-251C. Topics in Partial Differential Equations.

Prerequisite: consent of the instructor. An in depth introduction to topics of current interest in partial differential equations or their applications.

252A-252B-252C. Advanced Topics in Modern Complex Analysis.

Prerequisite: courses 245A-245B-245C and 246A-246B-246C or consent of the instructor. Introduction to current problems and methods selected from higher complex analysis, e.g., Riemann surfaces, Riemannian spaces, several complex variables, quasiconformal mappings, subharmonic functions, harmonic functions and forms, compactifications, elliptic equations, applications of functional analysis. The content of the course varies from year to year.

253A-253B. Several Complex Variables.

Prerequisites: courses 245A-245B-245C and courses 246A-246B-246C, or consent of the instructor. Introduction to analytic functions of several complex variables. The $\bar{\partial}$ problem, Cousin problems, domains of holomorphy, complex manifolds.

254A-254B. Trigonometrical Series.

Prerequisite: course 246A or 245A, taken previously or concurrently; or consent of the instructor. Selected topics in Fourier series, power series, orthogonal polynomials, almost periodic functions, and completeness of sets of functions.

FUNCTIONAL ANALYSIS

255A. Functional Analysis.

Prerequisites: courses 265A-265B-265C or 245A-245B and 246A. Banach spaces, basic principles. Weak topologies. Compact operators. Fredholm operators. Special spaces, including Hilbert spaces and C(X).

255B-255C. Topics in Functional Analysis.

Prerequisites: course 255A. Topics chosen from Banach algebras, operators on Banach spaces and Hilbert space, semigroups of operators, linear topological vector spaces, and other related areas.

256A-256B-256C. Topological Groups and Their Representations.

Prerequisite: course 255 or consent of the instructor. Topological groups and their basic properties. Haar measure. Compact groups and their representations. Duality and Fourier Analysis on locally compact abelian groups. Induced representations, Frobenius reciprocity. Representations of special groups (Lorentz, Galilean, etc.). Projective representations. Representations of totally disconnected groups.

258A-258B. Commutative Banach Algebras.

Prerequisite: course 246 and courses 255A and 255B. The Gel'fand theory of commutative Banach algebras. Applications to harmonic analysis on locally compact abelian groups. Algebras of holomorphic functions. Special topics.

259A-259B. Operator Algebras in Hilbert Space.

Prerequisite: courses 255A-255B-255C. Selected topics from the theories of C^* and von Neumann algebras. Applications.

APPLIED MATHEMATICS

260. Introduction to Applied Mathematics.

Prerequisite: course 142 or consent of the instructor. This course represents a continuation of course 142. It is concerned with the construction, analysis and interpretation of mathematical models of problems which arise outside of mathematics.

264. Applied Complex Analysis.

Prerequisite: course 246A or consent of the instructor. Topics chosen from contour integration conformal mapping, differential equations in the complex plane, special functions, asymptotic series, Fourier and Laplace transforms, singular integral equations.

265A-265B. Real Analysis for Applications.

(Formerly numbered 265A-265B-265C.) Prerequisite: course 131A-131B or consent of the instructor. This course is not open for credit to students with credit in 245A-245B-245B. 265A: Lebesgue measure and integration on the real line, absolutely continuous functions, functions of bounded variation, L^2 and L^p spaces, Fourier series. 265B: General measure and integrations, Fubini and Radon-Nikodym theorems, representation of functionals, Fourier integrals.

266A. Applied Ordinary Differential Equations.

Prerequisites: courses 131A-131B; 132, and 135A-135B; or courses 132, 145A-145B. Spectral theory of regular boundary value problems and examples of singular Sturm-Liouville problems, related integral equations, phase-plane analysis of nonlinear equations.

266B-266C. Applied Partial Differential Equations.

Prerequisites: course 266A or consent of the instructor. Classification of equations, classical potential theory, Dirichlet and Neumann problems, Green's functions, spectral theory of Laplace's equation in bounded domains, first order equations, wave equations, Cauchy problem, energy conservation, heat equation, fundamental solution, equations of fluid mechanics and magnetohydrodynamics.

267A-267B. Applied Algebra.

Prerequisite: course 110A or the equivalent. Students may not receive credit toward the master's degree for 267A and 210A. Linear algebra, eigenvalues and quadratic forms; linear inequalities, finite fields and combinatorial analysis. Group theory, with emphasis on respresentations. Application to physical problems.

268B-268C. Topics in Applied Functional Analysis.

Prerequisites: course 255A. Topics include spectral theory with applications to ordinary differential operators, eigenvalue problems for differential equations, generalized functions and partial differential equations.

269A-269B-269C. Advanced Numerical Analysis.

Prerequisites: courses 115, 130A, 140A-140B-140C or consent of instructor. Numerical solution for systems of ordinary differential equations; initial and boundary value problems. Numerical solution for elliptic, parabolic, and hyperbolic partial differential equations. Topics in computational linear algebra.

271A. Tensor Analysis.

Prerequisite: course 131A or consent of the instructor. Algebra and calculus of tensors on n-dimensional manifolds. Curvilinear coordinates, and coordinate-free methods. Covariant differentiation. Green-Stokes theorem for differential forms. Applications to topics such as continuum and particle mechanics.

271B. Analytical Mechanics.

Prerequisite: course 271A and some knowledge of mechanics. Newtonian and Lagrangian equations. Hamilton's principle. Principle of least action. Holonomic and nonholonomic systems. Hamilton's canonical equations, contact transformations, applications.

271C. Introduction to Relativity.

Prerequisite: course 271A and some knowledge of mechanics. Restricted theory of relativity. Extensions to general theory. The relativistic theory of gravitation.

272. Advanced Topics in Continuum Mechanics.

Prerequisite: courses 142 and 251A or the equivalent. Mathematical aspects of solid and/or fluid mechanics. Instability, wave propagation, nonlinear and stochastic phenomena.

273. Wave Mechanics.

Prerequisite: consent of the instructor. General concepts of mechanical systems (states, space-time, "logics," etc.). Classical and quantum examples. Correspondence principle. Spinors.

M274A. Asymptotic and Perturbation Methods I.

(Same as Engineering and Applied Science M292A.) Prerequisites: Engineering 192A or equivalent; Mathematics 132 or equivalent. The fundamental mathematics of asymptotic analysis, asymptotic expansions of Fourier integrals, method of stationary phase, Watson's lemma, method of steepest descent, uniform asymptotic expansions, elementary perturbation problems.

M274B. Asymptotic and Perturbation Methods II.

(Same as Engineering and Applied Science M292B.) Prerequisites: Engineering course 192A or equivalent or Mathematics 132 or equivalent. The fundamental mathematics of asymptotic analysis, limit process expansions, regular and singular perturbation problems, matching of asymptotic expansions, multiple scale methods, application to partial differential equations, near and far fields.

PROBABILITY AND STATISTICS

275A-275B. Probability Theory.

Prerequisite: course 245A or 265A. Connection between probability theory and real analysis. Weak and strong laws of large numbers, central limit theorem, conditioning, ergodic theory, martingale theory.

275C. Stochastic Processes.

Prerequisite: courses 275A-275B. Selected topics such as Brownian motion and potential theory, Markov processes, infinite particle systems, Gaussian processes. Content varies from year to year and the course may be repeated for credit.

276A-276B. Statistical Decision Theory.

Prerequisites: courses 150A-150B-150C or 152A-152B and courses 131A-131B. Bayes, admissible, and minimax decision rules; sufficiency and invariance; uniformly most powerful invariant and unbiased tests; multiple decision problems; applications to the general linear model.

276C. Large Sample Theory.

Prerequisite: courses 276A-276B. Fisher information, Cramer-Rao inequality, asymptotic properties of tests and estimators, maximum likelihood estimators, likelihood ratio and chi-square tests of hypothesis.

277. Sequential Analysis.

Prerequisite: courses 276A-276B. Bayes sequential decision rules, stopping rule problems, optimality of the sequential probability ratio test, Wald's fundamental identity.

278. Nonparametric and Robust Statistics.

Prerequisite: course 276C. Nonparametric and robust procedures are developed for hypothesis testing, estimation in one and two sample problems, linear and nonlinear regression, multiple classification, density estimation.

M279A-279B-279C. Linear Statistical Models.

(Same as Public Health M241A-241B-241C.) Prerequisites: Mathematics 152B or 150C and Public Health Course 160C or equivalent. Topics include linear algebra, applied to linear statistical models, distribution of quadratic forms, the Gauss-Markov theorem, fixed and random component models, balances and unbalanced designs.

M280. Computational Statistics. (¾ course)

(Same as Biomathematics M280 and Public Health M244C.) Prerequisite: Mathematics 150A-150B-150C and 115 or the equivalent. An introduction to the theory and design of statistical programs; pivoting and other technologies used in stepwise regression, nonlinear regression algorithms, algorithms for balanced and unbalanced analysis of variance including the mixed model, iterative rescaling and other methods for log-linear models.

285. Seminars. (1 course each)

Prerequisite: consent of instructor. No more than two 285 courses can be applied toward the Master's degree course requirement, except by prior permission of the Vice-Chairman for Graduate Studies. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with members of the staff.

285A. Seminar in the History and Development of Mathematics.
285B. Seminar in Number Theory.
285C. Seminar in Algebra.
285D. Seminar in Logic.
285E. Seminar in Geometry.
285F. Seminar in Topology.
285G. Seminar in Analysis.
285H. Seminar in Differential Equations.
285I. Seminar in Functional Analysis.
285J. Seminar in Applied Mathematics.
285K. Seminar in Probability.
285L. Seminar in Statistics.

286A-286M. Participating Seminars.

Prerequisite: consent of the instructor. Seminars and discussion by staff and students. No course credit will be given, but these may be used to satisfy the participating seminar requirement for the Ph.D.

286A. Participating Seminar in the History and Development of Mathematics.
286B. Participating Seminar in Number Theory.
286C. Participating Seminar in Algebra.
286D. Participating Seminar in Logic.
286E. Participating Seminar in Geometry.
286F. Participating Seminar in Topology.
286G. Participating Seminar in Analysis.
286H. Participating Seminar in Differential Equations.
286I. Participating Seminar in Functional Analysis.
286J. Participating Seminar in Applied Mathematics.
286K. Participating Seminar in Probability.
286L. Participating Seminar in Statistics.
286M. Participating Seminar in Mathematics.

290. Seminar in Current Literature.

A seminar for Ph.D. candidates. Readings and presentations of papers in mathematical literature under the supervision of a staff member.

Professional Course in Method

370. The Teaching of Mathematics.

Prerequisite: course 31B, 3B, or 4B standing. A critical inquiry into present-day tendencies in the teaching of mathematics.

Individual Study and Research

596. Directed Individual Study or Research. (½ to 1 course)

Supervised individual reading and study on a project approved by a faculty member, which may be preparation for the master's essay. May be repeated for credit, but only two such courses may be applied toward the master's degree unless departmental approval is obtained.

599. Research in Mathematics. (½ to 2 courses)

Study and research for the Ph.D. dissertation. May be repeated for credit.

■ MEDICAL HISTORY

See Department of Anatomy.

■ METEOROLOGY*

(Department Office, 7127 Mathematical Sciences Building)
Akio Arakawa, D.Sc., *Professor of Meteorology.*
James G. Edinger, Ph.D., *Professor of Meteorology.*
Yale Mintz, Ph.D., *Professor of Meteorology.*
Morris Neiburger, Ph.D., *Professor of Meteorology.*
Hans R. Pruppacher, Ph.D., *Professor of Meteorology.*
[10]George L. Siscoe, Ph.D., *Professor of Meteorology.*
Richard M. Thorne, Ph.D., *Professor of Meteorology.*
Sekharipuram V. Venkateswaran, Ph.D., *Professor of Meteorology.*
[6]Morton G. Wurtele, Ph.D., *Professor of Meteorology (Chairman of the Department).*
Michio Yanai, D.Sc., *Professor of Meteorology.*
Jorgen Holmboe, M.Sc., *Emeritus Professor of Meteorology.*
Jacob G. Kuriyan, Ph.D., *Assistant Professor of Meteorology.*

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Gerald Schubert, Ph.D., *Professor of Planetary Physics.*

Preparation for the Major

The required courses are: Course 10, 40A-40B, Physics 8A-8E; Mathematics 31A-31B-31C and 32A-32B-32C.

The Major

The required courses are: Meteorology 109A-109B; Physics 110A-110B, 112A, 131A-131B; two courses from Meteorology 143, 144, 145, 151, and two courses from 152, 153, 154. In addition, students preparing for graduate studies in Dynamics and Synoptic meteorology should take as electives the following courses: Mathematics 135A, 135B, 140A and 140B; students preparing for graduate studies in Dynamics and Microphysics of Clouds and Precipitation should take as electives the following courses: Physics 112B and 140 and Mathematics 140A, 135A and 135B; students preparing for graduate studies in Radiation, or Upper Atmospheric and Space Physics should take as electives the following courses: Physics 105A-105B, and 122.

Admission to Graduate Status

The Department recognizes the desirability of a wide variety of backgrounds of students concerned with study of the various aspects of the atmosphere. In addition to those holding bachelor's degrees in meteorology, graduates with

[6]On leave Fall Quarter, 1976.
[10]Absent on leave, fall and winter quarters, 1976-1977.
*Effective June 1, 1976, renamed Atmospheric Sciences.

degrees in related disciplines — astronomy, chemistry, engineering, geophysics, mathematics and physics — are encouraged to apply for graduate status in the Department. Programs are arranged by consultation between the student and the Department's graduate advisers, and considerable flexibility is maintained so that maximum advantage may be taken of the candidate's previous education.

Requirements for the Master's Degree

For the general requirements, see Graduate Division.

A bachelor's degree in one of the following: meteorology (atmospheric sciences), astronomy, chemistry, engineering, geophysics, physics or mathematics.

A study program, approved by the Departmental Graduate Advisers, to fill any deficiencies in the student's preparation for the general examination and to prepare the student in one of the fields of specialization: (1) Dynamic and Synoptic Meteorology, (2) Dynamics and Microphysics of Clouds and Precipitation, (3) Radiation, or (4) Upper Atmospheric and Space Physics.

Meteorology 260 is required.

Knowledge of a foreign language is not required.

The Department grants the Master's degree either by the comprehensive examination plan or by the thesis plan. All students are required to maintain a 3.0 average in one 150-series or graduate course in each of two fields other than their field of specialization. A student following the examination plan must pass an examination in his field of specialization. A student with an excellent academic record may petition the Department to follow the thesis plan.

Requirements for the Doctor's Degree

For the general requirements, see Graduate Division.

Knowledge of a foreign language is not required.

Before advancement to candidacy, a student must maintain a 3.0 in one 150-series or graduate course in each of two fields other than his field of specialization. Students with Master's degrees from other departments or universities may petition to have comparable courses taken elsewhere accepted in satisfaction of this requirement. In addition a student must pass the following examinations in no more than two attempts: (1) a written and, at the option of the Departmental guidance committee, an oral examination in his field of specialization and (2) an oral qualifying examination conducted by his Doctoral Committee.

After advancement to candidacy, the candidate must satisfactorily complete a dissertation which represents an original contribution to knowledge, and must pass a final oral examination conducted by his Doctoral Committee.

Lower Division Courses

2. Air Pollution.
Lecture, three hours; discussion, one hour. A course for all students interested in the causes and effects of high concentrations of pollution in the atmosphere. Topics covered will include the nature and sources of gaseous and particulate pollutants, their transport, dispersion, modification and removal, with emphasis on atmospheric processes on scales ranging from individual sources to global effects; interaction with the biosphere and the oceans; stratospheric pollution.
Mr. Neiburger

3. Introduction to the Atmospheric Environment.
Lecture, three hours; discussion, one hour. A course specifically designed to satisfy in part the breadth requirement of students majoring outside the Physical Sciences. The nature and causes of weather phenomena, including winds, clouds, rain, lightning, tornadoes and hurricanes; solar and terrestrial radiation; phenomena of the higher atmosphere; the ionosphere and the auroras; causes of air pollution; proposed methods and status of weather modification. This course is not open to students who have received credit for 3L.
Mr. Edinger, Mr. Neiburger

***3L. Introduction to the Atmospheric Environment.**
Lecture, three hours; laboratory, two hours. Same as Meteorology 3, with laboratory sessions to illustrate and apply the material of the lectures. This course is not open to students who have received credit for 3.

10. Introduction to the Atmospheric Sciences.
Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 31A-31B-31C and Physics 8A, 8B or consent of the instructor. An introductory course in atmospheric processes designed for science and engineering students. Topics will include the evolution of planetary atmospheres, their present composition and structure; atmospheric radiation and thermodynamics; elementary atmospheric dynamics; climate change; planetary ionospheres.
Mr. Kuriyan

40A. Basic Meteorology I.
Lecture, three hours; laboratory, six hours. Prerequisite: course 10. Terrestrial energy budget; general circulation; atmospheric motions; fronts and cyclones. Mesoscale dynamics; moist air thermodynamics, cumulus convection. Applications to weather forecasting and modification. (Meteorological instrumentation, observing techniques and the basic principles of map analysis will be covered in the laboratory).
Mr. Edinger

40B. Basic Meteorology II.
Lecture, three hours; discussion, one hour. Prerequisite: course 40A. Atmospheric chemistry. Microstructure and formation of clouds and precipitation. Atmospheric electricity. Scattering and absorption of radiation in the atmosphere. Upper atmospheric phenomena, ionospheric layer formation, aurora, exosphere escape. The Earth's radiation belts and magnetosphere, and its interaction with the solar wind.

Upper Division Courses

M109A. Geophysical Fluid Dynamics.
(Same as Geophysics and Space Physics M109A.) Lecture, three hours; discussion two hours. Prerequisite: Mathematics 32C; Physics 8D. Together with 109B, an introduction to fluid dynamics as applied to geophysical problems. Kinematics. Equations of fluid motion. Irrotational flow. Circulation theorms. Vorticity and vortices. Acoustic and gravity waves.
Mr. Yanai

109B. Geophysical Fluid Dynamics.
Lecture, three hours; discussion, two hours. Prerequisite: course M109A or consent of the instructor. The Navier-Stokes equations. Rotating reference frames. Acoustic and gravity waves in a stratified atmosphere. Hydromagnetic waves. The quasi-static equilibrium. Planetary-scale oscillations. The quasi-geostrophic motion. Barotropic and baroclinic instabilities.
Mr. Yanai

***143. Physical Oceanography.**
Lecture, three hours; discussion or field trip, one hour. Prerequisite: course 40A. Physical structure of the oceans; observational techniques. Theory of waves, currents, swell and tides.

144. Micrometeorology and Air Pollution Meteorology.
Lecture, three hours. Prerequisite: course 40A-40B or consent of the instructor. Wind and temperature structure in the surface layer; mesoscale weather and wind systems; turbulence and diffusion; evaporation; transport, diffusion and transformation of atmospheric contaminants.
Mr. Edinger

***145. Introduction to the Stratospheric Environment.**
Lecture, three hours; discussion, one hour. Prerequisites: course 109A-109B or consent of the instructor. Radiative and dynamic control of the stratosphere; photochemistry; stratospheric climatology and dynamics; effects of natural and man-made pollutants.

151. Dynamics of the Troposphere and Stratosphere.
Lecture, three hours; discussion, two hours. Prerequisite: course 109B. Numerical weather prediction. The general circulation of the atmosphere. Global budgets of angular momentum, heat and water vapor. The planetary boundary layer. Moist convection. Frontal and mesoscale weather systems. Dynamics of the tropical atmosphere.
Mr. Wurtele

152. Physics of Clouds and Precipitation.
Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 32C and Physics 112A or Chemistry 110A or consent of instructor. The nature and structure of clouds and precipitation; phase changes of water in the atmosphere; condensation on nuclei; development of precipitation particles.
Mr. Pruppacher

153. Atmospheric Radiation.
Lecture, three hours. Prerequisite: Physics 110B, or consent of the instructor. Thermal radiation from the sun and planets. Transfer of thermal radiation through planetary atmospheres. Radiation budget. Scattering of electromagnetic radiation by atoms, molecules, dust and aerosols. Remote sensing. Meteorological optics.
Mr. Siscoe

M154. Solar Terrestrial Physics.
(Same as Geophysics and Space Physics M154.) Lecture, three hours; discussion, one hour. Prerequisite: Physics 110B or consent of the instructor. Particle and electromagnetic emissions from the sun under quiet and under disturbed conditions. The solar wind. The magnetospheres and the ionospheres of the earth and other planets. Geomagnetic phenomena. Aurora and airglow.
Mr. Thorne

161A. Laboratory in Atmospheric Dynamics I.
Prerequisite: course 109B. Analysis of surface and upper-level weather charts. Analysis of fronts. Graphical computation of vorticity, vorticity advection. Graphical determination of large-scale vertical motion. Discussion of cyclone development.
Mr. Mintz

161B. Laboratory in Atmospheric Dynamics II.
Prerequisite: course 109B. Introduction to FORTRAN IV. Finite differencing. Numerical solution of boundary value problems. Linear and non-linear computational stability. Numerical integration of the barotropic vorticity equation.
The Staff

*Not to be given 1975-1976.

***165. Laboratory in Meteorological Observation.**

Prerequisite: junior standing and consent of the departmental undergraduate adviser. Theory and application of instrumentation in field and laboratory. The material covered will be partly determined by the students' interests.

Mr. Edinger

199. Special Studies in Meteorology. (½ or 1 course)

Prerequisite: consent of the instructor. Special individual study.

The Staff

Graduate Courses

DYNAMIC AND SYNOPTIC METEOROLOGY

***206 Atmospheric Convection.**

Lecture, three hours. Basic theory of Rayleigh convection. Experiments and theory of buoyant bubbles and plumes. Thermodynamics of moist air. Conditional instability. Structure of cloud- and subcloud-layers. Cumulus dynamics. Meso- and cluster-scale organization of cumuliform clouds. Interaction of cumulus ensemble with the large-scale environment.

Mr. Yanai

208A. Atmospheric Turbulence.

Lecture, three hours. Kinematics of homogeneous and shear flow turbulence. Surface and planetary boundary layers including heat transfer and turbulent convection. Survey of field and laboratory observations and their interpretation by theory.

Mr. Wurtele

208B. Atmospheric Diffusion and Air Pollution.

Lecture, three hours. Nature and sources of atmospheric pollution; diffusion from point, line, and area sources; pollution dispersion in urban complexes; meteorological factors and air pollution potential; meteorological aspects of air pollution control.

Mr. Neiburger

209A. Meteorological Fluid Dynamics I.

Lecture, three hours. An introduction to the fluid dynamics of the atmosphere. The Navier-Stokes equations; basic balances; coordinate transformations; energy and circulation. Wave dynamics. Inertial and geostrophic modes; Rossby waves; inertia-gravity waves; geostrophic adjustment. Viscous boundary layers.

Mr. Arakawa

209B. Meteorological Fluid Dynamics II.

Lecture, three hours. Prerequisite: course 209A or consent of instructor. Instability of frontal waves. Oscillations of a compressible, stratified and rotating atmosphere, with and without sphericity. Scale analysis and dynamics of quasi-geostrophic motion. Quasi-geostrophic wave instability.

Mr. Arakawa

210. Dynamics of Planetary Circulations.

Lecture, three hours. Prerequisite: course 209B. Interaction between waves and mean zonal and meridional circulations. Vacillation. Regimes of thermally forced planetary circulations and their stability. Frontogenesis. Quasi-geostrophic turbulence. Forced planetary waves.

The Staff

***212A. Numerical Methods in Geophysical Fluid Dynamics.**

Lecture, three hours. Prerequisite: course 209A or consent of instructor. Basic numerical methods for initial-boundary value problems in fluid dynamics, with an emphasis on applications to atmospheric and oceanographic problems. Finite difference methods and truncation error. Linear and nonlinear computational instability. Computational modes and computational boundary conditions. Spectral methods.

Mr. Arakawa

***212B. Numerical Simulation of the Atmosphere.**

Lecture, three hours. Prerequisites: courses 209B and 212A. Physical and computational design of numerical weather prediction and climate simulation models. The basic dynamical models. Vertical, horizontal and time differencing. Parameterizations. Predictability. Initialization.

Mr. Arakawa

214A-*214B. General Circulation of the Atmosphere.

Lecture, three hours. Observations of the general circulation and global climate. Global budgets of energy and angular momentum; global hydrologic cycle. Numerical simulation of the general circulation. Laboratory simulation of the general circulation. Circulation and climate of the Ice Ages. Atmospheric circulation and climate of Mars.

Mr. Mintz

216A. Dynamics of the Tropical Atmosphere I.

Lecture, three hours. General circulation of the tropics. Zonally averaged fields. Zonally varying features. Intertropical convergence zone. Monsoon circulation. The role of cumulus convection in the tropical circulation. Formation and structure of tropical cyclones. Theory and numerical models of tropical cyclones.

Mr. Yanai

***216B. Dynamics of the Tropical Atmosphere II.**

Lecture, three hours. Planetary- and synoptic-scale wave disturbances in the tropics. Theory of equatorial waves. The energy cycle of tropical waves. Excitation mechanisms. Observation and theory of the quasi-biennial oscillation in the equatorial stratosphere.

Mr. Yanai

218. Dynamics of the Atmosphere-Ocean Systems.

Lecture, three hours. Mass, momentum and heat transfers between atmosphere and ocean; wind-driven ocean currents; thermohaline convection; dynamics of the Gulf Stream.

Mr. Mintz

***220. Special Topics in Dynamic Meteorology. (½ to 1 course)**

The content of this course varies from year to year.

The Staff

DYNAMICS AND MICROPHYSICS OF CLOUDS AND PRECIPITATION

***221. Atmospheric Chemistry.**

Lecture, three hours. Variable and nonvariable gases of the atmosphere; physical and chemical properties of atmospheric aerosols; wet and dry removal mechanisms of variable gases and aerosols.

***223A. Cloud and Precipitation Physics I.**

Lecture, three hours. Physics of water substance, surface and bulk structure, thermodynamic properties, electric properties of water vapor, liquid water and ice. Microstructure of water and ice clouds. Physical and chemical properties of cloud-condensation-nuclei and ice-forming-nuclei.

Mr. Pruppacher

***223B. Cloud and Precipitation Physics II.**

Lecture, three hours. Thermodynamic theory of phase transition. Thermodynamic and kinetic theory of homogeneous and heterogeneous nucleation of water drops and ice crystals.

Mr. Pruppacher

***223C. Cloud and Precipitation Physics III.**

Lecture, three hours. Prerequisite: course 223B. Hydrodynamics of rigid-bodies in a viscous medium; hydrodynamics of water drops and ice crystals; theory of the growth of water drops and ice crystals by diffusion; theory of the growth of water drops and ice crystals by collision.

Mr. Pruppacher

224A-224B. Atmospheric Electricity.

Lecture, three hours. Prerequisite: Physics 110A-110B. Fair weather electricity; atmospheric ions; nature of the electric field in the higher atmosphere and in space; electric structure of stormy and non-stormy clouds; electric charge generation mechanisms in clouds; physics of thunder and lightning; sferics; effect of electric charges and fields on clouds.

Mr. Pruppacher

RADIATION

***225. Radiative Processes in the Atmosphere.**

Lecture, three hours. Prerequisite: course 153. Radiative transfer of thermal radiation; analysis and interpretation of radiation measurements from satellite and space probes.

Mr. Kuriyan

***226. Scattering Processes in the Atmosphere.**

Lecture, three hours. Prerequisite: course 153. Radiative transfer in a scattering medium.

Mr. Kuriyan

***228A-*228B. Theory of Radiative Transfer in Planetary Atmospheres.**

Lecture, three hours. Prerequisite: courses 225, 226 or consent of the instructor. Radiative transfer in plane-parallel atmospheres, subject to different types of scattering, absorption and emission processes.

Mr. Kuriyan

UPPER ATMOSPHERIC AND SPACE PHYSICS

***230. Theory of Planetary Atmospheres.**

Lecture, three hours. Prerequisites: Background in fluid dynamics and electromagnetism required. PSS 230 desirable. Model planetary atmospheres, including evolution, structure, radiative balance and general circulation; ionospheres and magnetospheres. Comparison with the atmospheres of the terrestrial and outer planets.

Mr. Thorne

***240. Upper Atmospheric Wave Phenomena.**

Lecture, three hours. Prerequisite: Physics 110B and 122, or consent of the instructor. Propagation characteristics of acoustic, electromagnetic and plasma waves; magnetoionic theory; ionospheric sounding; ray tracing techniques; instabilities in the earth's plasma environment.

Mr. Thorne

246. Physics of the Ionosphere.

Lecture, three hours. Prerequisite: Physics 110A-110B or consent of the instructor. Structure, composition and dynamics of ionospheric layers.

Mr. Venkateswaran

***247. Radiation Belt Plasma Physics.**

Lecture, three hours. Prerequisites: Physics 122 or consent of the instructor. Processes responsible for the source, loss and transport of energetic particles in the Earth's radiation belts. Turbulent plasma instabilities, their influence on radiation belt structure.

Mr. Thorne

***246. Dynamics of the Magnetosphere.**

Lecture, three hours. Solar wind-geomagnetic field interaction; formation of the magnetosphere; the bow shock and magnetosheath; the magnetospheric field; magnetospheric convection; the geomagnetic tail; static and dynamic equilibrium of the magnetosphere; geomagnetic storms.

Mr. Siscoe

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*Not to be given 1976-1977.

249A-249B. Magnetosphere-Ionosphere Coupling.

Prerequisite: course 154 or consent of the instructor. Electric field coupling, parallel and perpendicular components; plasma instabilities in the topside ionosphere, anomalous resistivity. Plasma-pause dynamics. Storm induced generation of neutral winds at high latitudes. Particle precipitation as an ionization source. Role of thermal plasma on the stability of radiation belts.

Mr. Thorne

***M250. Dynamics of the Solar Wind.**

Lecture, four hours. Parker's hydrodynamic solution and spiral magnetic field model; effects of magnetic field and solar rotation; shock waves, discontinuities, small amplitude wave propagation, large scale structure; interaction with the moon, planets and interstellar medium; stellar winds and stellar spindown.

Mr. Schubert, Mr. Siscoe

***255. Stratospheric Meteorology.**

Prerequisites: course 109A-109B and 153 or consent of the instructor. Recent advances in stratospheric photochemistry radiative control of stratospheric dynamics general circulation models of the stratosphere.

Mr. Venkateswaran

Seminars

260. Seminar in Meteorology. (½ course)

The Staff

261. Seminar in Atmospheric Dynamics. (½ course)

Mr. Arakawa, Mr. Mintz, Mr. Yanai

262. Seminar in Cloud and Precipitation Physics. (½ course)

Mr. Neiburger, Mr. Pruppacher

263. Seminar in Atmospheric Radiation. (½ course)

Mr. Kuriyan

264. Seminar in Physics of the Upper Atmosphere. (½ course)

Mr. Siscoe, Mr. Thorne, Mr. Venkateswaran

Individual Study and Research

596. Directed Studies for Graduate Students. (½ to 1 course)

The Staff

597. Preparation for the Master's Comprehensive Examinations and the Doctoral Qualifying Examinations. (½ to 1 course)

The Staff

598. Research and Preparation of the Master's Thesis. (½ to 1 course)

The Staff

599. Research on Doctoral Dissertation. (½ to 2 courses)

The Staff

Related Courses in Other Departments

Astronomy 101; 103A-103B; 104.

Chemistry 110A-110B; 113; 114A; 123A-123B.

Engineering 10, 103A; 117A-117B; M118; 124A; 125A-125B; 125L; 131A; 131C; 150A-150B; 181A; 192A-192B-192C.

Mathematics 135A-135B; 131A-131B-131C; 132; 140A-140B-140C; 142; 145A-145B; 150A-150B-150C; 152A-152B.

Physics 108; 110A-110B; 112A-112B; 115A-115B; M122; 131A-131B.

Planetary and Space Science 101; M109A, M154.

Graduate Courses of Special Interest to Qualified Meteorology Majors

Astronomy 201A-201B-201C.

Chemistry 215; 223.

Engineering 218B; 224B; 231C; 250A-250C; 251A; 252A-252B; 259A.

Mathematics 250C; 265A-265B-265C; 266A-266B-266C; 267A-267B; 269A-269B-269C; 271A-271B-271C; M274A-274B; 276A-276B-276C.

Physics 210A-210B; 215A-215B; 222A-222B-222C; 231A-231B-231C.

Planetary and Space Science 202; 210; 214; 228; M250; 260; 265.

■ MICROBIOLOGY

Graduate Study

The M.A. and Ph.D. degrees in Microbiology are offered in the Department of Bacteriology. More detailed information regarding admission requirements and opportunities for graduate studies in this program may be obtained by writing to the graduate adviser F. A. Eiserling, Department of Bacteriology, 5304 Life Sciences Building.

■ MICROBIOLOGY AND IMMUNOLOGY

(Department Office, 43-239 Center for the Health Sciences)

Marcel A. Baluda, Ph.D., *Professor of Viral Oncology.*

John L. Fahey, M.D., *Professor of Immunology and Oncology, and Professor of Medicine (Chairman of the Department).*

William H. Hildemann, Ph.D., *Professor of Immunology and Immunogenetics.*

Dexter H. Howard, Ph.D., *Professor of Microbiology (Mycology).*

David R. Imagawa, Ph.D., *Professor of Pediatrics and Microbiology and Immunology.*

James N. Miller, Ph.D., *Professor of Immunology and Bacteriology.*

**Margret I. Sellers, Ph.D., *Professor of Microbiology and Immunology.*

Jack G. Stevens, D.V.M., Ph.D., *Professor of Virology.*

Marietta Voge, Ph.D., *Professor of Parasitology.*

Felix O. Wettstein, Ph.D., *Professor of Molecular Biology.*

Stephen Zamenhof, Ph.D., *Professor of Microbial Genetics and Biological Chemistry.*

Ruth A. Boak, M.D., Ph.D., *Emeritus Professor of Microbiology and Immunology (Bacteriology), Public Health and Pediatrics.*

John F. Kessel, Ph.D., *Emeritus Professor of Infectious Diseases.*

Henry E. Weimer, Ph.D., *Emeritus Professor of Immunochemistry.*

George Fareed, M.D., *Associate Professor of Virology.*

David McVickar, M.D., Ph.D., *Emeritus Associate Professor of Microbiology and Immunology.*

Debi P. Nayak, D.V.Sc., Ph.D., *Associate Professor of Virology and Oncology.*

Robert F. Ashman, M.D., *Assistant Professor of Immunology.*

Benjamin Bonavida, Ph.D., *Assistant Professor of Immunology.*

Ronald H. Stevens, Ph.D., *Assistant Professor of Molecular Immunology.*

Randolph Wall, Ph.D., *Assistant Professor of Virology.*

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Seymour Froman, Ph.D., *Associate Clinical Professor of Microbiology and Immunology.*

Sidney H. Golub, Ph.D., *Assistant Professor of Surgery/Oncology and Microbiology and Immunology in Residence.*

David R. Imagawa, Ph.D., *Professor of Pediatrics and Microbiology and Immunology.*

William J. Martin, Ph.D., *Associate Professor of Microbiology and Immunology in Residence.*

**A. F. Rasmussen, Jr., M.D., Ph.D., *Professor of Virology.*

Jerrold A. Turner, M.D., *Associate Professor of Medicine and Microbiology and Immunology in Residence.*

Telford H. Work, M.D., M.P.H., D.T.M. & H., *Professor of Infectious and Tropical Diseases, Microbiology and Immunology, and Preventive and Social Medicine.*

♦

Eda T. Bloom, Ph.D., *Assistant Research Immunologist.*

William R. Clark, Ph.D., *Associate Professor of Cell Biology.*

Margery Cook, Ph.D., *Associate Research Virologist.*

Nina Dabrowa, Ph.D., *Assistant Research Mycologist.*

Alexander Miller, Ph.D., *Associate Research Bacteriologist.*

Yoko S. Mullen, M.D., Ph.D., *Assistant Research Immunologist.*

*Not to be given 1976-1977.

**Member of the Brain Research Institute.

David Nathanson, M.D., *Research Associate of Surgery/Urology in Residence.*

Robert C. Ossorio, M.D., *Assistant Research Immunologist.*

Yosef H. Pilch, M.D., *Associate Professor of Surgery/Oncology in Residence.*

Hester Pratt, Ph.D., *Assistant Research Immunologist and Acting Assistant Professor of Biology.*

Eli E. Sercarz, Ph.D., *Professor of Bacteriology.*

Mohammed Shoyab, Ph.D., *Associate Research Viral Oncologist.*

Mitsuo Takasugi, Ph.D., *Adjunct Associate Professor of Surgery.*

Paul I. Terasaki, Ph.D., *Professor of Surgery.*

Donna L. Vredevoe, Ph.D., *Associate Professor of Nursing.*

Maurice L. White, Ph.D., *Lecturer in Microbiology and Immunology.*

The Department of Microbiology and Immunology in the School of Medicine offers the Ph.D. degree and, rarely, the M.S. degree in microbiology and immunology. Graduate study may be in the fields of bacteriology, immunology, immunogenetics, microbial genetics, mycology, parasitology, virology, viral oncology, tumor biology, molecular biology, or cell biology. The graduate program is primarily designed for students seeking advanced training leading to the Ph.D. degree in any one of these special fields, or for students with a broader interest in the biology of infectious agents, immunology and host-parasite relationships who may elect to combine two or more fields.

Admission to Graduate Status

For admission to the graduate program, a student must meet the requirements of the Graduate Division, and must hold an approved bachelor's degree with a major in either the biological or physical sciences. Candidates are selected on the basis of an evaluation of the applicant's potential for graduate work as determined by:

1. Undergraduate, and where applicable, graduate scholastic record.
2. An interview with members of the Department, when possible.
3. Letters of recommendation.

Requirements for the Doctor's Degree

1. The general Graduate Division requirements (see Graduate Division). (Proficiency in a foreign language is not required.)
2. Three "core" courses in biochemistry: Chemistry 153, Chemistry 253, or equivalent, and one course selected from Chemistry 255, Chemistry 263, Chemistry 267, or the equivalent. Preparation for these courses includes mathematics through calculus and general physical chemistry.
3. Microbiology and Immunology 201, or equivalent.
4. Microbiology and Immunology 599 (Research).
5. Participation in teaching of a laboratory section in a course presented by the Department.

In addition to the formal requirements stated above, every student must pass a written examination within the Department to become eligible to take the oral qualifying examination. The written examination is divided into five parts and is given on two separate days to test the student's general knowledge in the field of microbiology and immunology.

M185. Immunology.

(Same as Bacteriology M185 and Biology M185.) Prerequisites: course M132; Chemistry 22 and 24; concurrent enrollment in Chemistry 153 recommended. Introduction to immunobiology and immunochemistry. Cellular and molecular aspects of humoral and cell-mediated immune reactions.

Mr. Clark

M187. Immunology Seminar. (½ course)

(Same as Bacteriology M187 and Biology M187.) Prerequisites: Microbiology M187 and Immunology M185 (which may be taken concurrently); consent of instructor. Student presentation of selected papers from the immunology literature, correlated with lectures in M185 and designed to serve as a forum for the critical analysis of research papers.

The Staff

Upper Division Courses

199. Directed Individual Research Studies in Microbiology and Immunology. (½ to 2 courses)

Prerequsites: senior standing and consent of instructor, based on written research proposal. Individual research projects carried out under direction of individual professor.

The Staff

Graduate Courses

IMMUNOLOGY

209. Introduction to Laboratory Research in Immunology. (1½ courses)

Prerequisite: consent of the instructor. The principles of immunology will be reviewed and applied in laboratory evaluations of chemical and cellular components of the immune system. Students will also participate in a short term research project.

Mr. Bonavida, Mr. Weiner

M211. Advanced Immunology Workshop. (No Credit)

(Same as Microbiology M211.) Prerequisite: consent of instructor. Combined laboratory, lecture and seminar sessions covering specialized subjects and methods in immunology will be offered in intensive periods of two- to three-day duration at appropriate times.

The Staff

254. Seminar in Immunogenetics. (½ course)

Review of current literature in the field of immunogenetics, with emphasis on fundamental studies involving genetic and immunologic principles and techniques. Selected topics will be discussed and results interpreted; conclusions and experimental methods will be evaluated.

Mr. Hildemann

M258. Advanced Immunology. (½ course)

(Same as Microbiology M258.) Prerequisites: introductory course in immunology equivalent to Microbiology and Immunology 201 or Microbiology and Immunology M185. Concurrent enrollment in M259. The major aspects of the immune system will be presented with emphasis on fundamental principles and on advances of the past five years. Grade or S/U.

Mr. Ashman, Mr. Fahey

M259. Advanced Immunology Co-Seminar. (½ course)

(Same as Microbiology M259.) Prerequisites: introductory course in immunology equivalent to Microbiology and Immunology 201, Microbiology and Immunology M185 or consent of the instructor. A seminar designed to amplify and extend information presented in lecture form in concurrent course M258. Emphasis will be upon means of acquiring and evaluating new information in immunology. Students will be required to read original research articles, present formal reports and participate actively in critical discussions.

Mr. R. Stevens

M260. Immunology Forum. (½ course)

(Same as Microbiology M260.) Prerequisite: microbiology and Immunology M185. A broad range of current topics in immunology will be presented and discussed at an advanced frontier level. This is a continuing UCLA-wide, general graduate level seminar involving faculty, postdoctoral immunologists, and graduate students from diverse departments.

Mr. Terasaki

261. Tumor Immunology. (½ course)

Prerequisite: course M258 or equivalent. Experimental basis for investigation of immune response to tumors; review of cell-mediated immunity and related humoral immunity; evidence for tumor-associated antigens in man; evaluation of attempts at immunotherapy of tumors. Letter grade.

Mr. Golub, Ms. Vredevoe

262. Seminar in Immunobiology of Cancer. (¼ course)

Prerequisite: consent of the instructor. Review of recent literature in the fields of immunology, biology and biochemistry of cancer with emphasis on fundamental studies involving cell-mediated immunity, humoral response, tumor specific antigens and new techniques. Reports on scientific meetings will be discussed and evaluated.

Mr. Bonavida, Mr. Takasugi

M263. Cellular Immunology Seminar. (½ course)

(Same as Microbiology M263.) Prerequisite: consent of instructor. Critical discussions of the current literature in T and B cell immunology with emphasis on molecular mechanisms.

Mr. Sercarz

264. Molecular Immunology. (½ course)

Prerequisite: Microbiology and Immunology M185, Microbiology and Immunology M259 or equivalent. Consent of instructor. Ongoing seminar reviewing control processes at a molecular level during proliferation and differentiation of cells in the immune responses and relationship to similar processes in other differentiation cell systems.

Mr. Wettstein

266. Immunochemistry. (¾ or 1½ courses)

Prerequisite: consent of instructor who will require acquaintance with elementary protein chemistry and immunology. The chemical structure and physical properties of immunoglobulin, as they relate to its interaction with antigen and complement either in the fluid phase or on the cell surface. Structural requirements for antigenicity. Laboratory exercises emphasizing methods currently useful in immunochemical research.

Mr. Ashman

267. Regulation and Maturation of Lymphoid Cells. (½ course)

Prerequisite: course M185 or equivalent. A combined lecture-seminar course concentrating on molecular and cellular processes active within lymphoid cells during differentiation. Topics will be drawn from new and/or controversial areas of molecular immunology.

Mr. R. Stevens

MICROBIOLOGY

201. Microbiology and Immunology. (2½ courses)

Lectures and laboratory. Prerequisite: consent of the instructor. Study of the infectious agents of human disease with emphasis on host-parasite relationships and immunologic phenomena in immunity and disease, including identification of bacteria, fungi, animal parasites and viruses, and principles of prevention, treatment, and laboratory diagnosis.

The Staff

210. Medical Mycology.

Prerequisite: Bacteriology 100A-100B; recommended Bacteriology 110. Consent of the instructor may be obtained in special cases. A study of the morphology, physiology, and pathogenicity of fungi causing human and animal diseases.

Mr. Howard

251. Seminar in Microbiology and Immunology. (½ course)

Consideration of the history of infectious diseases, their host-parasite relationships, etiology, pathogenesis, epidemiology, diagnosis, and immunity.

The Staff

252. Seminar in Medical Virology. (¼ course)

Review of current literature in the field of medical virology emphasizing fundamental host-cell interrelationships in human disease of viral origin. Selected topics will be discussed and results interpreted; conclusions and experimental methods will be evaluated.

Miss Sellers

253. Seminar in Medical Parasitology. (½ course)

Review of current and recent literature in the field of medical parasitology, emphasizing experimental work of medical or public health importance. Students will be expected to prepare reviews of selected subjects, and to discuss the contributions of various workers from the standpoint of experimental methods, results, their interpretation and their evaluation.

Mrs. Voge

255. Seminar in Medical Mycology. (½ course)

Review of current and recent literature in the field of medical mycology, with emphasis on the host-parasite relationships in the human and animal mycoses. Students will be expected to prepare reviews of selected subjects and to discuss contributions of various workers from the standpoint of experimental methods, results, their interpretation and evaluation.

Mr. Howard

M257. Seminar in Host-Parasite Relationships. (½ course)

(Same as Microbiology M257.) A discussion of recent advances in our knowledge of host-parasite interactions and means of controlling the parasites.

Mr. Miller, Mr. Pickett

CELL BIOLOGY AND VIROLOGY

208. Animal Virology.

Prerequisites: courses in general biochemistry and in general microbiology, including virology. Consent of the instructor may be obtained in special cases. Recommended for advanced undergraduate students with a major in public health, biology or bacteriology and for graduate students with an interest in any field of biology or chemistry. The course encompasses an overview of animal viruses including viral structure, virus cell interaction, virus replication and viral oncogenesis. Special emphasis is placed in understanding the molecular mechanism involved in the control and regulation of replication, transcription and translation of viral genome and its complex interaction with host.

Mr. Nayak

M226. Chromosome Structure and Regulation.

(Same as Microbiology M226, Biology M226, Biological Chemistry M226 and Chemistry M226.) Prerequisite: consent of instructor. Lectures and panel discussions on the structural and functional organization of eukaryotic chromosomes.

The Staff

250. Topics in New Biology.

Lectures and student seminar presentations. A review of selected current topics in molecular and cell biology. Topics will be selected from recent experimental results on the organization, expression and regulation of genes in eukorotic cells.

Mr. Wall

256. Seminar in Viral Oncology. (½ course)

An advanced research seminar designed to consider the current developments in the field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation.

Mr. Baluda

265. Co-Seminar in Animal Virology. (½ course)

Prerequisites: Animal Virology 208 or must be concurrently enrolled in course 208 and the consent of the instructor. Critical review and analysis of the selected papers in the field. Topics will include structure and biology of animal viruses and virus-host interaction at the cellular and molecular level.

Mr. Navak

M298. Seminar in Current Topics in Molecular Biology. (½ course)

(Same as Biological Chemistry M298, Biology M298, Chemistry M298, Microbiology M298, and Molecular Biology M298.) Prerequisite: Approval by the instructor and by the Graduate Adviser of the Interdepartmental Molecular Biology Ph.D. Committee. Each student enrolled conducts or participates in discussions on assigned topics. May be repeated for credit.

The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 1 course)

Laboratory by arrangement. Consent of Graduate Adviser.

The Staff

597. Preparation for the Qualifying Examination for the Ph.D. in Microbiology and Immunology. (½ to 1½ courses)

The Staff

599. Research for and Preparation of the Doctoral Dissertation in Microbiology and Immunology. (½ to 2 courses)

Prerequisite: Bacteriology and/or Biochemistry. Research on an original problem in the field of Microbiology and Immunology, to be selected by the graduate student with the advice of the instructor. Fields of study may be in bacteriology, immunochemistry, immunogenetics, microbial genetics, mycology, parasitology, virology, viral oncology, tumor biology, or cell biology.

The Staff

■ MILITARY SCIENCE

(Department Office, 127 Men's Gymnasium)

Robert H. Julian, M.S., *Lieutenant Colonel, Corps of Engineers, Professor of Military Science.*

Tommy L. Thompson, M.S., Major, Infantry, *Associate Professor of Military Science.*

Paul K. Takamiya, M.Ed., *Major, Field Artillery, Assistant Professor of Military Science.*

James H. Capps, M.S., *Captain, Ordnance, Assistant Professor of Military Science.*

Jon M. Corey, M.S., Captain, Air Defense Artillery, *Assistant Professor of Military Science.*

Charles Tillman, M.A., *Captain, Infantry, Assistant Professor of Military Science.*

Army Reserve Officers' Training Corps

The Army R.O.T.C. program provides education in leadership and management leading to a commission in the United States Army Reserve or Regular Army. Students in all academic fields are eligible for admission. Most department majors have sufficient free electives to allow Military Science Department courses to be applied toward degree requirements. It is important for students to check with this Department and with their major department adviser on this matter.

All R.O.T.C. cadets are draft deferred. (See R.O.T.C. Draft Deferment.)

Students may be enrolled in the Army Reserve Officers' Training Corps under one of three programs. These programs are:

Scholarship Program. Army R.O.T.C. Scholarships are designed for students considering an Army career. High School seniors selected by nationwide competitve examination for a Four-Year Scholarship receive tuition, books, uniforms, fees and $100 per academic month from the Department of the Army. A limited number of one-, two- and three-year scholarships are available for competition by outstanding students who are enrolled in the R.O.T.C. program. See the Military Science Department for details.

Four-Year Program. Students are enrolled in the Basic Course (Freshman and sophomore years) on a voluntary basis. Upon completion of the Basic Course and entrance into the Advanced Course (Junior and Senior years), students are required to execute a contract with the Dpartment of the Army agreeing to complete the Advanced Course, enlist in the United States Army Reserve, and accept a commission if offered. Advanced Course students receive $100 subsistence allowance per academic month, military science books, and uniforms.

Two-Year Program. This program is primarily designed for transfer students from community colleges, and four-year institutions that do not offer Army R.O.T.C. Students apply for this program during the Winter Quarter of their sophomore year and must attend summer camp between their sophomore and junior years. Upon successful completion of this basic summer camp, the student will enter the Advanced Course under the same requirements as for the four-year program. All Advanced Course students receive $100 per academic month, military science books, and uniforms.

General Information. The Army R.O.T.C. program is divided into two parts: (1) the two-year Basic Course for all qualified male and female students who select Army R.O.T.C 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 United States Army Reserve or Regular Army. Successful completion of the two- or four-year R.O.T.C. program and degree requirements is required for an Army commission. 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 of service for which he is best qualified. All undergraduate students are expected to maintain a grade-point average of 2.0 on all work undertaken in their major and a 2.0 GPA in all Military Science courses.

Basic Course (Lower Division)

The Basic Course is offered on an elective basis to all qualified undergraduate students. (The two-year Basic Course may be compressed into one year with the approval of the professor of Military Science.)

The objective of the two-year Basic Course is to acquaint the student with the fundamental principles of national security, military history, and to introduce the techniques and principles of modern warfare.

All necessary equipment, uniforms, and textbooks are provided free of charge to students.

The Advanced Course (Upper Division)

The Advanced Course of instruction is designed to produce junior officers. 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.

Admission to the Advanced Course is by selection from qualified students who meet the academic and physical requirements and who have demonstrated positive interest and leadership potential. Students may apply if they have successfully completed the Basic Course, have credit for the Basic Course from other institutions authorized to present the equivalent instruction or can present evidence of honorable service in the Armed Forces. Normally, students accepted for entrance into the Advanced Course must have at least two more academic years remaining before qualifying for their first baccalaureate degree. However, graduate students are admissible with two academic years remaining.

Veterans. Eligible veterans may enroll directly in the Advanced Course. Veterans receive VA benefits concurrently with Advanced Course subsistence and Scholarship allowances.

Advanced Course students are required to attend a six-week course of training at R.O.T.C. Summer Camp during the summer period following the completion of the first year of the Advanced Course. The training is designed to provide practical work in leadership, physical development, and knowledge of the important roles played by the various branches of the Army for intelligent branch selection by the graduate. The student is furnished uniforms, equipment and receives one-half the pay of a second lieutenant and travel expenses to and from camp.

Flight Instruction Program. Flight Instruction is offered to students in the second year of the Advanced Course. Under this program the Army will pay for flight training for selected qualified R.O.T.C. students. To qualify, the student must have an aptitude for flying and meet required physical standards.

Leadership Laboratory. All Cadets are required to attend the monthly leadership laboratory.

Prerequisite Courses

Directed Subjects: Each cadet must take an introductory course in Probability and Statistics and one in Computer Science, as prerequisites to Military Science 125, Decision Making. The following appropriate courses in this catalog satisfy this requirement: (Equivalent courses at other universities are acceptable.)

Probability and Statistics: Mathematics 50, Economics 140, Psychology 41, Sociology 18, Anthropology 173A, and Management 115A.

Computer Science: Management 113A, Engineering 5, Engineering 10.

Curriculum Substitute Courses: The following specific courses (or their equivalent) must be taken by all cadets as prerequisites to courses within the Military Science Department: Psychology 10, prerequisite to Military Science 111. Must be taken *before* Junior year. Management 190, prerequsite to Military Science 125. Must be taken *during* Junior year. Political Science 138A, prerequisite to Military Science 124. Must be taken *prior* to Spring Quarter, Senior year.

Other courses may be substituted for those listed above based upon their equivalent or more comprehensive coverage of the desired subject content. The decision as to adequacy of substitute courses will be made by the cadet's primary Military Science Instructor/Adviser.

11. U.S. Defense Establishment. (½ course)
A study of the evolution of the U.S. Department of the Defense; includes a study of the military services, with emphasis on the U.S. Army.
CPT. Corey

12. U.S. Defense Establishment. (½ course)
A study of the military institution and other elements of national power as instruments of national policy and strategy in conditions of peace and war.
CPT. Corey

13. Theory of Warfare. (½ course)
Inquiry into the theory, nature, causes, and elements of warfare, with attention also directed to the evolution of weapons and warfare.
CPT. Corey

21. United States Military History. (½ course)
Prerequisite: CADET: Completion of Military Science 11, 12, and 13 or equivalent; NON-CADET: College student. In depth study of U.S. Army from 1755-1865, with emphasis on leaders and combat actions. An introductory survey of opposing strategies and relationships to the men leading and serving in the U.S. Army.
CPT. Tillman

22. United States Military History. (½ course)
Prerequisite: CADET: Completion of Military Science 11, 12, and 13 or equivalent; NON-CADET: College Student. In depth study of the U.S. Army from the end of the Civil War to World War II (1865-1939) with emphasis on leadership at all levels and campaigns involving the U.S. Army. Emphasis on the development of strategy and combat operations of both sides.
CPT. Tillman

23. United States Military History. (½ course)
Prerequisite: CADET: Completion of Military Science 11, 12, and 13 or equivalent; NON-CADET: College Student. In depth study of the U.S. Army from World War II to present, with emphasis on strategies and leadership on both sides.
CPT. Tillman

111. Psychology of Leadership. (½ course)
Prerequisite: CADET: Completion of Basic Couse or equivalent; NON-CADET: Upper division standing. Introduction to Psychology 10 (for both). Familiarization of the student with current concepts in the behavioral sciences which builds the theoretical framework for understanding human behavior in relating to the basic problems of management and the organizational context of leadership. Emphasis is placed on the leader/manager problems of directing and controlling resources.
MAJ. Takamiya

112. Theory of Learning Applied to Teaching I. (½ course)
Prerequisite: CADET: Completion of Basic Course or equivalent; NON-CADET: upper division. An examination of learning theories to support development of knowledge, skills and attitudes necessary for the instructing-teaching application. Emphasis is placed on the education/instructional processes.
MAJ. Takamiya

113. Theory of Learning Applied to Teaching II. (½ course)
Prerequisite: CADET: Completion of Basic Course or equivalent: NON-CADET: upper division completion of Military Science 112 or equivalent (both). A study of instrucational processes, lesson content planning procedures, techniques for applicatory education, role of testing including evaluation and analysis. Emphasis is placed on improvement of teaching and group process.
MAJ. Takamiya

123. Military Legal Systems. (½ course)
Prerequisite: CADET: first year Advanced Military Science; NON-CADET; upper division standing. An introduction to the theory and application of military law and legal systems. Course focuses on the Uniform Code of Military Justice and the rights of the accused under the constitution.
CPT. Capps

124. Military-Societal Relations. (½ course)
Prerequisite: CADET: First year Advanced Military Science, Management 190, and Political Science 138A, or equivalent; NON-CADET: upper division standing. Political Science 138A, or equivalent. An advanced study of the U.S. Army as a professional organization: its relationship to society; professional ethics; and social problems.
CPT. Capps

125. Decision-making. (½ course)
Prerequisite: CADET: one introductory course in Probability and Statistics, one course in Computer Science and Management 190; NON-CADET: same as for cadet; consent of instructor. Theory of decision-making, functions of the decision-making process, optimizing decisions, information systems, operations research, systems management.
CPT. Capps

■ MOLECULAR BIOLOGY (INTERDEPARTMENTAL)

(Molecular Biology
Institute Bldg. Room 171)

D. E. Atkinson, Ph.D., *Professor of Chemistry.*

Marcel A. Baluda, Ph.D., *Professor of Viral Oncology.*

Paul D. Boyer, Ph.D., *Professor of Chemistry.*
R. John Collier, Ph.D., *Professor of Bacteriology.*
F. A. Eiserling, Ph.D., *Professor of Bacteriology in Biology.*
John Fessler, Ph.D., *Professor of Molecular Biology in Biology.*
C. Fred Fox, Ph.D., *Professor of Molecular Biology in Bacteriology.*
Alexander N. Glazer, Ph.D., *Professor of Biological Chemistry.*
Issac M. Harary, Ph.D., *Professor of Biological Chemistry.*
George Laties, Ph.D., *Professor of Plant Physiology.*
Donald P. Nierlich, Ph.D., *Professor of Bacteriology.*
George Popjak, Ph.D., *Professor of Psychiatry and Biological Chemistry.*
Dan S. Ray, Ph.D., *Professor of Molecular Biology in Biology.*
W. R. Romig, Ph.D., *Professor of Bacteriology.*
Winston A. Salser, Ph.D., *Professor of Molecular Biology in Biology.*
Verne N. Schumaker, Ph.D., *Professor of Molecular Biology in Chemistry.*
Larry Simpson, Ph.D., *Professor of Cell Biology.*
Fritiof S. Sjostrand, Ph.D., *Professor of Biology.*
Emil Smith, Ph.D., *Professor of Biological Chemistry.*
Roberts A. Smith, Ph.D., *Professor of Chemistry.*
Clara Szego, Ph.D., *Professor of Biology.*
Philip Thornber, Ph.D., *Professor of Molecular Biology in Biology.*
Felix Wettstein, Ph.D., *Professor of Molecular Biology in Microbiology and Immunology.*
Samuel Wildman, Ph.D., *Professor of Biology.*
Irving Zabin, Ph.D., *Professor of Biological Chemistry.*
Stephen Zamenhof, Ph.D., *Professor of Microbial Genetics and Biological Chemistry.*
Clifford Brunk Ph.D., *Associate Professor of Biology.*
William R. Clark, Ph.D., *Associate Professor of Cell Biology.*
David Eisenberg, Ph.D., *Associate Professor of Molecular Biology in Chemistry.*
George C. Fareed, Ph.D., *Associate Professor of Molecular Biology in Microbiology and Immunology.*
Dohn G. Glitz, Ph.D., *Associate Professor of Biological Chemistry.*
Richard N. Halpern, M.D., *Associate Professor of Medicine in Residence.*
Harvey Herschman, Ph.D., *Associate Professor of Biological Chemistry.*
Bruce Howard, Ph.D., *Associate Professor of Biological Chemistry.*
Harumi Kasamatsu, Ph.D., *Associate Professor of Molecular Biology in Biology.*
David S. Sigman, Ph.D., *Associate Professor of Biological Chemistry.*
Patrice Zamenhof, Ph.D., *Associate Professor of Biological Chemistry.*
Jay Gralla, Ph.D., *Assistant Professor of Molecular Biology in Chemistry.*
Michael Grunstein, Ph.D., *Assistant Professor of Molecular Biology in Biology.*
John M. Jordan, Ph.D., *Assistant Professor of Molecular Biology in Chemistry.*
Thomas Kornberg, Ph.D., *Assistant Professor of Molecular Biology in Chemistry.*
Judith Lengyel, Ph.D., *Assistant Professor of Molecular Biology in Biology.*
Harold B. Martinson, Ph.D., *Assistant Professor of Chemistry.*
Emil Reisler, Ph.D., *Assistant Professor of Molecular Biology in Chemistry.*
Robert M. Sweet, Ph.D., *Assistant Professor of Molecular Biology in Chemistry.*
Allan J. Tobin, Ph.D., *Assistant Professor of Biology.*
Randolph Wall, Ph.D., *Assistant Professor of Microbiology and Immunology in Residence.*
Richard L. Weiss, Ph.D., *Assistant Professor of Chemistry.*
William T. Wickner, Ph.D., *Assistant Professor of Molecular Biology in Biological Chemistry.*
Gary Wilcox, Ph.D., *Assistant Professor of Bacteriology.*
Bernadine Wisnieski, Ph.D., *Assistant Professor of Bacteriology.*

Undergraduate Study

Undergraduate studies which readily lead to advanced work or employment in the molecular biology area include undergraduate majors in biochemistry, biology, or physics. Students may wish to supplement their course programs in consultation with the appropriate undergraduate advisers. In making preparation for graduate study, attention should be given to recommendations given below for preparation for the Ph.D. degree in molecular biology.

The Ph.D. Program

A program of study for the Ph.D. degree is supervised by the Interdepartmental Degree Committee for Molecular Biology. The Molecular Biology Institute was established to encourage fundamental research in molecular biology, biophysics, and biochemistry, and to support graduate instruction for qualified students. Members and Associates of the Institute supervise graduate work in a variety of areas as indicated later. Applicants for the Ph.D. degree program should have a major in a biological or physical science or mathematics. Course work should include mathematics through calculus, one year each of general and of organic chemistry, a year each of physics and physical chemistry based on use of calculus, and a year of biology. Modification in undergraduate requirements may be made for qualified candidates with interests in certain areas. Candidates may enter the program with some course deficiencies but with anticipation these will be made up in the early part of the graduate program.

The Individual Study Program

An individual program of study will be worked out for each student depending upon his particular background and area of specialization. A Student Guidance Committee selected from Molecular Biology Institute Members and Associates will be appointed by the Graduate Adviser for each first-year student. The Committee will meet with the student before the beginning of each quarter and once again at the end of the year. Its functions are to aid in the design of a course program tailored to fit the needs of the student, to help select three laboratories for the student's first year research experience, and to evaluate the student's progress. The supervision of the student's second-year curriculum and research will be transferred from the Guidance Committee to the student's Dissertation Research Supervisor, together with the Graduate Adviser. It is anticipated that by the conclusion of the second year, the student will have completed his course work, his qualifying examinations, and made a start on his dissertation research.

Minor Field of Study

Each student is required to design and follow a program of study leading to proficiency in some subject related to, but outside of, Molecular Biology. This requirement can be satisfied by a set of courses or other program of individual study developed in consultation with the Graduate Adviser following guidelines established by the Ph.D. Committee. It can also be satisfied by demonstrating proficiency in the French, German, or Russian languages. Foreign students may satisfy the requirement by exhibiting excellent mastery of written and oral English.

Qualifying Examination

A qualifying examination for the doctoral degree usually will be held 1 1/2 to 2 years after entrance to the program. The examination will include preparation of a written research proposition and its defense. The Examination Committee may also require an additional written examination at its discretion.

Dissertation Research

The final period of the student's graduate training is devoted to intensive research in one of a variety of fields:

1. Molecular Basis of Cellular Functions — The molecular changes, controls, and structures involved in development and in evolution; the understanding of neural processes at the molecular level; the chemical, genetic, and physical changes involved in carcinogenesis and in possible cancer control.

2. Molecular Genetics and Virology — Molecular basis of transmission and expression of genetic information and of viral replication and action.

3. Structure-Function Relationships of Cell Biopolymers — The detailed linear and 3-dimensional structure and chemical properties of nucleic acids and proteins, in both the isolated state and living organism; biological ultrastructure as revealed by x-ray analysis and electron microscopy.

4. Bioenergetics, Catalysis, and Control Molecular nature of active transport, photosynthesis, oxidative phosphorylation and related processes;

mechanisms of biological catalyses; control mechanisms in catalysis, metabolism, growth and differentiation.

The program leading to a doctoral program in molecular biology will usually require four years.

501. Cooperative Program. (½ to 2 courses)
Prerequisites: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangeents with neighboring institutions. To be graded S/U.
The Staff

Courses Related to Molecular Biology

The following courses offered by the departments listed are particularly appropriate to the research areas mentioned above. With the approval of the Guidance Committee or Research Supervisor, other related courses may be included in a student's program.

Bacteriology 131A-131B. Microbial and General Genetics.

Biological Chemistry M251. Bioorganic Catalysis. (Same as Chemistry M251.)
M253. Proteins and Nucleic Acids. (Same as Chemistry M253.)
M255. Biological Catalysis. (Same as Chemistry M255.)
M257. Physical Chemistry of Biological Macromolecules. (Same as Chemistry M257.)
M261. Advanced Chemistry and Biochemistry of Lipids. (Same as Chemistry M261.)
M263. Cellular Metabolism. (Same as Chemistry M263.)
266A-266B-266C. Seminar in Biochemistry of Differentiation.
M269. Developmental Biochemistry. (Same as Chemistry M269.)

Biology M132. Comparative Genetics. (Same as Bacteriology M132.)
144. Introduction to Molecular Biology.
154. Functional Ultrastructure of Cells.
M220. Gene Structure and Function. (Same as Microbiology M220.)
225. Biochemical Analysis of Development.
227. Chromosome Structure and Replication.
229. Structural Macromolecules.
238. Structure, Function and Biogenesis of the Mitochondrion.
280. Seminar in Chromosome Structure and Replication.
294. Seminar on Current Aspects of Photosynthesis.

Chemistry 110A. Physical Chemistry: Chemical Thermodynamics.
110L. Physical Chemistry with Application to the Life Sciences.
M267. Nucleic Acid and Protein Metabolism. (Same as Biological Chemistry M267.)

Microbiology 204. Microbial Genetics.
208. Regulatory Mechanisms in Microbial Physiology.
213. Membrane Molecular Biology.
M233A-233B. Electron Microscopy. (Same as Biology M233A-233B.)
M285. Seminar in Biological Membranes. (Same as Biology M285.)

Microbiology and Immunology 208. Animal Virology.
250. Topics in New Biology.
251. Seminar in Microbiology and Immunology.
254. Seminar in Immunogenetics.
256. Seminar in Viral Oncology.
M258. Advanced Immunology. (Same as Microbiology M258.)
M259. Advanced Immunology Co-Seminar. (Same as Microbiology M259.)
261. Tumor Immunology.
262. Seminars in Immunology of Cancer.
264. Molecular Immunology.
265. Co-Seminar in Animal Virology.
266. Immunochemistry.

Molecular Biology M298. Seminar in Current Topics in Molecular Biology. (Same as Microbiology M298, Biological Chemistry M298, Biology M298, Chemistry M298, and Microbiology and Immunology M298.)

Physiology 202. Permeability of Biological Membranes to Ions,
225. Biological and Artificial Membranes.

■ MUSIC

(Department Office, 2449 Schoenberg Hall)

Peter C. Crossley-Holland, M.A., *Professor of Music.*
Frank A. D'Accone, Ph.D., *Professor of Music.*
Paul E. Des Marais, M.A., *Professor of Music.*
Maurice Gerow, Ph.D., *Professor of Music.*
Edwin H. Hanley, Ph.D., *Professor of Music.*
Nazir A. Jairazbhoy, Ph.D., *Professor of Music.*
Boris A. Kremenliev, Ph.D., *Professor of Music.*
Henri Lazarof, M.F.A., *Professor of Music.*
W. Thomas Marrocco, Ph.D., *Professor of Music.*
J. H. K. Nketia, B.A., *Professor of Music.*
Gilbert Reaney, M.A., *Professor of Music.*
Abraham A. Schwadron, Mus. A.D., *Professor of Music.*
Robert M. Stevenson, Ph.D., *Professor of Music.*
Roy E. Travis, M.A., *Professor of Music.*
Robert L. Tusler, Ph.D., *Professor of Music.*
D. K. Wilgus, Ph.D., *Professor of English and Anglo-American Folk Song.*
Mantle L. Hood, Ph.D., *Emeritus Professor of Music.*
Robert U. Nelson, Ph.D., *Emeritus Professor of Music.*
Laurence A. Petran, Ph.D., F.A.G.O., *Emeritus Professor of Music and Psychology.*
H. Jan Popper, Ph.D., *Emeritus Professor of Music.*
Clarence E. Sawhill, Mus. D., *Emeritus Professor of Music.*
John N. Vincent, Jr., Ph.D., *Emeritus Professor of Music.*
Alden B. Ashforth, Ph.D., *Associate Professor of Music.*
Elaine R. Barkin, Ph.D., *Associate Professor of Music.*
Murray C. Bradshaw, Ph.D., *Associate Professor of Music.*
Paul S. Chihara, A. Mus.D., *Associate Professor of Music.*
Malcolm S. Cole, Ph.D., *Associate Professor of Music.*
Marie L. Gollner, Ph.D., *Associate Professor of Music.*
Frederick F. Hammond, Ph.D., *Associate Professor of Music.*
Richard A. Hudson, Ph.D., *Associate Professor of Music.*
William R. Hutchinson, Ph.D., *Associate Professor of Music.*
David Morton, Ph.D., *Associate Professor of Music.*
Max L. Harrell, Ph.D., *Assistant Professor of Music.*
James W. Porter, M.A., *Assistant Professor of Music.*
Paul V. Reale, Ph.D., *Assistant Professor of Music.*
Rodney N. Vlasak, B.A., *Assistant Professor of Music.*
Robert S. Winter, M.A., *Assistant Professor of Music.*
_____, *Assistant Professor of Music.*
_____, *Assistant Professor of Music.*

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Thomas F. Harmon, Ph.D., *Lecturer in Music and University Organist.*
Aube Tzerko, B.M., *Senior Lecturer in Music.*
Roger Wagner, Mus.D., *Senior Lecturer in Music.*
David M. Breidenthal, *Lecturer in Music.*
Stanley Buetens, M.A., *Lecturer in Music.*
Majorie Call, B.M., *Lecturer in Music.*
Mario Carta, *Adjunct Assistant Professor of Music.*
William G. Carter, M.A., *Acting Assistant Professor of Music.*
Michael C. Cave, M.M., *Lecturer in Music.*
Douglas L. Davis, *Lecturer in Music.*
Charles DeLancey, M.A., *Lecturer in Music.*
Robert L. DiVall, B.A., *Lecturer in Music.*
Bert Gassman, *Lecturer in Music.*
Alan J. Gilbert, *Lecturer in Music.*
Gary C. Gray, M.M., *Lecturer in Music.*
John L. Hall, M.M., *Lecturer in Music.*
Johana Harris, *Lecturer in Music.*
Charlotte A. Heth, Ph.D., *Acting Assistant Professor of Music.*
Maureen D. Hooper, Ed.D., *Lecturer in Music.*
Freeman K. James, M.A., *Lecturer in Music.*
John T. Johnson, B.M., *Lecturer in Music.*
Bess Karp, M.A., *Lecturer in Music.*
Leon Knopoff, Ph.D., *Professor of Geophysics and Physics.*
Dong Youp Lee, *Lecturer in Music.*
Sinclair R. Lott, B.A. *Lecturer in Music.*

Tsun Y. Lui, *Lecturer in Music.*
Shirley L. Marcus, B.M., *Lecturer in Music.*
Peter Mercurio, M.A., *Lecturer in Music.*
Theodore Norman, *Lecturer in Music.*
Cesare A. Pascarella, *Lecturer in Music.*
Barbara R. Patton, B.A., *Lecturer in Music.*
Stanley E. Plummer, *Lecturer in Music.*
David Raksin, B.M., *Lecturer in Music.*
Sven H. Reher, M.A., *Lecturer in Music.*
Peggy Ann Sheffield, M.M., *Lecturer in Music.*
Sheridon W. Stokes, *Lecturer in Music.*
Paul O. W. Tanner, M.A., *Lecturer in Music.*
Milton Thomas, *Lecturer in Music.*
Suenobu Togi, *Lecturer in Music.*
Donn E. Weiss, M.M., *Lecturer in Music.*
Edmond E. Welter, B.A., *Lecturer in Music.*
Erwin Windward, B.A., *Lecturer in Music.*
Ikuko Yuge, *Lecturer in Music.*
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_____, *Lecturer in Music.*
_____, *Lecturer in Music.*

Requirements for Entering Music Students

All applicants for admission are required to pass an audition in their principle performing medium.

Students planning to complete a major in music whether or not they have taken courses elsewhere, are required to take aptitude and achievement tests prior to enrollment in Theory of Music 17A. These examinations, which also include piano sight-reading are administered during registration week only. Students with exceptional ability and achievement may satisfy lower division requirements in Theory of Music by examination. Further information may be obtained from the Department of Music.

General Requirements

All music majors will be required to complete two years of applied music instruction in their major performance medium at the intermediate or advanced level.

All music majors must enroll in a performance organization for no credit each quarter in residence. They must participate in a minimum of two different organizations, one of which must be from 90A-90H or 91A-91Z.

Preparation for the Major

Courses 17A through F, 26A-26B-26C. Three quarters of either French, German, or Italian, or the equivalent. Students who plan to specialize in Historical or Systematic Musicology are urged to take six quarters, or the equivalent, of German.

The Major

A minimum of 10 courses in the upper division, including 107A, 126A-126B-126C; five courses selected from one of the specializations listed below and one course free elective for all areas except music education.

1. Composition and Theory: courses 106B, 107B-107C and two elective courses from 101, 103A-103B, 104A-104B, 106C, 108, 109A-109B-109C, 110A-110B, 111A-111B, 140-149, 155 and 159.

2. History and Literature: one course from 127A-127C; one course from 127D-127F, one course from 140A-140B-140C, and two electives from 104A-104B, 108, 130-131, 133-138, 151A-151B, and 155-157.

3. Ethnomusicology: 140A-140B-140C, and two courses selected from 108, 127A-127F, 142A-142B, 143A-143B, 147, or 190A-190B-190C.

4. Applied Music: Two courses in applied music 160-165, one course from 175A-175H, and 8 units of elective no more than 4 of which can be additional chamber ensembles. Recommended: 101, 110A-110B, 111A-111B, 112A-112B-112C, 119A-119B-119C, 127A-127F, 135A-135B-135C, 139, 140A-140B-140C, 151A-151B, or 187.

5. Music Education: 100A-100B-100C, 110A, 111A, four units from 115A-115E, 193, 195, and 6 units of electives selected under advisement from 110B, 111B, 112A-112B-112C, 140A-140B-140C, 185, 187, and 199.

6. Systematic Musicology: five courses from the following list, taken on the advice and with the approval of the undergraduate adviser in systematic musicology. Music 108, 138, one course from 140A-140B-140C, 182, 183, 184, 186, 187, 199, and Anthropology 144.

7. Opera: To be revised. See Departmental counselor for information.

Graduate Division

The Music Department offers programs leading to the degrees of Master of Arts and Doctor of Philosophy in the fields of historical musicology, ethnomusicology, systematic musicology, composition, and music education and a program leading to the degree of Master of Fine Arts in Performance Practices. New students will be admitted for graduate study to the Department of Music only once a year, at the beginning of the Fall term.

Admission Timetable

Application for admission by students requesting financial aid must be received by: December 15th.
Departmental examinations will be administered: First week in February.
Notice of acceptance or denial: March 15th
Accepted students must nótify intent to register: April 15th
Application for admission by all other students must be received by: February 15th
Departmental examinations will be administered: First week in April
Notice of acceptance or denial: May 1st
Accepted students must notify intent to register: May 15th

Admission to the Master of Arts and Master of Fine Arts Program

All applicants must have completed a Bachelor of Arts degree with a major in music (or the equivalent degree) as described in this bulletin. See, Graduate Division. Transcripts must show an average grade of B in the basic areas that normally constitute the undergraduate core curriculum in music (harmony, counterpoint, the history of music, analysis and musicianship), plus one college year (or its high school equivalent) of French, German, or Italian. In addition, all applicants are required to take the departmental entrance examination (see below) and are asked (a) to submit a letter describing the background of study and stating their reasons for wishing to pursue graduate studies in music; (b) to request three former instructors to write letters of recommendation in their behalf (form letters are included in the application for admission). Applicants for the M.A. are required to submit written examples of their work: for all branches of musicology and music education a paper on an appropriate subject in the applicant's area; for composition, music scores. Applicants for the M.F.A. are required to (1) submit a repertoire list and sample programs of recitals or concerts, and (2) demonstrate by audition their general musical proficiency in one of the specified areas. Further information concerning specific audition requirements may be obtained from the Department of Music. No application can be considered until the examination has been taken and all of the above materials are received.

Admission to the Doctor of Philosophy Program

The applicant must have completed a Master of Arts degree in music (or the equivalent degree) as described in this bulletin. See, Graduate Division. The degree normally will have been taken in the same field of concentration as the proposed doctorate. If a student wishes to obtain a doctorate in a field other than that of his M.A., he must complete additional work as prescribed by the Department. All applicants who have received an M.A. from a university other than UCLA are required to take the departmental entrance examination (see below) and are asked (a) to submit a letter describing their reasons for wishing to pursue graduate studies in music; (b) to request three former instructors to write letters of recommendation on their behalf (form letters are included in the application for admission); (c) to submit a copy of their M.A. thesis or composition. No application can be considered until the examinations have been taken and the above materials are received.

Departmental Entrance Examination

The departmental entrance examination will be administered at Schoenberg Hall on the UCLA campus two times a year in February and in April (see admission timetable). Applicants outside of the Southern California area who find it impossible to take the examination on campus should make arrangements with the Department of Music to have the examination administered by proxy on or about one of the dates mentioned here. (For details, further information, write the Music Counselor, Department of Music, UCLA.) The departmental entrance examination is approximately three hours in length and consists of five parts: (1) written exercises in harmony and counterpoint, plus chord recognition, melodic and harmonic dictation; (2) harmonic and formal analysis; (3) identification of music terms; (4) an essay on two historical subjects; (5) sightsinging and score reading at the piano. For M.A. and Ph.D. applicants solo performance in the student's principal performing medium. For M.F.A. applicants an audition. In addition to the above, a comprehensive examination will be required of students in Music Education. Entrance examinations are evaluated by the Graduate Committee of the Music Department to determine the applicant's fitness for graduate study.

Requirements for the Secondary Credential and Elementary Credential

Consult the UCLA ANNOUNCEMENT OF THE GRADUATE SCHOOL OF EDUCATION.

Requirements for the Master of Arts Degree

General Requirements. For general requirements see Graduate Division. Students are required to complete a minimum of nine courses, five of which must be at the graduate level. Upper division courses that may be counted toward the minimum of nine courses include: 103A-103B, 104A-104B, 106B-106C, 107B-107C, 108, 109A-109B-109C, 110A-110B, 111A-111B, 112A-112B-112C, 119A-119B-119C, 127A-127B-127C-127D-127E-127F, 140A-140B-140C**, 142A-142B, 143A-143B, 147, 151A-151B, 152, 155, 156, 157, 159, 160-165, 175A-175H, M180, M181, 182, 184, 185, 186, 187. A maximum of one course in applied music or chamber ensembles may be counted toward the degree. Course 598 serves to guide the preparation of the thesis and should normally be taken during the last quarter of residence.

Language Requirement. A reading knowledge of German or French is required in ethnomusicology, systematic musicology and composition; of German, French, Italian, or Spanish in music education, and of German and a choice of French, Italian or Latin in historical musicology. Students lacking these requirements must begin langauge study during the first year of residence.

Course of Study

Each student must plan his program under the guidance of the graduate adviser in his field of concentration. Course requirements for each field of concentration are as follows:

1. Historical musicology: 200A, 200B, 210 or 211 (students planning to enter the Ph.D. program are strongly advised to take both 210 and 211 in the first year of residence), three terms of 260A-260F and one seminar from 250, 256, 257, 259, 266, or 269; the remaining courses are elective upon the recommendation of the graduate adviser.

2. Systematic musicology: 200A, 200B, three terms of 272, and one term of 255, 269, 273 or 275; the remaining courses are elective upon the recommendation of the graduate adviser.

3. Ethnomusicology: 190A, 190B, 190C, 200A, 200B, the remaining courses are elective upon the recommendation of the gradutate adviser.

4. Composition: 200A, one from 251A-D, three terms of 252 one of which may be substituted with 596A; and 266; the remaining courses are elective upon recommendation of the graduate adviser.

5. Music Education: 185, 200A, 200B, and two terms of 270; the remaining courses are elective upon the recommendation of the graduate adviser. Students may elect either the Thesis Plan (see below) or the Comprehensive Examination Plan. The Comprehensive Examination Plan is not acceptable for future Ph.D. candidates. In lieu of a thesis the student is expected to pass a comprehensive examination consisting of a three-hour examination in his area of specialization (music in the elementary school, choral or instrumental music in the secondary school, or music in college); a three-hour examination in the general field of music education; and a two-hour examination in either theory, composition, historical musicology, systematic musicology or ethnomusicology.

Thesis

In historical musicology, ethnomusicology and systematic musicology the thesis will be an extended essay. For students of composition the thesis will be a work for chamber ensemble or orchestra. Students in music education may elect either the Thesis Plan or the Comprehensive Examination Plan (see program in Music Education above).

Final Examination

The final examination is oral and includes both discussion of the thesis and related matters. Students in music education electing the Comprehensive Examination Plan will substitute a comprehensive examination (described above) for the final examination.

Requirements for the Master of Fine Arts Degree

General Requirements. For general requirements see Graduate Division. Students are required to complete a minimum of eighteen courses, including six or more at the graduate level and six or more in the 400 series. The student must arrange to participate in a public performance on campus each quarter in residence. Participation must be of a soloistic nature and the selections performed must be approved in advance by the Performance Council.

The minimum residence requirement for the M.F.A. is two years.

Language Requirement. A reading knowledge of French, German or Italian is required. In the Opera specialty the applicant must also be fluent in speaking and writing one of these languages. The language requirement must be completed by the end of the first year of residence.

Terminology Examination. All M.F.A. students will be required to pass a departmental examination covering standard musical performance terminology (expression, dynamics, interpretation, performance practices, instrumentation, style, tempo) in French, German and Italian. The terminology requirements must be completed by the end of the first year of residence.

Course of Study. Each student must plan his program under the guidance of the graduate advisor in performance. Course requirements are as follows: 151A-151B, 200A, one term of 261A-261F; six terms of 400 level courses, two terms of 598, six electives from 108, 127A-127F, 138, 139, 140A-140B-140C, 164D, 175A-175H, 187, 210, 211, 256, 269, 270F, 273, 275, additional courses from 261A-261F and 400 level series. Course 598 serves to guide the preparation of the final project and should normally be taken during the last two quarters of residence.

First Year Project: An hour concert to be evaluated by a faculty committee will be required at the end of the first year of residence. Program notes are to be provided by the candidate.

Final Project. (To be completed during the final quarters of residence.) A solo recital or concert conducted by the candidate, and an appropriate scholarly paper will be required in all areas. A major operatic performance in addition to the solo recital and paper will be required in the area of Opera. The scholarly paper will be an independent study and analysis of an extended composition or group of shorter compositions posing significant problems in performance practices. The work(s) studied will be part of the solo recital to be evaluated by a faculty committee.

Requirements for the Doctor of Philosophy Degree

General Requirements. For general requirements see Graduate Division. The status of students in all fields of concentration is provisional subject to departmental approval of the Form I Application (Notice of Intention to Proceed to Candidacy for the Ph.D. degree). Normally this application is filed at the end of the first year of residence. Upon approval of the application and completion of the language requirement, the student may request that a guidance committee be appointed. The guidance committee will assist him in preparing for the written qualifying examinations (see below), which are administered by the same committee. After successful completion of the examinations, a doctoral committee will be appointed. This committee administers the oral qualifying examination and also guides the student in writing his dissertation.

Language Requirement. A reading knowledge of French and German is required in systematic musicology, ethnomusicology and music education; of French, German and a third language approved by the Council in historical musicology. In the field of composition two languages are required (one of which must be German or French), the other language may be chosen from Latin, Italian, or Russian.

Course of Study

Each student must plan his program under the guidance of the graduate adviser in his field of concentration. Course requirements for each field of concentration are as follows:

1. Historical musicology: 200A, 200B, 210, 211, five terms of 260A-260F and one seminar from 250, 256, 257, 259, 266 or 269. Students who have received the M.A. in historical musicology from UCLA will normally take a minimum of two terms of 260A-260F in the Ph.D. program. Students may complete their residence requirements by electing courses from the 100 series listed under the general requirements for the M.A., and 200 level courses upon recommendation of their adviser.

2. Systematic musicology: 200A, 200B, five terms of 272 and one term of 255, 269, 273, or 275. Students who have received the M.A. in systematic musicology from UCLA will normally take a minimum of two terms of 272 in the Ph.D. program. Students may complete their residence requirements by electing courses from the 100 series listed under the general requirements for the M.A. and 200 level courses, upon recommendation of their adviser.

3. Ethnomusicology: 190A, 190B, 190C, 200A, 200B, and a minimum of six terms of 280, part of which may be completed at the M.A. level. Students may complete their residence requirements by electing courses from the 100 series listed under the general requirements for the M.A., and 200 level courses, upon recommendation of their adviser.

4. Composition: 200A, one from 251A-D, six terms of 252, two of which may be substituted with 596A; 266. Students who have received the M.A. in composition from UCLA will normally take a minimum of three terms of 252 in the Ph.D. program. Students may complete their

**Will not count for students whose emphasis is ethnomusicology.

residence requirements by electing courses from the 100 series listed under the general requirements for the M.A. and 200 level courses, upon recommendation of their adviser.

5. Music Education: 200A, 200B, 274, and five terms of 270A-270F. Students who have received the M.A. in music education from UCLA will normally take a minimum of three terms of 270A-270F in the Ph.D. program. Under advisement two of the three terms of 270A-270F may be completed under special studies (596C). Students who wish to pursue the Ph.D. in Music Education with a minor in Ethnomusicology will be required to take 185, 190A-190B-190C, 200A, 200B, three terms of 270A-270F, 274, and two courses from 142A-142B, 143A-143B, 147, 281-287. Electives are 140A-140B-140C, 182, 186, 187, 254A-254B-254C, 255, and 280. Students may complete their residence requirements by electing courses from the 100 series listed under the general requirements for the M.A. and 200 level courses upon recommendation of their graduate advisor.

Examinations

Before he is admitted to candidacy, the student must pass a series of qualifying examinations; after he has completed his dissertation he must pass a final examination, concerned primarily with the dissertation. The qualifying examinations are both written and oral.

In the fields of Historical Musicology, Ethnomusicology and Music Education the written examinations consist of the following: (a) history of musical styles in Western civilization (three hours); (b) analysis of form and style (three hours); (c) an examination to demonstrate a basic knowledge of music in non-Western cultures (two hours); and (d) a choice of one or more: acoustics of music, aesthetics of music, psychology of music, and organology (two hours). Further written examinations, totaling six hours are required in two areas: (1) Historical Musicology: one area to be selected from Ancient, Medieval, Renaissance, or Baroque music; the other area from Classic, Romantic or 20th-Century music. (2) Ethnomusicology: two areas to be selected from contrasting musical cultures. (3) Music Education: two areas, one to encompass historical, philosophical and psychological bases, the other to be selected from music education emphasizing elementary, secondary, college-university levels, or adult education. For the student in Music Education with a minor in Ethnomusicology the area examinations will include (a) general examination on the broad application of both fields to curricular, pedagogical, philosophical, psychological and administrative problems and practices in public school music, and (b) an examination relating the candidate's particular fields of interest in Ethnomusicology to their implementation in Music Education, e.g., performance groups, world culture courses, etc.

In the field of Systematic Musicology, the written qualifying examinations consist of the following: (a) history of musical styles in Western civilization (three hours); (b) analysis of form and style (three hours); (c) an examination to demonstrate a basic knowledge of music in non-Western cultures (two hours); (d) a general examination in systematic musicology (two hours); (e) two areas to be selected from acoustics, psychology of music, aesthetics of music, sociology of music and organology (six hours).

In the field of Composition, the written qualifying examinations consist of the following: (a) composition of a short homophonic and a short polyphonic piece (three hours); (b) general history of music (three hours); (c) one or more of the following: acoustics, psychology of music, aesthetics of music, or ethnomusicology (two hours); (d) 20th-Century Music (two hours); (e) analysis of form and style (three hours); and (f) music theory from the medieval period to the present, with optional emphasis on theoretical writings before or after 1700 (three hours).

Dissertation

In all fields but composition the dissertation will be an extended monograph. In the field of composition the dissertation will consist of (1) an extended composition accompanied by a short description of the style and techniques of the work, and (2) an analytical monograph dealing with some aspect of 20th Century music.

Lower Division Courses

1. Fundamentals of Music.

Five hours weekly, including two laboratory hours. Singing, ear training, reading music and harmonization of simple melodies are the basic skills developed in this course.

Mr. James. Mrs. Patton

2A-2B-2C. Introduction to the Literature of Music.

Five hours weekly, including two laboratory hours. 2A is prerequisite to 2B; 2B is prerequisite to 2C. Designed for the general university student. Will not count for the Music Major. A survey of the stylistic development of Western art music within its cultural context. 2A Gregorian Chant through the Renaissance; 2B Monteverdi through Beethoven; 2C Schubert through the present.

Mr. Cole

4A-4B-4C. Basic Piano for Music Majors (No credit)

Three hours weekly. Remedial class instruction in the fundamentals of piano.

5A-5B-5C. Fundamentals of Sound and Music of the World. (½ course each)

Prerequisite: consent of the instructor. The acoustical make-up of sound (pitch, tone quality); tuning systems; modes and scales; harmony and polyphony, rhythm and meter; notational systems; relationships of music to culture. Laboratory: Ear training and instrumental techniques.

Mr. Harrell, Mr. Hutchinson

10. Computer Assisted Sight-Singing Laboratory. (½ course)

Three hours weekly, including one laboratory hour. Prerequisites: course 1 or its equivalent and consent of the instructor. An individualized, self-instructional approach for the development of sight-singing skills through the use of a music computer, keyboard instrument, and linear program learning.

Mr. Gerow

17A-17F. Theory of Music.

Eight hours weekly, including four laboratory hours. Prerequisites: Aptitude, Achievement and Performance examinations. Series must be taken in order A, B, C, D, E, F. An integrated study of theoretical and practical techniques. First Year: harmony through chromatic embellishment of diatonic progressions; two-part modal and tonal counterpoint; structural analysis; basic instrumentation; keyboard skills including open-score clef-reading and figured bass; melodic and rhythmic dictation and sight-singing. Second Year: advanced harmony through modulations and total chromaticism; three and four-part counterpoint (motet and fugue); advanced keyboard skills; dictation and sight-singing of modulating melodies.

The Staff

26A-26B-26C. History and Literature of Music I.

Five hours weekly, including one laboratory hour. Prerequisites: courses 17A-17B-17C. 26A is prerequisite to 26B; 26B is prerequisite to 26C. The history and literature of music from the beginning of the Christian era to 1750, with emphasis upon analysis of representative works of each style period. Materials selected will illustrate the history of style and changing techniques of composition.

The Staff

60-65. Applied Study of Music Literature: Intermediate (1 course per year)

For Music Majors Only. Private instruction of one hour per week. Prerequisite: Audition. May be repeated for credit in entire year sequence only. This course is offered on an In-Progress basis, which requires students to complete the full three-quarter sequence, at the end of which time a grade is given for all quarters of work. Students will be admitted in Fall Quarters only. All students must perform in a practicum once during the academic year. Examination by jury in Spring Quarter.

Strings: **60A.** Violin; **60B.** Viola; **60C.** Cello; **60D.** String Bass; **60E.** Harp; **60F.** Classical Guitar; **60G.** Viola de gamba; **60K.** Lute.

Woodwinds: **61A.** Flute; **61B.** Oboe; **61C.** Clarinet; **61D.** Bassoon; **61E.** Saxophone.

Brass: **62A.** Trumpet; **62B.** French Horn; **62C.** Trombone; **62D.** Tuba.

Percussion: **63.** Percussion.

Keyboard: **64A.** Piano; **64B.** Organ; **64C.** Harpsichord.

Voice: **65.** Voice.

80A-80N. Performance Organizations (¼ course each)

For Non-Music Majors Only. (90A-90N is for the music major) Three hours weekly. Prerequisite: Audition. May be repeated for credit.

80A. A Cappella Choir; **80B.** University Chorus; **80C.** Madrigal Singers; **80D.** Opera Workshop; **80E.** Symphony Orchestra; **80F.** Symphonic Band; **80G.** Wind Orchestra; **80H.** Collegium Musicum; **80J.** Men's Glee Club; **80K.** Women's Glee Club; **80L.** Musical Comedy Workshop; **80M.** Marching and Varsity Bands; **80N.** Jazz Band.

81A-81Z. Ethnomusicology Performance Organizations. (¼ course each)

For Non-Music Majors Only. (91A-91Z is for the music major) Three hours weekly. Prerequisite: consent of the instructor. May be repeated for credit.

81A. Music and Dance of the American Indian; **81B.** Music and Dance of Bali; **81C.** Music and Dance of Bulgaria; **81D.** Music and Dance of China; **81E.** Music and Dance of Ghana; **81F.** Music and Dance of India; **81G.** Music and Dance of Japan; **81H.** Music of Java; **81J.** Music of Korea; **81K.** Music of Mexico; **81L.** Music of Persia; **81M.** Music of Thailand; **81Z.** Open Ensemble.

90A-90N. Performance Organizations. (No Credit)

For Music Majors Only. (80A-80N is for the nonmusic major) Three hours weekly. Prerequisite: Audition. May be repeated. Music majors may enroll in only one performance organization per quarter.

90A. A Cappella Choir; **90B.** University Chorus; **90C.** Madrigal Singers; **90D.** Opera Workshop; **90E.** Symphony Orchestra; **90F.** Symphonic Band; **90G.** Wind Orchestra; **90H.** Collegium Musicum; **90J.** Men's Glee Club; **90K.** Women's Glee Club; **90L.** Musical Comedy Workshop; **90M.** Marching and Varsity Bands; **90N.** Jazz Bands.

91A-91Z. Ethnomusicology Performance Organizations. (No credit)

For Music Majors Only. (81A-81Z is for the nonmusic major) Three hours weekly. Prerequisite: consent of the instructor. May be repeated. Music majors may enroll in only one performance organization per quarter.

91A. Music and Dance of the American Indian; **91B.** Music and Dance of Bali; **91C.** Music and Dance of Bulgaria; **91D.** Music and Dance of China; **91E.** Music and Dance of Ghana; **91F.** Music and Dance of India; **91G.** Music and Dance of Japan; **91H.** Music of Java; **91J.** Music of Korea; **91K.** Music of Mexico; **91L.** Music of Persia; **91M.** Music of Thailand; **91Z.** Open Ensemble.

Upper Division Courses

100A-100B-100C. Music in American Education. (½ course each)

Three hours weekly. Prerequisites: courses 17A-17F, 26A-26B-26C, 193, and 195. 110A is prerequisite to 100B; 111A is prerequisite to 100C. 100A is not prerequisite to 100B; 100B is not prerequisite to 100C. A critical study of principles and practices in music education, historical and current, at elementary and secondary levels. 100A. General Music; 100B. Choral Music; 100C. Instrumental Music. 100A-100B-100C may be taken in any order.

Mr. Gerow, Miss Hooper

101. Keyboard Harmony and Score Reading.

Four hours weekly. Prerequisites: courses 17A-17F. Emphasizes the reading of figured bass, sequences, modulations in the harmonic vocabulary of the 18th and 19th centuries. Reading at the piano of multistaff notation, the various C clefs, and parts for transposing instruments; chamber music and simple orchestral scores.

Mr. Bradshaw

103A-103B. Advanced Theory.

Three hours weekly. Prerequisites: courses 17A-17F. 103A or consent of the instructor is prerequisite to 103B. Techniques of tonal coherence studied through analysis and compositional exercises in the styles of given periods.

Mr. Travis

***104A-104B. Advanced Counterpoint.**

Three hours weekly. Prerequisites: courses 17A-17F. 104A or consent of the instructor is prerequisite to 104B. Comparative contrapuntal practices and forms from all periods studied through analysis and compositional exercises in the styles of the given periods. (Not open to students who have received credit for 104 or 105).

106B-106C. Advanced Orchestration.

Three hours weekly. Prerequisites: courses 17A-17F; course 106B is prerequisite to 106C. Scoring and analysis for Ensembles and Full Orchestra.

Mrs. Barkin, Mr. Lazarof

107A-107B-107C. Composition.

Three hours weekly. **107A.** Prerequisites: courses 17A-17F. 107A is prerequisite to 107B; 107B is prerequisite to 107C. 107B-107C are primarily for the student whose specialization is compositional. Vocal and instrumental composition in the smaller forms; two- and three-part song forms, rondo, sonata, etc.

The Staff

106. Acoustics.

Three hours weekly. Prerequisite: consent of the instructor. The interrelationship of acoustical and musical phenomena. Tuning systems, consonance and dissonance, tonal quality. Lecture, demonstration, and discussion and tours of instrumental collections and acoustical research facilities.

Mr. Hutchinson

109A-109B-109C. Composition for Motion Pictures and Television. (½ course each)

Two hours weekly. Prerequisites: courses 17A-17F or consent of the instructor. 109A is prerequisite to 109B; 109B is prerequisite to 109C. Composition of music for the dramatic and documentary film in cinema and television. Techniques used in recording and editing.

Mr. Raksin

110A-110B. Study and Conducting of Choral Literature. (½ course each)

Prerequisite: courses 17A-17F and 26A-26B-26C. 110A is prerequisite to 110B. The theory and practice of conducting as related to the study of choral works from the Renaissance to the present day. **110A.** Conducting fundamentals including basic skills, techniques, analysis and repertoire. **110B.** Stylistic interpretation of music literature.

Mr. Weiss

111A-111B. Study and Conducting of Instrumental Literature. (½ course each)

Prerequisite: courses 17A-17F and 26A-26B-26C. 111A is prerequisite to 111B. The theory and practice of conducting as related to the study of instrumental works for string and wind ensembles. **111A:** Conducting fundamentals including basic skills, techniques, analysis and repertoire. **111B:** Stylistic interpretation of music literature.

Mr. James

112A-112B-112C. Practical Scoring.

Four hours weekly. Prerequisites: courses 17A-17F, 26A-26B-26C, and consent of the instructor. Emphasis on practical problems in scoring for small and large ensembles at various educational levels. **112A.** Band Scoring; **112B.** Choral Scoring; **112C.** Orchestral Scoring.

Mr. James, Mr. Weiss

113A-113B. Music Literature for Children.

Four hours weekly, including one laboratory hour. Prerequisites: course 1, 2A, or consent of the instructor. 113A is not prerequisite to 113B. Designed for the nonmusic major, particularly the elementary education specialist. A study of music literature applicable to elementary school programs. 113A: Emphasis on listening, analysis, movement, and improvisation. 113B: Emphasis on class performance — music reading, signing, and folk instruments.

Mr. Gerow, Miss Hooper

115A-115E. Study of Instrumental and Vocal Techniques. (¼ course each)

Four hours weekly, Prerequisites: courses 17A-17F, 26A-26B-26C, 193, and 195. Applied studies in basic performance techniques and tutorial materials. Designed for the music education specialist. **115A.** Strings; **115B.** Woodwinds; **115C.** Brass; **115D.** Percussion; **115E.** Voice.

The Staff

119A-119B-119C. Advanced Study and Conducting of Choral Literature. (½ course each)

Three hours weekly. Prerequisites: courses 110A-110B. 119A is prerequisite to 119B; 119B is prerequisite to 119C. Advanced theory and practice of conducting; the study of representative choral works from the conductor's viewpoint.

Mr. Wagner

126A-126B-126C. History and Literature of Music II.

Five hours weekly, including one laboratory hour. Prerequisites: courses 17A-17F, and 26A-26B-26C. 126A is prerequisite to 126B; 126B is prerequisite to 126C. The history and literature of music from 1750 to the present with emphasis upon analysis of representative works of each style period. Materials selected will illustrate the history of style and changing techniques of composition.

The Staff

127A-127F. Selected Topics in the History of Music.

Special aspects of the music of each period, studied in depth. Each course may be repeated once for credit by graduate students only. **127A.** Middle Ages; **127B.** Renaissance: **127C.** Baroque; Prerequisites: courses 17A-17F, and 26A-26B-26C. **127D.** Classic. Prerequisites: courses 17A-17F, 26A-26B-26C, and 126A. **127E.** Romantic. Prerequisites: courses 17A-17F, 26A-26B-26C, and 126A-126B. **127F.** Twentieth Century. Prerequisites: courses 17A-17F, 26A-26B-26C, and 126A-126B-126C.

The Staff

***130. Music of the United States.**

Four hours weekly. Prerequisite: course 2A or consent of the instructor. A survey of art music from colonial times to the present.

Mr. Marrocco

131A-131B. Music of Hispanic America.

Four hours weekly. Prerequisites: consent of the instructor. 131A is not prerequisite to 131B. Survey of art music including attention to ethnic developments and Peninsular background. **131A.** Mexico, Central America and the Caribbean isles; **131B.** Hispanic South America.

Mr. Stevenson

132A-132B. Development of Jazz.

Four hours weekly, including one laboratory hour. Prerequisite: course 2A or consent of the instructor. Course 132A is prerequisite to 132B. An introduction to jazz; its historical background and its development in the United States.

Mr. Tanner

133. Bach.

Four hours weekly, including two laboratory hours. The life and works of Johann Sebastian Bach.

Mr. Bradshaw

134. Beethoven.

Four hours weekly, including two laboratory hours. The life and works of Ludwig van Beethoven.

Mr. Winter

135A-135B-135C. History of the Opera.

Five hours weekly, including one laboratory hour.

135A: Opera of the Baroque and Classical Periods; **135B:** Opera of the Romantic Period; **135C:** Opera of the Twentieth Century.

Mr. D'Accone, Mr. Hanley, Mr. Hudson

***136. Music for the Legitimate Drama and Dramatic Motion Picture.**

Four hours weekly. Prerequisite: consent of the instructor. A history and analysis of incidental music for the theatre from ancient Greece to the present. The place and function of background or mood music, overtures, entr'actes, and music that relates to the action or locale.

***137. Political Influence on Music.**

Four hours weekly. Prerequisite: consent of the instructor. The influence of revolution and dictatorship upon music and its allied arts from antiquity to the present.

***138. Aesthetics of Music.**

Three hours weekly. Prerequisite: course 2A or consent of the instructor. A survey of the literature of music aesthetics from Plato to the present.

139. History and Literature of Church Music.

Four hours weekly. Prerequisite: course 2A or consent of the instructor. A study of the forms and liturgies of western church music.

Mr. Cole

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*Not to be given 1976-1977.

140A-140B-140C. Musical Cultures of the World.

Five hours weekly. Prerequisite: consent of the instructor. 140A is not prerequisite to 140B, 140B is not prerequisite to 140C. 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.

Mr. Harrell

142A-142B. Music of the Balkans.

Five hours weekly, including two laboratory hours. Prerequisites: courses 140A-140B-140C or consent of the instructor. 142A is prerequisite to 142B. **142A** surveys the folk music of Bulgaria, including a study of eastern and western elements; performance on representative instruments. **142B** investigates vocal and instrumental styles of other Balkan countries, with emphasis on Yugoslavia. (142A-142B is not open to those students who have had 142.)

Mr. Kremenliev

143A-143B. Music of Africa.

Five hours weekly, including two laboratory hours. Prerequisite: courses 140A-140B-140C, or consent of the instructor. Course 143A is prerequisite to 143B. An investigation of the historical aspects, social functions and relationships of music to other art forms in selected areas of Africa.

Mr. Nketia

M144. American Folk and Popular Music.

(Same as Folklore M144.) Four hours weekly. Prerequisite: course 1A or consent of the instructor. A survey of the history and characteristics of the music developed in or for general American culture and various subcultures.

Mr. Carter

147. Music of China.

Five hours weekly. Prerequisites: courses 140A-140B-140C or consent of the instructor. A detailed study of the history and evolution of Chinese music with analysis of representative compositions.

Mr. Lui

***150A-150B-150C. Music Criticism. (½ course each)**

Two hours weekly. Prerequisite: course 2A or consent of the instructor. A study of factors in critical evaluation of musical works in performance.

151A-151B. History of Musical Performance Practices.

Four hours weekly. Prerequisites: courses 17A-17F and 26A-26B-26C. A general survey of musical interpretation and re-creation from the viewpoint of stylistic authenticity. **151A** Medieval through Baroque; **151B** Classic through 20th Century. Not open for credit to those who have had 151.

Mr. Tusler

152. Survey of Music in India.

Four hours weekly. A consideration of the main music genres in India, with particular reference to the religious, socio-cultural and historical background of the country.

Mr. Jairazbhoy

153A-153B-153C. Music of the American Indians.

Four hours weekly. American Indian music will be studied within the broader context of styles, cultural values, and sources. Films, recordings, lectures, and limited group singing and dancing will relate the music to the culture producing it. **153A:** Musics of the Eastern, California-Yuman, Great Basin, and Northwest Coast areas; **153B:** Musics of the Athabascan, Pueblo, Plains, and modern Pan-Indian trends; **153C:** Sociology of American Indian Music with specific reference to the manner in which cultural values, prescriptions, oral traditions, language and technological advances have affected music of various tribes.

Miss Heth

M154A-154B. The Afro-American Musical Heritage.

(Same as Folklore M154A-154B.) Four hours weekly. Prerequisite: course 1 or consent of the instructor. 154A is prerequisite to 154B. A study of Afro-American rhythm, dance music, field hollers, work songs, spirituals, blues, and jazz; the contrast between West African, Afro-American and Afro-Brazilian musical traditions.

Mr. Carter

155. Survey of Electronic Music.

Four hours weekly. Designed as an introduction to electronic music. A historical survey of the development of electronic music, its techniques, representative works of the literature, and related developments. Includes introduction to elements of acoustics, electronics, equipment and procedures, and problems of performance.

Mr. Ashforth

***156. Techniques of Electronic Music.**

Four hours weekly. Prerequisite: courses 107A, 155 or its equivalent and consent of the instructor. Theory and techniques of electronic music including practical experience in manipulation of the equipment in the studio.

***157. Music of Brazil.**

Four hours weekly. Prerequisites: consent of the instructor and some knowledge of Portuguese. History of ethnic and art music in Brazil with some reference to Portuguese antecedents.

159. Electronic Music Composition.

Three hours weekly. Prerequisites: courses 155 and 107A or equivalent. Application of analog synthesizer and tape techniques to realization of original compositional materials.

Mr. Ashforth

160-165. Applied Study of Music Literature: Advanced. (1 course per year)

For Music Majors Only. Private instruction of one hour per week. Prerequisite: Audition. May be repeated for credit in entire year sequence only. This course is offered on an In-Progress basis, which requires students to complete the full three-quarter sequence, at the end of which time a grade is given for all quarters of work. Students will be admitted in Fall Quarters only. Applied majors must perform in a noon concert once during their junior year and will be required a full recital in their senior year. All other students enrolled will be required to participate in a practicum once during the academic year. Examination by jury in Spring Quarter.

Strings: 160A. Violin; **160B.** Viola; **160C.** Cello; **160D.** String Bass; **160E.** Harp; **160F.** Classical Guitar; **160G.** Viola de gamba; **160K.** Lute.

Woodwinds: 161A. Flute; **161B.** Oboe; **161C.** Clarinet; **161D.** Bassoon; **161E.** Saxophone.

Brass; 162A. Trumpet; **162B.** French Horn; **162C.** Trombone; **162D.** Tuba.

Percussion; 163. Percussion.

Keyboard; 164A. Piano; **164B.** Organ; **164C.** Harpsichord.

Voice: 165. Voice.

175A-175H. Chamber Ensembles (1 course per year)

Two hours weekly. Prerequisite: Audition. Students must be at the advanced level of their instrument to participate in the course. May be repeated for credit in entire year sequence only. This course is offered on an In-Progress basis, which requires students to complete the full three-quarter sequence, at the end of which time a grade is given for all quarters of work. Students will be admitted in Fall Quarters only. Applied study of the performance practices of literature appropriate to the ensemble.

175A. String Ensemble; **175B.** Woodwind Ensemble; **175C.** Brass Ensemble; **175D.** Percussion Ensemble; **175E.** Piano Ensemble; **175F.** Vocal Ensemble and Accompaniment; **175G.** Early Music Ensemble; **175H.** Contemporary Chamber Ensemble.

The Staff

M180. Analytical Approaches to Folk Music.

(Same as Folklore M180.) Prerequisites: Music 1 or consent of the instructor. An examination of analytical techniques in the study of European and American folk music. Questions of function, structure, and musical behavior will be investigated, as well as technical and methodological systems for the transcription and classification of folk music.

M181. Folk Music of Central and Western Europe.

(Same as Folklore M181.) Four hours weekly. Prerequisite: course 2A or consent of the instructor. An illustrated examination of the musical styles indigenous to the area between Ireland and Czechoslovakia. Particular attention will be paid to the psychological function of folk music in its social and political context.

Mr. Porter

182. Sociology of Music.

Four hours weekly. Prerequisite: consent of the instructor. The application of ideas from the social sciences to musical behavior, including socialization, social structure, culture structure, and interaction.

Mr. Vlasak

M183. Ethnography of Blues.

(Same as Folklore M183.) Four hours weekly. Prerequisite: consent of the instructor. The use of ethnographic methods for constructing a picture or model of a culture, viewing blues as a culture area, and including the analysis of blues forms and study of representative examples.

Mr. Vlasak

***184. Music in Culture and Education.**

Four hours weekly. Prerequisite: consent of the instructor. The relevance of music to cultural values and the social order; music as communication, symbol and myth.

185. Historical and Philosophical Foundations of Music Education.

Three hours weekly. Prerequisites: completion of the undergraduate specialization in music education. The development of music education in the United States according to established schools of thought.

Mr. Schwadron

186. Music and Social Psychology.

Four hours weekly. Prerequisite: Ability to read and write music and consent of the instructor. The study of music and ideas about music as products of psychological processes: affective, cognitive, developmental and social, including the manipulation of these processes by musicians in the invention and performance of music.

Mr. Vlasak

187. Problems in Musical Aesthetics.

Three hours weekly. Prerequisites: courses 17A-17F; and 26A-26B-26C. Critical approach to musical problems of aesthetic analysis, description, values, theories; including both Western and non-Western considerations. Recommended for students in all specializations of music.

Mr. Schwadron

188A-188Z. The Master Composer.

Four hours weekly, including one laboratory hour. A survey of the works of an outstanding composer in Western art music, considered within the context of his age. **188A.** Josquin; **188B.** Palestrina; **188C.** Monteverdi; **188D.** Purcell; **188E.** A. Scarlatti; **188F.** Vivaldi;

*Not to be given 1976-1977.

188G. Handel; **188H.** Haydn; **188J.** Mozart; **188K.** Schubert; **188L.** Schumann; **188M.** Berlioz; **188N.** Chopin; **188P.** Brahms; **188Q.** Wagner; **188R.** Verdi; **188S.** Mahler; **188T.** Debussy; **188U.** Schoenberg; **188V.** Stravinsky; **188W.** Bartok; **188X.** Copland; **188Y.** Webern; **188Z.** Ives.

Mr. Bradshaw

189. The Symphony.
Four hours weekly, including one laboratory hour. A survey of symphonic literature from Haydn through the 20th Century with special emphasis upon the current symphonic programs of the Los Angeles Philharmonic Orchestra and other performing groups in the Los Angeles area.

Proseminars

190A-190B-190C. Proseminar in Ethnomusicology.
Three hours weekly. Prerequisites: courses 140A-140B-140C.

Mr. Kremenliev, Mr. Nketia

193. Proseminar in Music Education. (½ course)
Two hours weekly. Prerequisites: courses 17A-17B-17C. This course is prerequisite to all courses in the music education specialization. A historical and philosophical introduction to the field.

Mr. Gerow, Mr. Schwadron

195. Field Studies in Music Education. (½ course)
Four hours weekly, including two laboratory hours. Prerequisite: course 193. Discussion and observation of current practices.

Miss Hooper

199. Special Studies in Music.
Prerequisite: senior standing, consent of the instructor and adviser, and a 3.0 grade-point average. Individual studies in Music resulting in a research project. May be repeated to a maximum of eight units.

The Staff

Graduate Courses

Not open to undergraduate students. See College of Fine Arts, Unit Requirements.

200A. Research Methods and Bibliography.
Three hours weekly. A survey of general bibliographic material in music.

Mr. D'Accone, Mr. Hudson

200B. Research Methods and Bibliography.
Three hours weekly. Prerequisite: course 200A. Guided writing, utilizing specific bibliography in historical musicology, systematic musicology, ethnomusicology, and music education.

The Staff

210. Medieval Notation.
Three hours weekly. Prerequisite: consent of the instructor. Vocal and instrumental notation; paleography of the period.

Mrs. Gollner

211. Renaissance Notation.
Three hours weekly. Prerequisite: consent of the instructor. Vocal and instrumental notation; paleography of the period.

Mr. D'Accone

248. Seminar in Comparative Music Theory.
Prerequisite: consent of the instructor. The comparative study of the codified music theories of select cultures—Western and non-Western—considered in themselves and as expressions of their societies. Theory considered as a science of music; its place between cultural values and artistic practice in different civilizations.

Mr. Crossley-Holland

250. Seminar in the History of Music Theory.
Three hours weekly. Prerequisite: courses 200A and 210 or 211.

Mr. Reaney

251A-251D. Seminar in Special Topics in Composition and Theory.
Three hours weekly. May be repeated for credit. An intensive exploration of specialized aspects of composition. **251A.** Orchestration; **251B.** Specific media; **251C.** Specific styles; **251D.** Compositional Analysis.

Mr. Travis

252A-252B-252C. Seminar in Composition.
Three hours weekly. Prerequisites: courses 106B and 107C. 252A is prerequisite to 252B; 252B is prerequisite to 252C. May be repeated for credit. Course may be taken out of sequence only by consent of the instructor.

Mr. Reale

253. Seminar in Notation and Transcription in Ethnomusicology.
Three hours weekly. Prerequisites: courses 140A-140B-140C, 190A-190B or consent of the instructor.

Mr. Jairazbhoy

***254A-254B-254C. Seminar in Field and Laboratory Methods in Ethnomusicology.**
Prerequisites: courses 190A-190B or consent of the instructor. Training includes experience in handling of technical apparatus, films, recording, processing and editing; field projects.

Mr. Jairazbhoy

255. Seminar in Musical Instruments of the Non-Western World.
Three hours weekly. Prerequisites: courses 140A-140B-140C, 190A-190B or consent of the instructor.

Mr. Crossley-Holland

256. Seminar in Musical Form.
Three hours weekly. Prerequisites: courses 126A-126B-126C. The analysis of structural organizations in music.

Mr. Cole

***257. Seminar in Music of the United States and Canada.**
Three hours weekly. Prerequisite: course 130.

Mr. Marrocco

M258. Seminar in Folk Music.
(Same as Folklore M258.) Three hours weekly. Prerequisite: consent of the instructor.

Mr. Wilgus

***259. Seminar in Music of Latin America.**
Three hours weekly. Prerequisite: course 131.

260A-260F. Seminar in Historical Musicology.
Three hours weekly. Prerequisites: courses 200A, 200B, 210 or 211. Students may enroll in 200B, 210 or 211 concurrently. May be repeated for credit. **260A.** Medieval Music; **260B.** Renaissance; **260C.** Baroque; **260D.** Classical; **260E.** Romantic; **260F.** General Topics.

Mr. Hudson, Mr. Marrocco

261A-261F. Problems in Performance Practices.
Three hours weekly. May be repeated for credit. Prerequisites: courses 151A-151B or consent of the instructor. An investigation of primary source readings in performance practices as related to the period; analytical reports and practical applications in class demonstrations. **261A.** Medieval; **261B.** Renaissance; **261C.** Baroque; **261D.** Classical; **261E.** Romantic; **261F.** Contemporary.

Mr. Cole, Mrs. Gollner

266. Seminar in Music of the Twentieth Century.
Three hours weekly. Prerequisite: courses 126A-126B-126C. Analysis in depth of trends and movements in 20th century music.

Mr. Stevenson

269. Seminar in the History of European Instruments.
Three hours weekly.

Mr. Hammond

270A-270F. Seminar in Music Education.
Three hours weekly. Prerequisite: consent of the instructor. May be repeated for credit. **270A.** Tests and Measurements; **270B.** Non-Western Musics; **270C.** Curriculum Innovations; **270D.** Administration and Supervision; **270E.** Historical Foundations; **270F.** General Topics.

Mr. Gerow, Mr. Schwadron

272. Seminar in Systematic Musicology.
Three hours weekly. Prerequisite: course 108, Psychology 185 and 187, or consent of the instructor. May be repeated for credit.

Mr. Vlasak

273. Seminar in Acoustics of Music.
Prerequisite: course 108 or consent of the instructor. May be repeated once for credit.

Mr. Hutchinson

***274. Seminar in the Philosophy of Music Education.**
Three hours weekly. May be repeated once for credit.

Mr. Schwadron

275. Seminar in Aesthetics of Music.
Three hours weekly. Prerequisite: course 138. May be repeated once for credit.

Mr. Schwadron

280. Seminar in Ethnomusicology.
Three hours weekly. Prerequisite: courses 190A-190B and 200A-200B. May be repeated for credit.

Mr. Crossley-Holland

***281A-281B. Music of Indonesia.**
Three hours weekly. Prerequisite: consent of the instructor. The 2000-year old cultural history of Indonesia will serve as a background for the materials of this course. During the first quarter emphasis will be on the music of related performing arts of Java, including an analytical and comparative concentration on music as well as exercises in the melodic writing of classical gending; a similar emphasis in the second quarter will be devoted to the music and performing arts of Bali. Concurrent participation in one of the Indonesian performance groups is required.

***282. Music of Persia.**
Three hours weekly. Prerequisite: consent of the instructor. The course emphasizes the analytical and comparative study of various genres of the music of Persia and presents the music in a broad socio-cultural context. Musical practice is critically compared with musical theories developed during the last twelve centuries. Persian music is placed in the broad perspective of the music of the entire Near East. Concurrent participation in the Persian performance group is required.

***283. Music of Thailand.**
Three hours weekly. Prerequisite: consent of the instructor. A study of the traditional music of Thailand;

*Not to be given 1976-1977.

historical background and intercultural influences, instruments and ensembles, theatrical and dance music, the music in its social context; analysis of forms and styles through examination of representative compositions, with practice in composing in basic styles. Concurrent participation in the Thailand performance group is required.

***284. Music of the Arabic Near East.**

Three hours weekly. Prerequisite: consent of the instructor. The course concentrates on the analytical and comparative study of various genres of the Arabic-speaking Near East and presents the music in a broad socio-cultural context. Musical practice is critically compared with musical theories developed during the last twelve centuries. Arabic theory and practice are placed in the broad perspective of musical traditions of the non-Arabic Near East.

285. Music of Tibet.

Three hours weekly. Prerequisite: consent of the instructor. A study of the traditional music of ethnic Tibet as ritual, art and folklore in its cultural matrix, and its relationship with other arts. The instruments and ensembles of traditional Tibetan music will be explored. Advanced studies in stylistic and formal analysis also form part of the work of the course.

Mr. Crossley-Holland

286A-286B. Classical Music of India.

Three hours weekly. Prerequisite: consent of the instructor. A study of the history, theory and practice of North and South Indian classical music. The first quarter will be concerned primarily with music history and traditional theory, while the second quarter will involve analysis of present-day forms, styles, techniques, and musical instruments. Concurrent participation in the Indian performance group is required.

Mr. Jairazbhoy

287. Seminar in African Music.

Three hours weekly. Prerequisites: courses 140A-140B-140C, 143A-143B, 200A, and 200B. Intensive investigation of musical style, historical, social and cultural aspects of indigenous musical traditions and related art forms.

Mr. Nketia

Professional Courses

370. Music in General Education (½ course)

Two hours weekly. Prerequisite: acceptance into the teacher training program through the School of Education. Must be taken concurrently with supervised teaching. May be repeated for credit up to six units. Critical discussions related to supervised teaching in progress.

Miss Hooper, Mr. James

460A-465. Master Class in Applied Literature.

One hour of private instruction and two hours of performance laboratory per week. Prerequisite: Admission to the M.F.A. program. May be repeated for credit. Intensive study and preparation of musical literature in the area of specialization.

String Classes: 460A. Violin; **460B.** Viola; **460C.** Cello; **460D.** String Bass; **460E.** Harp; **460F.** Classical Guitar; **460G.** Viola da gamba; **460K.** Lute.

Woodwind Classes: 461A. Flute; **461B.** Oboe; **461C.** Clarinet; **461D.** Bassoon; **461E.** Saxophone.

Brass Classes: 462A. Trumpet; **462B.** French Horn; **462C.** Trombone; **462D.** Tuba.

Percussion Class: 463. Percussion.

Keyboard Classes: 464A. Piano; **464B.** Organ; **464C.** Harpsichord.

Voice Class: 465A. Voice.

*Not to be given, 1976-1977.

472. Master Class in Opera.

Three hours weekly. Prerequisite: consent of the instructor. Intensive study and preparation of opera literature. May be repeated for credit.

The Staff

475. Master Class in Conducting.

Three hours weekly. Prerequisite: consent of the instructor. Intensive study and preparation of musical literature in the specialized field of conducting.

The Staff

Individual Study and Research

596A. Directed Individual Studies in Orchestration and Composition. (½ or 1 course)

May be repeated for credit. A maximum of two courses (eight units) may be applied for credit for the M.A. degree.

The Staff

596B. Directed Individual Studies in Musicology. (½ or 1 course)

The Staff

596C. Directed Individual Studies in Music Education. (½ or 1 course)

The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. (½ or 1 course)

The Staff

598. Guidance of Master's Thesis or M.F.A. Final Project. (1 or 2 courses)

M.A. candidates may apply 4 units toward degree requirements; M.F.A. candidates may apply 8 units toward degree requirements. May be repeated for credit.

The Staff

599. Guidance of Doctoral Dissertation. (1 or 2 courses)

The Staff

Related Courses in Other Departments

Dance 154. Music as Dance Accompaniment. 206. Music for Dance.
Folklore 106. Anglo-American Folk Song. M243A. The Ballad.
Integrated Arts 1A-1B-1C. Integrated Arts.

■ NAVAL SCIENCE

(Department Office, 123 Men's Gymnasium)

Sheldon D. Kully, M.S., Captain, U.S. Navy, *Professor of Naval Science (Chairman of the Department).*

Linda P. Richardson, M.A., Commander, U.S. Navy, *Assistant Professor of Naval Science (Vice-Chairman of the Department).*

Carl M. Bohley, M.S., Lieutenant Commander, U.S. Navy, *Assistant Professor of Naval Science.*

Michael S. Eldredge, M.A., Lieutenant, U.S. Navy, *Assistant Professor of Naval Science.*

John B. Goody, M.S., Major, U.S. Marine Corps, *Assistant Professor of Naval Science.*

Jon P. McComas, M.S., Lieutenant, U.S. Navy, *Assistant Professor of Naval Science.*

Application of Naval Science Courses Toward the Departmental Major Requirements. Naval science courses may be taken as free elective courses and applied toward the total departmental course requirements. Contact the Naval R.O.T.C. unit and the cognizant college or department to determine the number of free elective courses for which naval science courses may be substituted.

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 objective of the Naval Reserve Officers' Training Corps is to provide an education at civil institutions which will qualify selected students of such institutions for appointment as officers in 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 Navy or Marine Corps. In addition to the courses in naval science described herein, Naval R.O.T.C. students are required to participate each week in a one hour drill period and a one hour professional training section associated with the duties of junior officers in the Navy.

Initial program enrollment is restricted to able-bodied, either male or female students who are citizens of the United States between the ages of seventeen and twenty-one years. Students must pass a physical examination prior to acceptance in this program.

All courses listed are the courses prescribed by the Navy Department for the Naval R.O.T.C. In addition Scholarship students must complete, in suitable combinations approved by the Professor of Naval Science, a three quarter sequence in mathematics (calculus); a three quarter sequence in physics; a course in American Military Affairs (History) and National Security Policy (Political Science); and a course in computer science. The United States Government furnishes on loan to the individual equipment, uniforms, and naval science textbooks for the use of these students. Upon satisfactory completion of the course, the uniform becomes the property of the student who was enrolled in the scholarship or college status.

Scholarship and College Program students may apply for duty to allow graduate work in selected disciplines.

Types of N.R.O.T.C. Students. The Department of the Navy recognizes two N.R.O.T.C. student categories:

1. Scholarship N.R.O.T.C. students are appointed midshipmen, U.S.N.R., and receive subsistence allowance at the rate of $100 per month for a maximum period of four years while under instruction at the N.R.O.T.C. institution. Their tuition, fees, books, and laboratory expenses are paid by the U.S. Government during the above period. These midshipmen are required to take three summer cruises 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 Ensign, U.S. Navy or Second Lieutenant, U.S. Marine Corps. Midshipmen enrolled in this status are selected by nation-wide competitive examination and selection commencing in early November of the year preceding the students' entrance into the University in the fall.

2. College Program students have the status of civilians who have entered into a mutual contract with the Navy during their first two years. During their junior and senior years they are enlisted in the U.S. Naval Reserve and are entitled to subsistence allowance at the rate of $100 per month. College Program students agree to accept a commission in the Naval Reserve or 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 and to serve not less than three years of active duty when ordered. College Program students participate in one summer training cruise.

Freshman Year

1A. Introduction to Naval Organization. (½ course)

An introduction to the structure of the Department of the Navy and its legal framework. Relationships in the Department of Defense. Components of the naval service. Naval organization and practices are examined within the context of American social and industrial organization and practice. Shipboard organization.

C. Bohley

1B. Naval Ship Systems I.

An introduction to the principles of ship hull and superstructure design. The concepts of ship structural integrity, stability and buoyancy are examined in detail. Basic thermodynamic principles, inherent in ship power generation propulsion and salt water distillation systems are analyzed.

J. McComas

Sophomore Year

20A. Seapower and Maritime Affairs.

A conceptual study of seapower, emphasizing the historical development of naval and commercial power. Seapower is examined in relation to economic, political and cultural strengths, focusing on current abilities of specific nations to utilize the oceans to attain national objectives.

M. Eldredge

20B. Naval Ship Systems II.

A study of shipboard weapon systems with emphasis on target acquisition, fire control solution and weapon delivery interphases. Analysis of transfer and feedback functions inherent in weapon systems. Principles of radar and sonar applicable to shipboard systems.

C. Bohley

Junior Year

101. Navigation. (1½ courses)

A study of the principles and procedures of piloting, electronic, and celestial navigation employed in the determination of position at sea. Course includes spherical trigonometry, mathematical analysis, sextent sights and use of navigation aids.

M. Eldredge

***103. Military Operations.**

A study of the evolution of warfare including historical and comparative consideration of the influence that leadership, political, economic, and sociological and technological development factors have had on warfare, and the influence they will continue to exert in the age of limited warfare.

J. Goody

102B. Naval Organization and Management.

A study of management principles as they apply to advanced management concepts and techniques including management systems theory, information theory and communications theory with particular emphasis on management within the Naval Service.

J. Goody

102C. Naval Leadership and Applied Human Relations.

Introduces conceptual approaches to leadership interpersonal relationships, motivational practices, counseling techniques, and ethical and moral responsibilities of persons in leadership position.

J. McComas

***104. Amphibious Operations.**

A study of the art of amphibious operations including the historical development of techniques used to project military power from sea to land. The evolution of amphibious doctrine and techniques is examined through study of the U.S. landings during World War II, The Korean Conflict and the Vietnam War.

J. Goody

■ NEAR EASTERN LANGUAGES AND CULTURES

(Department Office, 302 Royce Hall)

Amin Banani, Ph.D., *Professor of Persian and History.*

Arnold Band, Ph.D., *Professor of Hebrew.*

Andras Bodrogligeti, Ph.D., *Professor of Turkic and Iranian.*

Seeger A. Bonebakker, Ph.D., *Professor of Arabic.*

Giorgio Buccellati, Ph.D., *Professor of Ancient Near East and History.*

Herbert A. Davidson, Ph.D., *Professor of Hebrew.*

Avedis K. Sanjian, Ph.D., *Professor of Armenian.*

Hanns-Peter Schmidt, Ph.D., *Professor of Iranian.*

Stanislav Segert, Ph.D., *Professor of Biblical Studies and Northwest Semitics.*

Wolf Leslau, Docteur-ès-Lettres, *Emeritus Professor of Hebrew and Semitic Linguistics.*

Moshe Perlmann, Ph.D., *Emeritus Professor of Arabic.*

John Callender, Ph.D., *Associate Professor of Egyptology.*

Thomas Penchoen, Ph.D., *Associate Professor of Berber.*

Ismail Poonawala, Ph.D., *Associate Professor of Arabic.*

Claude-France Audebert, Ph.D., *Assistant Professor of Arabic.*

Yona Sabar, Ph.D., *Assistant Professor of Hebrew.*

Donald Stilo, Ph.D., *Assistant Professor of Persian.*

____, *Assistant Professor of Hebrew.*

Steven West, Ph.D., *Assistant Professor of Turkish.*

Elizabeth Carter, Ph.D., *Assistant Professor of Near Eastern Archaeology.*

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Shimeon Brisman, *Lecturer in Hebrew.*

Jay D. Frierman, M.A., *Lecturer in Near Eastern Archaeology.*

David L. Lieber, D.H.L., *Lecturer in Hebrew.*

Stanford Shaw, Ph.D., *Professor of History.*

Bachelor of Arts Degree

Department Programs. The department offers the Bachelor of Arts degree in four fields: (1) Ancient Near Eastern Civilizations, (2) Arabic, (3) Hebrew, and (4) Jewish Studies. In each of these fields the student must meet the prerequisites and take the courses prescribed for majors. Each student is assigned an adviser who will assist the student in devising a plan of study developed around his interests.

There are four options for a major in Ancient Near Eastern Civilizations: (1) Mesopotamia, (2) Egypt, (3) Syria-Palestine, and (4) Biblical Studies. The prerequisites for options 1 and 2 (Mesopotamia and Egypt) are German 1 and 2; the prerequisites for options 3 and 4 (Syria-Palestine and Biblical Studies) are Greek 1 and 2, Hebrew 1A-1B-1C, and Hebrew 102A-102B-102C. Majors in all four fields will be expected to continue their study of German or Greek beyond the prerequisite levels. Also, majors in all four options are required to take 14 quarter courses selected in consultation with the program adviser.

Majors selecting options 1, 2 and 3 are required to take four language courses as follows: option 1 (Mesopotamia), Semitics 140A-140B, 141, 142; option 2 (Egypt), Ancient Near East 120A-120B-120C, 121A; option 3 (Syria-Palestine), Semitics 130, and three courses from Hebrew 120A-120F. The remaining 10 courses for all three options are to be selected from the following list of courses: three literature courses from Ancient Near East 150A-150B-150C, Hebrew 150A; three courses in history and religion from Ancient Near East 130, 170, 171, 172, History 117, 124C, 138A, 140A-140B, 203; Iranian 169, 170; three courses in archaeology and art from Ancient Near East 160A-160B, 161A-161B-161C, 162, Art 101A-101B-101C-101D; and one course in research methodology (such as Anthropology 175 or Linguistics 120) to be taken preferably in another department with the consent of the adviser.

Majors selecting option 4 (Biblical Studies) in Ancient Near Eastern Civilizations are required to take 14 quarter courses as follows: Three from Hebrew 120A-120F; Ancient Near East 150C, 162, 170; English 113B; Greek 130; Hebrew 150A; History 138A; and Semitics 130. The remaining three courses may be selected from the following: Ancient Near East 130, 150A-150B, 160A-160B, 171, 172; Art 101D, 105A; Classics 166B; Greek 200C; History 117, 124C, 140A-140B, 203; Iranian 169, 170.

For a major in Arabic the prerequisites are Arabic 1A-1B-1C, 150A-150B. The student is required to take 14 quarter courses as follows: Arabic 102A-102B-102C, 103A-103B-103C, 130A-130B-130C; three courses of Arabic 111A-111B-111C or 140A-140B-140C; and History 134A-134B.

For a major in Hebrew the prerequisites are Hebrew 1A-1B-1C, 102A-102B-102C, 150A-150B or their equivalents. The student is required to take 16 quarter courses distributed as follows: Hebrew 103A-103B-103C; three courses from Hebrew 120A-120F; two courses from Hebrew 130A-130B-130C-130D; two courses from Hebrew 140, 160; both Hebrew 190A and 190B; two additional courses in Hebrew or Ar-

*Courses to be taken by candidates for commissions in the Marine Corps or Marine Corps Reserve in lieu of courses 101, 102B and 102C.

amaic to be approved by the adviser; and two quarter courses from History 137A-137B, 138A-138B.

For a major in Jewish Studies the prerequisites are Hebrew 1A-1B-1C, History 138A-138B or their equivalents. The student is required to take 16 quarter courses including: Hebrew 102A-102B-102C, 103A-103B-103C, 150A-150B, Jewish Studies 151A-151B, 199 (undergraduate thesis), and five other upper division courses. At least two of the five must be courses in the areas of Hebrew, Jewish History, or Yiddish. The remaining three may be chosen either from those areas or from courses with Jewish content given in other departments and approved by the Jewish Studies adviser.

Requirements for the Master's Degree

General Requirements. See Master's Degree.

Department Programs. The M.A. degree is offered in seven areas of specialization: (1) Ancient Near Eastern Civilizations, (2) Arabic, (3) Armenian, (4) Hebrew, (5) Iranian, (6) Semitics, and (7) Turkish. The department follows the Comprehensive Examination Plan that does not require a thesis. The candidate's program of study will be devised by a guidance committee of at least three members of the department faculty under the chairmanship of his adviser. The requirement for admission to all the M.A. programs is a bachelor's degree or its equivalent in the language area chosen for the degree.

Departmental General Requirements. The requirements for all the M.A. degree programs are:

1. A minimum of nine upper division and graduate level courses, of which at least six courses must be on the graduate level. All candidates will be required to take one quarter of Near Eastern Languages 200 (Bibliography and Method). The candidate may concentrate on either language or literature in his chosen field but will be required to do work in both. In the case of the Ancient Near Eastern field, the candidate may concentrate on a combination of both language and literature with Near Eastern archaeology.

2. The candidate will be required to have competent knowledge of the history of his major culture area.

3. The candidate will be required to pass an examination in one major modern European language other than English by the end of the third quarter of residence. The choice of the language will be determined in consultation with his adviser. The student has the option of satisfying this requirement by one of the following methods: a) Educational Testing Service, b) departmentally administered examination, c) two years college level or equivalent in the language selected. It is strongly recommended that the student who intends to continue towards a Ph.D. degree acquire a knowledge of a second major European language other than English while still a candidate for the M.A.

4. Upon completion of his course requirements, the candidate will be required to take a comprehensive final examination administered by the departmental guidance committee.

Specific Requirements. The specific requirements for the M.A. degree in the several areas of specialization are as follows: The candidate in Ancient Near Eastern Civilizations will be required to study two ancient languages one of which must be one of the major languages of the Ancient Near East (Ancient Egyptian, Akkadian, or Hebrew), and the history and archaeology of the related area. The major area of concentration may be either the linguistic, literary, or archaeological aspect of the discipline. The candidate in Hebrew will be required to study Hebrew and another Semitic language; in Semitics, three Semitic languages; in Turkish, two Turkic languages; and in Arabic, Armenian and Iranian, one other related Near Eastern language in addition to his major language area.

Doctor of Philosophy Degree

General Requirements. See Doctoral Degrees.

Department Programs. The Ph.D. degree is offered in seven areas of specialization: (1) Ancient Near Eastern Civilizations, (2) Arabic, (3) Armenian, (4) Hebrew, (5) Iranian, (6) Semitics, and (7) Turkish. The candidate may concentrate on either language or literature in his chosen field but will be required to do work in both. In all areas of specialization, the student's program of study will be devised in consultation with his adviser. Prior to admission to the Ph.D. program the candidate is expected to take the M.A. degree in his field.

Specific Requirements. A candidate specializing in the languages of the Near East is expected to take the equivalent of one year of general linguistics and one year of grammar in his field of concentration (e.g. Semitics or Turkic). He is also required to achieve competence in three related languages within his field of concentration with particular emphasis on two major languages. It is mainly the structural mastery of the languages and familiarity with their development and their position within the appropriate family of languages that are required. The student is also advised to acquaint himself with the historical, literary, religious, and social background of the various language areas of his interest.

A candidate specializing in the literatures of the Near East is required to achieve competence in two languages; his second language must be a literary language taken from the cultural area related to his first language (e.g., a Hebraist can choose Akkadian, Arabic, Aramaic, or Yiddish; an Arabist can choose Persian or Turkish, and so on). The candidate will also be required to be familiar with the history of literary criticism and methods of literary research. This requirement may be fulfilled by taking courses offered by various departments at UCLA, particularly the course in literary criticism offered by the English department or the course in the Methodology of Comparative Literature.

A candidate specializing in Ancient Near Eastern Civilizations will be required to achieve competence in two ancient languages. His major area of concentration may be in either the linguistic, literary, or archaeological aspect of the discipline.

Language Requirements. The candidates for the Ph.D. degree in all areas of specialization will be required to have a reading knowledge of two major modern European languages other than English. The choice of languages must be approved by the adviser. The student has the option of satisfying the language requirements by one of the following methods: a) Educational Testing Service, b) departmentally administered examination, c) two years college level or equivalent in the languages selected. The examination in one of the two languages must be taken at the beginning of his first quarter in residence; the examination in the second language not later than at the beginning of the fourth quarter. The adviser may require additional language skills in modern and/or ancient languages if such skills are needed for scholarly work in the area of the student's interest.

Qualifying Examinations. The candidate in languages will be examined in three Near Eastern languages and the literary and historical background of at least two of them. The candidate in literature will be examined in the literatures written in two languages within the cultural area of his concentration, and the historical and cultural background of these languages with emphasis on one of them. The candidate in Ancient Near Eastern Civilizations will be examined in two ancient languages, and the history and archaeology of the major areas of the Ancient Near East.

Upon the successful completion of the written and oral qualifying examinations the student is eligible to advance to candidacy and receive the Candidate in Philosophy degree.

The department does not require an oral defense of the dissertation except in circumstances deemed necessary by the candidate's Doctoral Committee.

Ancient Near East

(Akkadian, Aramaic, Phoenician, and Ugaritic are listed under Semitics).

Upper Division Courses

120A-120B-120C. Elementary Ancient Egyptian.
Lecture, three hours; laboratory, two hours. Prerequisite: consent of the instructor. Grammar and texts.
Mr. Callender

121A-121B-121C. Intermediate Ancient Egyptian.
Three hours. Prerequisites: courses 120A-120B-120C. Readings in Ancient Egyptian literature.
Mr. Callender

123A-123B. Coptic.
Three hours. Prerequisite: consent of the instructor. An introduction to Coptic grammar and reading of Coptic texts. The quarters this course is offered vary from year to year. Check with department.
Mr. Callender

†130. Ancient Egyptian Religion.
Lecture, three hours. An introductory survey of various Ancient Egyptian religious beliefs and practices, their origin and development. Included will be discussions of religio-political institutions such as divine kingship and pious foundations.
Mr. Callender

140A-140B. Elementary Sumerian.
Lecture, three hours. Prerequisite: Semitics 140A-140B. Elementary grammar and reading of royal inscriptions, letters and administrative texts from the Ur III period.
The Staff

145. Sumerian Literary Texts.
Lecture, three hours. Prerequisites: courses 140A and 140B or consent of instructor. Reading and interpretation of selected Sumerian literary texts.
The Staff

†150A-150B-150C. Survey of Ancient Near Eastern Literatures in English.
Lecture, three hours. Courses 150A and 150B and 150C may be taken independently for credit. **150A:** Mesopotamia; **150B:** Egypt; **150C:** Syria and Palestine, Asia Minor, Persia.
Mr. Buccellati, Mr. Callender, Mr. Segert

†Given in alternate years, not to be given 1976-1977.

160A-160B. Introduction to Near Eastern Archaeology.
Lecture, three hours. Terminology, geography, principles, strategy of research, bibliography and a general survey of Near Eastern archaeology.
Mr. Frierman

161A-161B-161C. Archaeology of Mesopotamia.
Prerequisite: consent of the instructor. Survey of the main archaeological periods in Mesopotamia with special emphasis on late prehistoric and early historical periods and with reference to neighboring cultural areas. May be taken independently for credit.
The Staff

†162. Archaeology of Palestine.
Lecture three hours. A survey of the archaeology of Palestine and the Sinai Peninsula from the Paleolithic to the destruction of Jerusalem in 586 B.C. with emphasis on the geographic setting and relationships to the other cultures of the Near East.
Mr. Frierman

170. Introduction to Biblical Studies.
Lecture, two hours. The Bible (Old and New Testaments) as a book. Canon, text and versions. Linguistic, literary, historical and religious approaches to Bible study. Survey of history of interpretation from antiquity to the present. Knowledge of original languages not required.
Mr. Segert

171. Old Testament: Hebrew and Septuagint Texts.
Lecture, two hours. Prerequisites: Hebrew 102A-102B-102C and Greek 1, 2, or consent of the instructor. Study of the Hebrew original and of the Greek version of the Old Testament books.
Mr. Segert

172. Semitic Background of the New Testament.
Lecture, two hours. Prerequisites: Hebrew 102A-102B-102C, Semitics 130, Greek 1 and 2, or consent of the instructor. Study of the Semitic elements in the Greek New Testament: Traditions transmitted in Aramaic, relations to the Old Testament and to the Post-Biblical Literature, and Palestinian Judaism.
Mr. Segert

199. Special Studies in the Ancient Near East. (½ to 2 courses)
Prerequisite: consent of the instructor.
The Staff

Graduate Courses

†210. Late Egyptian.
(Formerly numbered 122A-122B.) Lecture, three hours. Prerequisites: courses 121A-121B-121C and consent of the instructor. Late Egyptian grammar and reading of both hieroglyphic and hieratic texts. The quarters in which this course is offered vary from year to year. Check with department. May be repeated for credit.
Mr. Callender

220. Seminar in Ancient Egypt.
Three hours. Prerequisite: consent of the instructor. May be repeated for credit.
Mr. Callender

250. Seminar in Ancient Mesopotamia.
Prerequisite: consent of the instructor. Selected topics on the political, social and intellectual history of ancient Mesopotamia. May be repeated for credit.
Mr. Buccellati

250X. Seminar in Ancient Mesopotamia. (¼ course)
Prerequisite: consent of instructor. Selected topics on the political, social and intellectual history of ancient Mesopotamia. May be repeated for credit. Ancient Near East 250X is a one unit course for students who participate regularly in class meetings without the home work required of students in the regular course, Ancient Near East 250.
Mr. Buccellati

260. Seminar in Ancient Near Eastern Archaeology.
Lecture, two hours. Prerequisite: consent of the instructor. May be repeated for credit.
The Staff

261. Practical Field Archaeology. (½ to 2 courses)
Two hours. Prerequisite: consent of the instructor. Participating in archaeological excavations or other archaeological research in the Near East under supervision of the staff. May be repeated.
The Staff

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses)
The Staff

597. Examination Preparation. (½ to 2 courses)
The Staff

599. Dissertation Research and Preparation. (½ to 2 courses)
The Staff

Related Courses in Other Departments

Art 101A. Egyptian Art and Archaeology.
210. Egyptian Art.
History 117. History of Ancient Egypt.
124C. Religions of the Ancient Near East.
140A-140B. History of Ancient Mesopotamia and Syria.
240J. Topics in History.

Arabic

Lower Division Courses

‡1A-1B-1C. Elementary Arabic.
Lecture, four hours; laboratory, two hours. Basic structure.
The Staff

‡102A-102B-102C. Intermediate Arabic.
Four hours. Prerequisites: courses 1A-1B-1C or consent of the instructor. Readings in both classical and modern Arabic, composition, conversation.
Miss Audebert

‡103A-103B-103C. Advanced Arabic.
Four hours. Prerequisites: courses 102A-102B-102C or consent of the instructor. Review of grammar, continued reading of literary works. Composition, conversation and a weekly lecture in Arabic.
Mr. Poonawala

110. Introduction to Islam.
Lecture, three hours. The course will treat the genesis of Islam, its doctrines and practices with readings from the Qur'án; forms of Islam: tensions and schism; reform and modernism.
Mr. Poonawala

‡111A-111B-111C. Spoken Arabic.
Lecture, three hours; laboratory, three hours. Prerequisites: courses 102A-102B-102C. Introduction to one Arabic dialect with some comparison of the other dialects. May be repeated for credit with consent of instructor.
The Staff

***‡113A-113B-113C. Spoken Iraqi Arabic.**
Three hours. Prerequisite: courses 102A-102B-102C. Introduction to the contemporary Arabic dialect of Iraq. Phonology, morphology and syntax will be presented with emphasis on oral practice.
The Staff

‡114A-114B-114C. Spoken Moroccan Arabic.
Lecture, three hours, laboratory one hour. Introduction to the Spoken Arabic dialect of Morocco. Phonology, morphology and syntax will be presented. Emphasis will be on developing oral skill.
Mr. Penchoen

†130A-130B-132C. Classical Arabic Texts.
Lecture, three hours. Prerequisites: courses 102A-102B-102C. Reading and interpretation of texts from classical Arabic literature: Koran, historiography, geography and poetry.
Mr. Bonebakker

***132A-132B-132C. Philosophical Texts.**
Three hours. Prerequisites: courses 102A-102B-102C or consent of the instructor. A study of excerpts from the major works of medieval Arab philosophy.
The Staff

‡140A-140B-140C. Modern Arabic Texts.
Lecture, three hours. Prerequisites: courses 102A-102B-102C. Readings and interpretation of modern Arabic texts.
Miss Audebert

†141. Modern Arabic Literature.
Prerequisite: course 140 or its equivalent. Readings of selected texts representing the most important modern styles and trends. May be repeated for credit with the consent of the instructor.
Miss Audebert

§150A-150B. Survey of Arabic Literature in English.
Lecture, three hours. Knowledge of Arabic is not required. Courses 150A and 150B may be taken independently for credit.
Mr. Bonebakker

199. Special Studies in Arabic. (½ to 2 courses)
Prerequisite: consent of the instructor.
The Staff

Graduate Courses

†220A-220B-220C. Islamic Texts.
Lecture, two hours. Scripture and interpretation in Islam; traditional Scholarship; historical and literary problems of modern research; selections from various fields of Islamic thought. May be repeated for credit.
Mr. Poonawala

§230A-230B-230C. Arabic Poetry.
Lecture, two hours. Prerequisite: consent of the instructor. Readings in Arabic poetry from various periods. May be taken independently for credit.
Mr. Bonebakker

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†Given in alternate years; not to be given 1976-1977.

‡Native speakers of the language will not normally be eligible for this course.

*Not to be given 1976-1977.

§Given in alternate years; to be given 1976-1977.

†240A-240B-240C. Arab Historians and Geographers.
Two hours. Readings from the works of the most outstanding Arab historians and geographers of the classical period of Islam.
The Staff

†250A-250B-250C. Seminar in Arabic Literature.
Two hours. May be repeated for credit with the consent of the instructor.
Mr. Bonebakker

***260A-260B-260C. Introduction to Modern Arabic Dialects.**
Lecture, three hours. Prerequisites: Arabic 103A-103B-103C or consent of the instructor. Survey of partition and geographic distribution of Modern Arabic dialects; common structural features and contrasts with Classical Arabic; socio-linguistic evaluation of the Arabic diglossia; analysis of representative texts.
The Staff

***280. Structure of Classical Arabic.**
Three hours. Prerequisites: Arabic 103A-103B-103C or consent of the instructor. The patterning of Classical Arabic at the morpho-phonemic, morpho-logical, and morpho-syntactic structural levels; application of traditional, statistical, and generative methods to the synchronic investigation of structural features.
The Staff

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses)
The Staff

597. Examination Preparation. (½ to 2 courses)
The Staff

599. Dissertation Research and Preparation. (½ to 2 courses)
The Staff

Related Courses in Another Department

History 134A-134B. Near and Middle East from 600 A.D.
267A-267B. Seminar in Near Eastern History.

Armenian

Upper Division Courses

‡101A-101B-101C. Elementary Modern Armenian.
Three hours. Armenian grammar, conversation and exercises.
The Staff

‡102A-102B-102C. Intermediate Modern Armenian.
Three hours. Prerequisites: courses 101A-101B-101C or the equivalent. Reading of selected texts, composition and conversation.
The Staff

103A-103B. Advanced Modern Armenian.
Three hours. Prerequisites: courses 102A-102B-102C or the equivalent. Readings in advanced modern Armenian texts.
Mr. Sanjian

§130A-130B. Elementary Classical Armenian.
Three hours. Grammar of the Classical Armenian language and readings of selected texts.
Mr. Sanjian

§131A-†131B. Intermediate Classical Armenian.
Three hours. Prerequisites: courses 130A-130B or the equivalent. Reading of selected texts.
Mr. Sanjian

†132A-132B. Advanced Classical Armenian.
Three hours. Prerequisites: courses 131A-131B or the equivalent. Readings in advanced Classical Armenian texts.
Mr. Sanjian

†150A-150B. Survey of Armenian Literature in English.
Three hours. Knowledge of Armenian is not required. Courses 150A and 150B may be taken independently for credit.
Mr. Sanjian

†160A-160B. Armenian Literature of the 19th and 20th Centuries.
Three hours. Prerequisites: courses 102A-102B-102C or the equivalent. Reading of texts and discussion of various genres of modern Armenian literature, within the context of the Armenian Cultural Renaissance.
Mr. Sanjian

199. Special Studies in Armenian Language and Literature. (½ to 2 courses)
Prerequisite: consent of the instructor.
The Staff

Graduate Courses

§210. History of the Armenian Language.
Three hours. Prerequisite: consent of the instructor. The development of the Armenian language in its various stages: Classical, Middle, and Modern.
Mr. Sanjian

§220. Armenian Literature of the Golden Age (A.D. Fifth Century).
Three hours. Prerequisites: courses 131A-131B or the equivalent. Reading of texts and discussion of literary genres; the course will concentrate on both original works and those translated from Greek and Syriac.
Mr. Sanjian

§250A-250B. Seminar in Armenian Literature.
Three hours. Prerequisite: consent of the instructor. Selected topics from various periods of Armenian literature. May be repeated for credit.
Mr. Sanjian

†290. Seminar in Armenian Paleography.
Three hours. Prerequisite: consent of the instructor. Discussion of variety of Armenian scripts and training in the use of manuscripts.
Mr. Sanjian

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses).
Mr. Sanjian

597. Examination Preparation. (½ to 2 courses)
Mr. Sanjian

599. Dissertation Research and Preparation. (½ to 2 courses)
Mr. Sanjian

Related Courses in Other Departments

History 131A-131B-131C. Armenian History.
132. The Caucasus since 1801.
207. Armenian Intellectual History.
228. Methods in Armenian Oral History.
230S. Advanced Historiography: Armenian.
240. Topics in History: Armenia and the Caucasus.
286A-286B. Seminar in Armenian History.
Indo-European Studies M150. Introduction to Indo-Europeon Linguistics.

Berber

Upper Division Courses

‡101A-101B-101C. Elementary Berber.
Lecture, three hours; laboratory, two hours. Development of oral proficiency and analysis of basic grammatical structure.
Mr. Penchoen

‡102A-102B-102C. Advanced Berber.
Prerequisites: courses 101A-101B-101C or consent of the instructor. Advanced study of Berber. Regional and stylistic variants in folk literature.
Mr. Penchoen

‡120A-120B-120C. Introduction to Berber Literature.
Three hours. Prerequisites: courses 102A-102B-102C or consent of the instructor. The development of Berber literary forms: systematic analysis of texts and a study of Berber writing systems.
Mr. Penchoen

130. The Berbers.
Examination of the main features of Berber societies and cultures with particular attention being given to social structures and institutions on the one hand, and to customs, values and beliefs on the other. The course will present a broad framework within which the study of particular aspects of Berber cultures may be fruitfully pursued.
Mr. Penchoen

199. Special Studies in Berber Languages. (½ to 2 courses)
Prerequisite: consent of the instructor. Study based on the requirements of the individual student.
Mr. Penchoen

Related Courses in Other Departments

History 133A-133B. History of North Africa from the Muslim Conquest.
Linguistics 225M. Linguistic Structures: Berber.

Caucasian Languages

***111A-111B-111C. Elementary Georgian.**
Three hours. Prerequisite: consent of the instructor. Script, grammar, simple reading in this main Caucasian language.

***199. Special Studies in Caucasian Languages. (½ to 2 courses)**
Prerequisite: consent of the instructor.
The Staff

Hebrew

Lower Division Courses

‡1A-1B-1C. Elementary Hebrew.
Lecture, three hours; laboratory, two hours. Structural principles of grammar. Students who have

*Not to be given 1976-1977.

†Given in alternate years, not be to given in 1976-1977.

‡Native speakers of the language will not normally be eligible for this course.

§Given in alternative years; to be given 1976-1977.

previous knowledge of reading and some vocabulary are advised to take courses 10A-10B-10C. Students with credit for 10A will not receive credit for Hebrew 1A. Students with credit for 10B will not receive credit for 1B or 1C.

The Staff

‡10A-10B-10C. Accelerated Elementary Hebrew.

Open to students who wish to cover the equivalent of two years college Hebrew in one academic year; for students who have previously studied the rudiments of Hebrew. Students with credit for Hebrew 1A will not receive credit for 10A. Students with credit for 1B and/or 1C will not receive credit for 10B.

The Staff

Upper Division Courses

‡102A-102B-102C. Intermediate Hebrew.

Five hours. Prerequisites: courses 1A-1B-1C or the equivalent. Amplification of grammar; reading of vocalized texts from modern, Biblical, and Medieval/Rabbinic literature.

Mr. Sabar

‡103A-103B-103C. Advanced Hebrew.

Five hours. Prerequisites: courses 102A-102B-102C or the equivalent. Reading of unvocalized texts, primarily modern literature.

Mr. Sabar

‡120-120F. Biblical Texts.

Three hours. Prerequisites: courses 102A-102B-102C or the equivalent. Translations and analysis of Old Testament texts with special attention given to texts of primary literary and historical importance. Courses 120A, 120B, 120C, 120D, 120E, and 120F may be taken independently for credit.

Mr. Lieber

130. Medieval Hebrew Texts.

Lecture three hours. Prerequisites: courses 103A-103B-103C or consent of the instructor. Readings in medieval Hebrew prose and poetry. May be repeated for credit.

Mr. Davidson

135. Advanced Medieval Texts.

Lecture three hours. Prerequisites: two courses of Hebrew 130 or the equivalent. Readings in genres such as medieval Hebrew Bible commentaries, the Musar literature, and philosophy. May be repeated for credit.

Mr. Davidson

140. Modern Hebrew Poetry and Prose.

Lecture three hours. Prerequisites: 103A, 103B, 103C, and consent of the instructor. A study of the major Hebrew writers of the past one hundred years: prose-Mendele, Ahad Ha'am, Agnon, Yizhar; poetry-Bialik, Tchernichovsky, Greenberg, Shlonsky, Alterman, Amihai. May be repeated for credit.

Mr. Band

†150A-150B. Hebrew Literature in English.

Three hours. Knowledge of Hebrew not required. Courses 150A and 150B may be taken independently for credit. 150A: Biblical and Apocryphal literature. 150B: Rabbinic and Medieval literature.

Mr. Band, Mr. Davidson

***160. The Hebrew Essay.**

Three hours. Prerequisites: courses 103A-103B-103C or consent of the instructor. The Hebrew essay from its rise in Europe in the late eighteenth century to the contemporary Israeli essay; the literary, political, philosophical, and scholarly essay will be studied. May be repeated for credit.

The Staff

†190A-190B. Survey of Hebrew Grammar.

Three hours. Prerequisites: courses 102A-102B-102C or consent of the instructor. Descriptive and comparative study of the Hebrew phonology and morphology.

Mr. Leslau

199. Special Studies in Hebrew. (½ to 2 courses)

Prerequisite: consent of the instructor.

The Staff

Graduate Courses

210A-210B-210C. History of the Hebrew Language.

Prerequisites: courses 103A-103B-103C or consent of the instructor. The development of the Hebrew language in its various stages: Biblical, Mishnaic, Medieval, Modern, and Israeli; differences in vocabulary, morphology, syntax, and the influence of other languages; problems of language expansion in Israeli Hebrew.

Mr. Leslau

220. Studies in Hebrew Biblical Literature.

Lecture, three hours. A critical study of the Hebrew text in relation to the major versions; philological, comparative, literary, and historical study of various Biblical books. May be repeated for credit.

Mr. Segert

230. Seminar in Medieval Hebrew Literature.

Three hours. May be repeated for credit.

Mr. Davidson

†241A-241B-241C. Studies in Modern Hebrew Prose Fiction.

Studies in specific problems and trends in Hebrew prose fiction of the last two centuries.

Mr. Band

§242A-242B-242C. Studies in Modern Hebrew Poetry.

Studies in specific problems and trends in Hebrew poetry of the last two centuries.

Mr. Band

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses)

The Staff

597. Examination Preparation. (½ to 2 courses)

The Staff

599. Dissertation Research and Preparation. (½ to 2 course)

The Staff

Related Courses in Another Department

History 137A-137B. Jewish Intellectual History.
138A-138B. Jewish History.

Iranian

Lower Division Courses

10A-10B-10C. Persian Conversation. (½ course each)

Three hours. Prerequisite: consent of the instructor. Systematic and structured conversational Persian.

The Staff

Upper Division Courses

‡101A-101B-101C. Elementary Persian.

Lecture, four hours; laboratory, two hours.

The Staff

‡102A-102B-102C. Intermediate Persian.

Lecture, three hours; laboratory, three hours. Prerequisites: courses 101A-101B-101C or the equivalent.

The Staff

103A-103B-103C. Advanced Persian.

(Formerly numbered 102A-102B-102C.) Lecture, three hours, laboratory, three hours. Prerequisites 102A-102B-102C or the equivalent.

Mr. Banani

†140. Contemporary Persian Belle Lettres.

Three hours. Prerequisites: courses 102A-102B-102C or equivalent and consent of the instructor. A study of the major Persian poets and prose writers of the twentieth century; prose Jamalzadeh, Hedayat, Chubuk, Al Ahmad, Sa'edi, Golestan; poetry Nima, Shamlu, Farrokhzad, Akhavan.

Mr. Banani

†141. Contemporary Persian Analytical Prose.

Three hours. Prerequisites: courses 102A-102B-102C or equivalent and consent of the instructor. A study of selected modern Persian analytical and expository prose texts with emphasis on social sciences, literary criticism and history.

Mr. Banani

§150A-150B. Survey of Persian Literature in English.

Three hours. Knowledge of Persian not required. Courses 150A and 150B may be taken independently for credit.

Mr. Banani

†169. Civilization of Pre-Islamic Iran.

(Formerly Indo-European Studies 169.) A survey of Iranian culture from the beginnings through the Sasanian period.

Mr. Schmidt

§170. Religion in Ancient Iran.

Lecture, four hours. History of religion in Iran from the beginnings to the Mohammedan conquest: Indo-Iranian background, Zoroastrianism, Manichaeism, Mazdakism.

Mr. Schmidt

†190A-190B. Introduction to Modern Iranian Studies.

Three hours. Prerequisites: Persian 101A-101B-101C or their equivalent. Survey of the Iranian languages. Comparative and historical grammar.

Mr. Bodrogligeti

199. Special Studies in Iranian. (½ to 2 courses)

Prerequisite: consent of the instructor.

The Staff

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*Not to be given 1976-1977.

‡Native speakers of the language will not normally be eligible for this course.

†Given in alternate years. Not to be given 1976-1977.

§Given in alternate years. To be given, 1976-1977.

Graduate Courses

§210A-210B. The History of the Persian Language.
Lecture, three hours. Prerequisite: consent of the instructor. Survey of the development of the new Persian language against the background of Middle and Old Persian.
Mr. Bodrogligeti

†211A-211B. Modern Iranian Dialects.
Four hours. Prerequisites: Linguistics 100 or equivalent and consent of the instructor. A survey of the Northwestern and Southwestern Iranian languages, and their interaction with the non-Iranian languages of Iran. Discussion includes historical development, linguistic affinities and modern distribution. Material gathered in the field will supplement lectures. May be repeated for credit with the consent of the instructor.
Mr. Stilo

§220A-220B. Classical Persian Texts.
Three hours. Prerequisites: courses 102A-102B-102C or consent of the instructor. Study of selected classical Persian texts. May be taken independently for credit.
Mr. Banani

†221. Rumi the Mystic Poet of Islam.
Three hours. Prerequisites: course 220A or 220B or equivalent and consent of the instructor. A study of the life and works of Rumi in the context of interaction of Sufism and poetic creativity.
Mr. Banani

M222A-222B. Vedic.
(Formerly numbered Indo-European Studies 222A-222B and same as Oriental Languages M222A-222B.) Four hours. Prerequisites: A knowledge of Sanskrit equivalent to Oriental Languages 162, and consent of the instructor. Characteristics of the Vedic dialect and readings in the Rig-Vedic hymns. M222B only may be repeated for credit.
Mr. Schmidt

230A-230B. Old Iranian.
(Formerly numbered Indo-European Studies 230A-230B.) Four hours. Prerequisite: consent of the instructor. Studies in the grammars and texts of Old Persian and Avestan. Comparative considerations. 230B only may be repeated for credit.
Mr. Schmidt

§231A-231B. Middle Iranian.
(Formerly numbered Indo-European Studies 231A-231B.) Four hours. Prerequisite: consent of the instructor. Studies in the grammars and the texts of such Middle Iranian languages as best serve the students' needs (e.g., Pahlavi, Sogdian, Sakian). 231B only may be repeated for credit.
Mr. Schmidt

§250. Seminar in Classical Persian Literature.
Three hours. Prerequisites: courses 102A-102B-102C and Iranian 199 or consent of the instructor. May be repeated two times for credit.
Mr. Banani

†251. Seminar in Contemporary Persian Literature.
Three hours. Prerequisites: course 140 or equivalent and consent of the instructor. Studies in specific problems and trends in Persian poetry and prose in the twentieth century.
Mr. Banani

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses)
The Staff

597. Examination Preparation. (½ to 2 courses)
The Staff

599. Dissertation Research Preparation. (½ to 2 courses)
The Staff

Related Courses in Other Departments

History 130A-130B-130C. Islamic Iran.
Oriental Languages 160. Elementary Sanskrit.
161. Intermediate Sanskrit.
162. Advanced Sanskrit.
Indo-European Studies 210. Indo-European Linguistics: Advanced Course.
260A-260B. Seminar in Indo-European Mythology.
280A-280B. Seminar in Indo-European Linguistics.
Linguistics 225U. Persian Phonology and Syntax.
226V. Persian Syntax. Prerequisite: course 225U.
Music 71K. Music of Persia.
Music 171K. Music of Persia.

Islamics

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses)
The Staff

597. Examination Preparation. (½ to 2 courses)
The Staff

598. Thesis Research and Preparation. (½ to 2 courses)
The Staff

599. Dissertation Research and Preparation. (½ to 2 courses)
The Staff

Related Courses in Another Department

History 135. Introduction to Islamic Culture.
136. Islamic Institutions and Political Ideas.
209A-209B. The Modern Middle East.

Jewish Studies

Upper Division Courses

110. Social, Cultural and Religious Institutions of the Jews.
This course will examine aspects of Jewish culture that are not treated in literature or history courses. The character and development of subjects such as the following will be considered: Jewish communal institutions; trades and occupations; contact with non-Jews; family institutions; educational institutions; folk beliefs and attitudes.
The Staff

§151A-151B. Modern Jewish Literature in English.
Three hours. Knowledge of Hebrew not required. Courses 151A and 151B may be taken independently for credit. 151A: 18th and 19th century literature. 151B: 20th century literature.
Mr. Band

190. Undergraduate Seminar in Jewish Studies.
This course will examine a single topic in depth with the object of encouraging and guiding students' research in the area of Jewish Studies. Literary, cultural and historical subjects will be taken up in successive years, including: midrash; messianic; medieval communal institutions; relations of Jews to non-Jews in the late middle ages.
The Staff

199. Special Studies (Jewish Studies). (½ to 2 courses)
Prerequisite: Jewish Studies majors only.
The Staff

Near Eastern Languages

Upper Division Course

198. Special Studies in Near Eastern Languages. (½ to 2 courses)
Prerequisite: consent of the instructor.
The Staff

Graduate Courses

200. Bibliography and Method of Near Eastern Languages and Literatures.
Two hours. Prerequisite: consent of the instructor. One quarter required for the M.A. in Near Eastern Languages and Literatures. Introduction to bibliographical resources and training in methods of research in various areas of specialization offered by the department. May be repeated for credit.
The Staff

210. Survey of Hamito-Semitic Languages.
Lecture, three hours. Prerequisite: consent of the instructor. A survey of the structures of a number of the representative languages from various major branches of the Hamito-Semitic (Afro-Asiatic) language family.
The Staff

†M241. Folklore and Mythology of the Near East.
(Same as Folklore M241.) Prerequisite: Folklore 101 or the equivalent.
The Staff

†290. Seminar in Paleography.
Three hours. To provide the students with the ability to cope with varieties of manuscripts.
Mr. Banani

Individual Study and Research

501. Near Eastern Languages Cooperative Program. (½ to 2 courses)
Prerequisite: Approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.
The Staff

596. Directed Individual Study. (½ to 2 courses)
The Staff

597. Examination Preparation. (½ to 2 courses)

599. Dissertation Research and Preparation. (½ to 2 courses)
The Staff

§Given in alternate years; to be given 1976-1977.

†Given in alternate years; not to be given 1976-1977.

Semitics

Upper Division Courses

‡101A-101B-101C. Elementary Amharic (Modern Ethiopic).
Lecture, three hours. Elements of Amharic, the national language of Ethiopia; grammar and reading of texts.
Mr. Leslau

102A-102B-102C. Advanced Amharic (Modern Ethiopic).
Lecture, three hours. Prerequisites: courses 101A-101B-101C or consent of the instructor.
Mr. Leslau

110. Neo-Aramaic.
Lecture, three hours. Grammar and reading of selected texts (folktales, homilies, songs) in the modern Aramaic dialects of the Jews and Christians of Kurdistan.
Mr. Sabar

§130. Biblical Aramaic.
Lecture, three hours. Prerequisites: Hebrew 102A-102B-102C or consent of the instructor. Grammar of Biblical Aramaic and reading of texts.
Mr. Segert

§140A-140B. Elementary Akkadian.
Lecture, three hours. Elementary grammar and reading of texts in standard Babylonian.
Mr. Buccellati

§141. Advanced Akkadian.
Three hours. Prerequisite: consent of the instructor. Old Babylonian syntax; reading of basic Old Babylonian texts.
Mr. Buccellati

†142. Akkadian Literary Texts.
Three hours. Prerequisite: consent of the instructor. Selected readings from Akkadian myths and epics, with an introduction to the historical tradition of the works and their literary structure.
Mr. Buccellati

Graduate Courses

201A-201B-201C. Old Ethiopic.
Lecture, two hours. Grammar of Old Ethiopic and reading of texts.
Mr. Leslau

202A-202B-202C. Readings in Old Ethiopic Literature.
Lecture, two hours. Prerequisites: courses 201A-201B-201C.
Mr. Leslau

209A-209B-209C. Comparative Study of the Ethiopian Languages.
Two hours. Prerequisite: consent of the instructor. Comparative study of the various Semitic Ethiopic languages: Geez, Tigrinya, Tigre, Amharic, Harari, Gurage, and Gafat.
Mr. Leslau

210. Ancient Aramaic.
Two hours. Prerequisite: course 130 or consent of the instructor. Reading of the surviving inscriptions and papyri. May be repeated for credit.
Mr. Segert

§215A-215B. Syriac.
Two hours. Morphology and syntax of the Syriac language; readings in the Syriac translation of the Bible and Syriac literature. 215B only may be repeated for credit.
Mr. Segert

†220A-220B. Ugaritic.
Two hours. Prerequisites: Hebrew 102A-102B-102C or consent of the instructor. Study of the Ugaritic language and literature. 220B only may be repeated for credit.
Mr. Segert

225. Phoenician.
Two hours. Prerequisites: Hebrew 102A-102B-102C or consent of the instructor. Study of Phoenician language and inscriptions. May be repeated for credit.
Mr. Segert

230. Seminar in Northwest Semitic Languages and Literatures.
Two hours. Prerequisite: consent of the instructor. May be repeated for credit.
Mr. Segert

240. Seminar in Akkadian Language.
Two hours. Prerequisite: consent of the instructor. Readings of texts from various dialects of Akkadian; selected problems in the linguistic analysis of Akkadian dialects. May be repeated for credit.
Mr. Buccellati

240X. Seminar in Akkadian Language. (¼ course)
Prerequisite: consent of instructor. Readings of texts from various dialects of Akkadian; selected problems in the linguistic analysis of Akkadian dialects. May be repeated for credit. Semitics 240X is a one unit course for students who participate regularly in class meetings without producing the homework required of students in the regular course, Semitics 240.
Mr. Buccellati

241. Seminar in Akkadian Literature.
Two hours. Prerequisite: consent of the instructor. Readings of texts from various Akkadian literary genres; selected problems in literary history and stylistic analysis. May be repeated for credit.
Mr. Buccellati

241X. Seminar in Akkadian Literature. (¼ course)
Prerequisite: consent of instructor. Readings of texts from various Akkadian literary genres; selected problems in literary history and stylistic analysis. May be repeated for credit. Semitics 241X is a one unit course for students who participate regularly in class meetings without producing the homework required of students in the regular course, Semitics 241.
Mr. Buccellati

280A-280B-280C. Seminar in Comparative Semitics.
Two hours.
Mr. Leslau

290A-290B-290C. Comparative Morphology of the Semitic Languages.
Two hours. Prerequisites: courses 280A-280B-280C or consent of the instructor. Comparative study of the noun and verb of the various Semitic languages (Arabic, Hebrew, Ethiopic, Akkadian, and Aramaic).
Mr. Leslau

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses)
The Staff

597. Examination Preparation. (½ to 2 courses)
The Staff

599. Dissertation Research and Preparation. (½ to 2 courses)
The Staff

Turkic Languages

Upper Division Courses

‡101A-101B. Elementary Turkish.
Lecture, three hours; laboratory and drill, two hours. Grammar, reading, conversation and elementary composition drills.
The Staff

‡102A-102B. Intermediate Turkish.
Lecture, three hours; laboratory and drill, two hours. Prerequisites: courses 101A-101B or the equivalent. Continuing study of grammar, reading, conversation and composition drills.
The Staff

‡103A-103B. Advanced Turkish.
Lecture, three hours; laboratory and drill, two hours. Prerequisites: courses 102A-102B or equivalent. Reading in modern literature and social science texts; conversation and composition.
The Staff

†110A-110B-110C. Old and Middle Turkic.
Three hours. Prerequisite: 102A or consent of the instructor. 110A: grammar, readings in 8th to 11th century texts. 110B-110C: grammar, readings in 11th to 15th century (Karakhanid, Khorazmian, Mamluk-Kipchak and Old Anatolian) texts. May be taken independently for credit.
Mr. Bodrogligeti

§112A-112B-112C. Uzbek.
Three hours. Prerequisite: 102A or consent of the instructor. Grammar, composition drills, reading of literary and folkloric texts.
Mr. Bodrogligeti

†114A-114B-114C. Bashkir.
Three hours. Prerequisites: courses 101A-101B-101C or consent of the instructor. Grammar, reading of literary and folkloric texts.
Mr. Bodrogligeti

§180A-180B-180C. Introduction to Turkic Studies.
Lecture, three hours. Prerequisite: consent of the instructor. Obligatory for everyone in the Turkish program. Introduction to Turkic Philology and an ethnic and cultural survey of the Turkic people.
Mr. Bodrogligeti

199. Special Studies in Turkic Languages. (½ to 2 courses)
Prerequisite: consent of the instructor.
The Staff

Graduate Courses

210A-210B-210C. Ottoman.
Lecture, three hours. Prerequisites: 101A-101B-101C or 112A-112B-112C or 114A-114B-114C or consent of the instructor. Introduction to Ottoman: descriptive grammar, Arabic and Persian elements in grammar and vocabulary. Reading and composition drills.
The Staff

§211. Ottoman Diplomatics.
Prerequisites: courses 210A-210B-210C or the equivalent. Organization and contents of the Ottoman archives; reading and discussion of documents and registers. Introduction to the use of Ottoman archive materials as a source for historical research.
Mr. Shaw

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‡Native speakers of the language will not normally be eligible for this course.

†Given in alternate years; not to be given 1976-1977.

§Given in alternate years; to be given, 1976-1977.

220A-220B-220C. Chagatay.
Lecture, three hours. Prerequisites: 101A-101B-101C or 112A-112B-112C or 114A-114B-114C or consent of the instructor. Introduction to Chagatay: descriptive grammar, Arabic, Persian and Tajik elements in grammar and vocabulary. Readings and composition drills.
Mr. Bodrogligeti

230A-230B-230C. A Historical and Comparative Survey of the Turkic Languages.
Lecture, three hours. Prerequisites: 180A-180B-180C. Extinct and living Turkic languages. The History of Turkic: developments in the phonemic, grammatical and lexical systems from the 8th to the 20th centuries. Structural analysis of the Turkic languages on a comparative basis.
Mr. Bodrogligeti

240A-240B-240C. Islamic Texts in Ottoman.
Lecture, three hours. Prerequisites: 210A-210B-210C or consent of the instructor. A philological and linguistic survey of the basic Islamic source material written in the Ottoman literary language. Reading and discussion of Ottoman texts on Islamic topics.
The Staff

250A-250B-250C. Islamic Texts in Chagatay.
Lecture, three hours: Prerequisites: 220A-220B-220C or consent of the instructor. A philological and linguistic survey of the basic Islamic source material written in the Chagatay literary language. Reading and discussion of Chagatay texts on Islamic topics.
Mr. Bodrogligeti

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses)
The Staff

597. Examination Preparation. (½ to 2 courses)
The Staff

599. Dissertation Research and Preparation. (½ to 2 courses)
The Staff

Course in Another Department

History 201A. History of the Eurasian Nomadic Empires.

Urdu

Upper Division Courses

***101A-101B-101C. Elementary Urdu.**
Three hours. Prerequisite: consent of the instructor. Elements of Urdu, the language of Pakistan.

***199. Special Studies in Urdu.**
Prerequisite: consent of the instructor.

Related Course in Another Department

South Asian Languages 171A-171B-171C. Hindi.

■ NEUROSCIENCE (INTERDEPARTMENTAL)

An interdisciplinary program of graduate training leading to the Ph.D. in Neuroscience is offered, utilizing facilities, resources, and activities of the Brain Research Institute and administered by an interdepartmental degree committee.

Applicants must satisfy minimum requirements for admission to the Graduate Division. See Admission to Graduate Status. The program is designed particularly for students from the health and life sciences, but applications are encouraged from prospective trainees from the physical sciences and engineering as well. Recommended preparation includes mathematics through calculus, and at least one year each of general chemistry, organic chemistry, physics and basic biology. The Graduate Record Examination or Medical College Admission Test is required.

All students are required to complete a core curriculum designed to provide basic knowledge of the anatomy, physiology, and chemistry of neural function. Thereafter, the student may pursue an educational experience through any of eight subdisciplines: neuroanatomy, neurochemistry, neurophysiology, behavior, neurocybernetics and communications, neuroendocrinology, neuropharmacology, and immunology.

Both the core and in-depth curricula include major commitments to appropriate courses listed by departments, in addition to offerings shown below. Written and oral qualifying examinations normally are taken as the formal instruction period approaches completion.

Prospective applicants may inquire concerning the availability of this curriculum by consulting the Program Coordinator, 73-375 Brain Research Institute, Center for the Health Sciences.

Graduate Courses

200A-200B-200C. Clinical Concepts in the Neurosciences. (½ course each)
Presents information concerning neurological and psychiatric disorders for students from basic science backgrounds.
Mr. Hanley, Mr. Walter

205. Brain-Behavioral Strategies for the Neurosciences. (¾ course)
Prerequisite: consent of instructor. Emphasis will be placed on behavioral designs, methods and instruments employed to test specific neurological afferent-efferent and integrative systems of the central nervous system. The programming of signals and incentives in arousal, habituation, classical conditioning and operant conditioning paradigms will be discussed in terms of the neural challenges for the coping animal. Behavioral methods will be emphasized along with concurrent recording of neurophysiological data. This course is designed primarily to present practical behavioral techniques for the neuroscience students.
Mr. Garcia, Mr. Hull

M206A-206B. Neurosciences: The Introductory Course for Graduate Students. (1¼ course, 1¾ courses)
(Same as Anatomy M206A-206B.) Two hours of lecture and two of lab per week in the winter quarter; five hours of lecture and two of lab per week in the spring quarter. Prerequisite: a course (or equivalent) in basic and/or general physiology such as Biology 171 or Physiology 101 or consent of instructor. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Introductory course in the basic principles of the nervous system for graduate students as a prerequisite to more advanced courses. Fundamental approaches to neuroanatomy (Winter Quarter), neurophysiology and the brain mechanisms for behavior (Spring Quarter) will be stressed.
Mr. Scheibel and the Staff

233. Seminar in Neuroscience. (½ course)
Topics of current importance will be presented for discussion. Subject matter will be announced.
Mr. Eiduson

254. Interdisciplinary Research Seminar. (½ course)
Lectures and discussions concern many different disciplinary approaches to knowledge of brain function. The subject matter serves to broaden the experience of students studying in different fields other than that of the lecturer and offers new information in depth from students in fields closely related to the subject discussed.

***256A-256B-256C. Survey of the Basic Neurological Sciences. (½ course each)**
Summary information concerning methodologies utilized in different research approaches to brain study, (e.g., neurophysiology, neuroendocrinology, brain ultrastructure, neuropharmacology, and others) and brief review of present state of knowledge available from each. For students with interest in interdisciplinary aspects of brain research.
Mr. Sterman

259A-259B-259C. Neurophysiology of Behavior: The Fetus, Newborn, and Infant. (½ course each)
An integrated review of neuroanatomic, neurophysiologic, and behavioral development of human and animal fetuses and infants. Behavior will be correlated with the development of the brain during this period of rapid change in both.
Mr. Parmelee

596. Directed Individual Study or Research. (½ to 3 courses)
Prerequisite: consent of instructor.
Mr. Eiduson

597. Preparation for the Doctoral Qualifying Examination. (½ to 3 courses)
Prerequisite: consent of instructor.
Mr. Eiduson

599. Dissertation Research for Ph.D. Candidates. (1 to 3 courses)
For students requiring special instruction or time to work on dissertation.
Mr. Eiduson

■ NURSING

(Department Office, 12-139 Center for the Health Sciences)

Dorothy E. Johnson, R.N., M.P.H., *Professor of Nursing.*

Harriet Moidel, R.N., M.A., *Professor of Nursing.*

Maria W. Seraydarian, Ph.D., *Professor of Nursing.*

Lulu Wolf Hassenplug, R.N., M.P.H., Sc.D., *Emeritus Professor of Nursing.*

Agnes A. O'Leary, R.N., M.P.H., *Emeritus Professor of Nursing.*

Pamela J. Brink, R.N., Ph.D., *Associate Professor of Nursing.*

Bonnie Bullough, R.N., Ph.D., *Associate Professor of Nursing.*

Beatrice M. Dambacher, R.N., D.N. Sc., *Associate Professor of Nursing.*

Phyllis A. Putnam, R.N., Ph.D., *Associate Professor of Nursing.*

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*Not to be given 1976-1977.

Sharon Reeder, R.N., Ph.D., *Associate Professor of Nursing.*
Donna L. Vredevoe, Ph.D., *Associate Professor of Nursing.*
Barbara M. Artinian, R.N., Ph.D., *Assistant Professor of Nursing.*
Norberta Brown, R.N., Ed.D., *Assistant Professor in Residence.*
Barbara A. Clemence, R.N., D.N.Sc., *Assistant Professor of Nursing.*
Loucine M. Huckabay, R.N., Ph.D., *Assistant Professor of Nursing.*
Sally A. Thomas, R.N., Ph.D., *Assistant Professor of Nursing.*
Donna L. Ver Steeg, R.N., Ph.D., *Assistant Professor of Nursing.*
Betty L. Williams, R.N., M.N., M.S., *Assistant Professor of Nursing.*
Marilynn Wood, R.N., Dr.P.H., *Assistant Professor of Nursing.*

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Josephine Alexander, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Linda Allen, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Nancy L. Anderson, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Shirley P. Azarnoff, M.A., *Assistant Clinical Professor of Nursing.*
Ida Bird, R.N., M.A., *Assistant Clinical Professor of Nursing.*
Mary M. Brown, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Susan Budassi, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Kathleen Byrne, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Nancy Chesterton, R.N., M.N., *Lecturer in Nursing.*
Marilyn Chrisman, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Arline Clyburn, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Joan I. Cohen, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Barbara Crain, R.N., M.S., *Assistant Clinical Professor of Nursing.*
William R. Crawford, Ed.D., *Adjunct Assistant Professor of Nursing.*
Anayis Derdiarian, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Shirley Devol, M.S.W., *Assistant Clinical Professor of Nursing.*
Kathleen Dracup, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Ann Drice, R.M., M.S., *Lecturer in Nursing.*
Charles Ferguson, Ed.D., *Lecturer in Nursing.*
Cristine Ferrero, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Sandra J. Fritz, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Carole S. Grubb, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Judy Grubbs, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Evelyn K. Guilbert, R.N., M.S., *Acting Assistant Professor of Nursing.*
Johanne E. Hanser, R.N., M.S., *Associate Clinical Professor of Nursing.*
Corrine Hatton, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Sally A. Hazel, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Joleen Heath, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Elizabeth Hefferin, R.N., Dr.P.H., *Assistant Clinical Professor of Nursing.*
Linda Heinz, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Mary Ann Hillyard, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Marie A. Holbrook, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Doris Holm, R.N., M.N., M.S., *Assistant Clinical Professor of Nursing.*
Virginia Hunter, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Rosalie K. Jackson, R.N., M.P.H., *Assistant Clinical Professor of Nursing.*
Gladys Jacques, R.N., M.N., *Lecturer in Nursing.*
Carole Johnson, R.N., M.N., *Lecturer in Nursing.*
Cynthia Kelley, R.N., M.S., M.A., M.Ed., *Assistant Clinical Professor of Nursing.*
Cheryl Killion, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Nancy Klein, M.A., *Assistant Clinical Professor of Nursing.*
Mary K. Kleinknecht, R.N., M.A., *Assistant Clinical Professor of Nursing.*
Juanita Lee, R.N., M.N., *Lecturer in Nursing.*
Mary Ann Lewis, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Alice J. Lippincott, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Mary B. Lloyd, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Laura R. Lowther, R.N., M.P.H., *Assistant Clinical Professor of Nursing.*
Angel Melikian, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Bernadine L. Mills, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Betty S. Mueller, R.N., M.A., *Assistant Clinical Professor of Nursing.*
Theresa K. Nielsen, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Mary Nolan, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Noreen O'Brien, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Kathleen Phillips, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Brooke Randell, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Carmela R. Rizzuto, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Geraldine Robinson, R.N., M.P.H., *Assistant Clinical Professor of Nursing.*
Jane Ryan, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Anne Savino, R.N., M.A., *Assistant Clinical Professor of Nursing.*
Cynthia Scalzi, R.N., M.N., *Lecturer in Nursing.*
Lee Schmidt, R.N., M.N., *Lecturer in Nursing.*
Dolores Smith, R.N., M.A., *Assistant Clinical Professor of Nursing.*
Colleen Sparks, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Gwen Uman, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Bertha Unger, R.N., M.S., *Lecturer in Nursing.*
Esther Walloch, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Cynthia Westcott, M.N., *Assistant Clinical Professor of Nursing.*

The School of Nursing accepts students of junior or higher standing and offers curricula leading to the degrees of Bachelor of Science and Master of Nursing.

CURRICULUM OFFERED FOR THE BACHELOR OF SCIENCE DEGREE

Preparation for the Major

Completion of 21 courses (84 quarter units) of college work including the courses listed under the Prenursing Curriculum in the College of Letters and Science.

The Major

At least 23 courses (92 quarter units of required upper division nursing courses and elective courses designed to prepare university students for professional nursing responsibilities in the care of the patient and his family.

Upper Division Courses

101. Introduction to Art and Science of Nursing. (2 courses)
Lecture, four hours; discussion, two hours; laboratory, 12 hours; auto-tutorial laboratory, variable; seminars, variable. An introduction to nursing theory and practice. The content will include the following modules: nursing process, pharmacology, interpersonal and technical skills. Methodology will include laboratory, lectures, discussion, seminars, autotutorial laboratory and clinical application.
The Staff

104A. Behavior of Man in Health and Illness.
Lecture, four hours. An examination of the health-illness continuum from the framework of social and biological sciences. Content includes role theory, developmental theory, transcultural communication theory and other theories relevant to nursing practice.
Ms. Guilbert

104B. Behavior of Man in Health and Illness.
Lecture, four hours. Prerequisite: course 104A. An examination of the health-illness continuum from the framework of illness as a stressor and the possible responses to such stress. Content includes anxiety, pain, cognitive disturbances, loss and other responses relevant to nursing practice.
Ms. Guilbert and the Staff

104C. Behavior of Man in Health and Illness.
Lecture, four hours. Prerequisites: courses 104A and 104B. Continuation of the examination of the health-illness continuum from the framework of illness as a stressor and the possible responses to such stress. Content includes anxiety, pain, cognitive disturbances, loss and other responses relevant to nursing practice.
Ms. Guilbert and the Staff

109. Communication in Health Care.
Lecture, two hours; laboratory, six hours. Study of basic communication and group process theory and its

application to practice. Laboratory experience emphasizes development of each individual's ability to communicate effectively in a diad and in a small group.

The Staff

120A. Clinical Nursing.

Lecture, four hours/five weeks; laboratory, 24 hours/five weeks. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical content will include pathophysiology, pharmacology and treatment modalities. Application of the theoretical concepts related to the nursing care of the child and his family.

Ms. Fritz

120B. Clinical Nursing.

Lecture, four hours/five weeks; laboratory, 24 hours/five weeks. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical content will include pathophysiology, pharmacology and treatment modalities. Application of the theoretical concepts of reproduction to the nursing care of the family.

Ms. Hunter, Ms. Killion

120C. Clinical Nursing.

Lecture, four hours/five weeks; laboratory, 24 hours/five weeks. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical content will include pathophysiology, pharmacology and treatment modalities. Application of the theoretical content related to the nursing care of the patient undergoing medical interventions.

The Staff

120D. Clinical Nursing.

Lecture, four hours/five weeks; laboratory, 24 hours/five weeks. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical content will include pathophysiology, pharmacology and treatment modalities. Application of the theoretical content related to the patient undergoing surgical intervention.

The Staff

120E. Clinical Nursing.

Lecture, four hours/five weeks; laboratory, 24 hours/five weeks. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical content will include pathophysiology, pharmacology and treatment modalities. Application of mental health content related to the nursing care of individuals, groups or communities.

The Staff

120F. Clinical Nursing.

Lecture, four hours/five weeks; laboratory, 24 hours/five weeks. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical content will include pathophysiology, pharmacology and treatment modalities. Application of community health concepts to nursing care in public health agencies.

The Staff

184. Evolution and Dynamics of the Nursing Profession.

Lecture, four hours. A study of the evolution of nursing focusing on historical, ethical, moral, legal, and institutional ramifications of nursing practice. In addition, consideration will be given to the rights, obligations, societal, and institutional expectations of the professional nurse.

The Staff

188. Seminar in Physiology. (½ course)

Discussion, two hours. Prerequisite: Physiology 105N or equivalent. Student presentation of selected topics in physiology based on recent monographs, review articles and original research papers. Topics selected each quarter designed to amplify and extend information presented in lectures in Physiology 105N. May be repeated for credit.

Ms. Seraydarian

189. Human Sexuality.

Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Lectures, discussions and case presentations considering human sexuality, its joys and pleasures, pitfalls and problems. An interdisciplinary approach encompassing anatomic, physiologic, psychologic and social aspects of heterosexual and homosexual relationships; including development of gender identity, intercourse, pregnancy, abortion, contraception and venereal disease.

Ms. Reeder

190A. Advanced Clinical Nursing. (1½ courses)

Lecture, two hours; discussion, two hours; laboratory, 20 hours. Prerequisites: successful completion of courses 101, 104 series and 120 series. Beginning concentration in a clinical area of students choice. Content will include an introduction to clinical research.

The Staff

190B. Advanced Clinical Nursing. (1½ courses)

Lecture, two hours; discussion, two hours; laboratory, 20 hours. Prerequisites: successful completion of courses 101, 104 series, 120 series and 190A. Beginning concentration in a clinical area of students choice. Content will include an introduction to clinical research.

The Staff

195. Principles of Change and Change Agent Roles.

Lecture, two hours; discussion, two hours. Theories and methods of change and their application to nursing. Principles of leadership, teaching-learning, health delivery systems, organization of nursing care and patient advocacy.

The Staff

196. Health Care Problems of Minority Group Members.

Prerequisite: Sociology 1A or 101. Description and discussion of the special health care problems which members of minority groups face. These problems may be related to socio-economic status as well as ethnic background and subcultural differences.

Ms. Drice

199. Special Studies in Nursing. (½ to 4 courses)

Prerequisites: senior standing and/or consent of the instructor. Individual study of a problem in the field of nursing. May be repeated for credit but only one quarter course (4 quarter units) may be applied toward the Bachelor of Science degree. Grading basis (passed/not passed or letter grade) is to be determined by the student and instructor.

The Staff

Graduate Courses

I. Theory and Research in Nursing

203. Theoretical Framework for Nursing Practice.

Lecture, four hours. Comparative study of selected conceptual models of nursing and the recipient of nursing, with particular emphasis on the regulatory model, the adaptation model, the supplementary model, and the complementary model.

Ms. Johnson

204. Research in Nursing.

(Formerly numbered 205A.) Lecture, four hours. Prerequisite: Introductory statistics (upper division). An overview of the research process from the problem through data analysis with special application to nursing problems. An initial research proposal will be required at the end of the course.

The Staff

205A. Qualitative Research Methods in Nursing.

(Formerly numbered 205B.) Lecture, four hours. Prerequisite: course 204. Emphasis is placed upon nursing research designs utilizing the field method approach, ethnomethodology, and/or inductive methods.

The Staff

205B. Quantitative Research Methods in Nursing.

Lecture, four hours. Prerequisite: course 204. Emphasis is placed on nursing research designs requiring statistical analysis of data.

The Staff

210. Respiratory Physiology As It Relates to Nursing.

(Formerly numbered 410.5.) Lecture, three hours; discussion, one hour; seminars. Prerequisite: upper division course in human physiology. An advanced treatment of the topic presented in lectures and seminars with emphasis on current research. Application of knowledge to nursing problems will be stressed.

Ms. Seraydarian

211. Cardiovascular Physiology As It Relates to Nursing.

(Formerly numbered 410.5.) Lecture, three hours; discussion, one hour; seminars. Prerequisite: upper division course in human physiology. An advanced treatment of the topic presented in lectures and seminars with emphasis on current research. Application of knowledge to nursing problems will be stressed.

Ms. Seraydarian

221. Theoretical Frameworks for Developmental Problems, Middle and Later Years.

(Formerly numbered 410.3.) Lecture, four hours. Aspects of life span development relevant to understanding health needs in middle and later years will be studied. Changes in biological, cognitive, and psychosocial processes will be explored and implications for prevention and rehabilitative care considered.

Ms. Putnam

222. The Concept of Grief and Loss.

(Formerly numbered 400.) Lecture, three hours; laboratory, two to four hours. Prerequisite: enrollment in a clinical nursing course or concurrent. This course will deal with the concepts and theories of grief and loss, with a particular emphasis on the loss of a significant other. Threre will also be discussions about death and the dying person with the intent of assisting the care giver to deal more effectively with a person and/or family involved in a life-threatening experience.

Ms. Hatton

223. Management of Development Problems, Early Years.

(Formerly numbered 410.2) Lecture, four hours. Study of selected human developmental theories, hypotheses, and concepts. Problems relevant to nursing are examined through the critique of pertinent literature.

Ms. Johnson

224. Problems in Patient Motivation.

(Formerly numbered 410.4.) Lecture, four hours. The major purpose of this course will be an exploration of the phenomena which may occur when a person assumes the role of a sick patient.

The Staff

225. Problems in Environmental Management.

(Formerly numbered 410.1.) Lecture, four hours. The prevention and treatment of nursing problems related to conditions of the physical and social environment.

Ms. Johnson

250. Seminar: Nursing in Other Cultures.

Lecture, four hours. Prerequisite: consent of instructor. Discussion of anthropological principles which affect nursing care in a particular cultural environment. Individual research projects based upon the medical problems found in such an environment and the projected nursing interventions relative to these findings.

Ms. Brink

II. Clinical Specialization

A. Nursing Assessment

401. Nursing Assessment and Intervention.

Lecture, two hours; laboratory, four to eight hours. Prerequisite: course 203 or concurrent. Instruction and experience in the systematic assessment of patients for the identification of nursing problems. Discussion and evaluation of major modes of interventive practice.

Ms. Moidel

402A-402B. Primary Diagnosis for Nurse Practitioners.

(Formerly numbered 420.5.) Discussion, two hours; laboratory, up to sixteen hours. Prerequisite: one course in Selected Problems in Nursing Care. Collection, analysis and reporting of data used by the nurse practitioner in identification of patient problems. Principles and practice in history-taking, physical examination, laboratory and other diagnostic methodology. Advanced pathology and pathophysiology incorporated in integrated systems approach.

Ms. Holm

404. Comprehensive Group Theory.

Lecture, two hours; laboratory, two hours. This course will offer an in-depth study of group dynamics and group therapy, applicable to any health service area. It will focus on the study and application of group theory and practice relevant to nursing. The student will gain in-depth knowledge of group dynamics and group therapy, know how to apply the above theory to any area of nursing, develop a beginning abilitiy to function as both leader and participant in the area of group dynamics and/or group therapy, and develop the ability to evaluate the effectiveness of group therapy.

Ms. Johnson

414. Current Perspectives in Respiratory and Cardiovascular Nursing. (½ course)

Lecture, one hour; discussion, one hour. Prerequisite: consent of instructor. Exploration of selected problems, trends and issues in respiratory and cardiovascular health care, with emphasis on their significance for the clinical nurse specialist.

Ms. Chrisman, Ms. Holm

415. Assessment in Respiratory and Cardiovascular Nursing. (½ to 1½ courses)

Lecture, one to four hours; laboratory, four to eight hours. Prerequisites: course 210 or 211, 414. Introduction to the basic methods of assessing respiratory and cardiovascular function in health and illness, with emphasis on their application in clinical nursing practice.

Ms. Chrisman, Ms. Holm

416. Oncology and Treatment of Cancer.

Lecture, two hours; discussion one hour; laboratory, eight to ten hours. The emphasis is on providing the graduate student with the basic knowledge from biological, medical, physical, chemical sciences related to development, diagnosis, treatment, and prognosis of cancer. Also, providing of knowledge related to specific nursing care related to diagnostic and treatment modalities.

Ms. Derdiarian

B. Clinical Practica

421A. Clincial Nursing of Children.

(Formerly numbered 420.1.) Discussion, two hours; laboratory up to 16 hours. Prerequisite: one course in Selected Problems in Nursing Care. Use of a theoretical model as a guide to practice in a pediatric setting. Refinement of skills and increased knowledge to prepare for clinical specialist role with emphasis on skills required to use a diagnostic nursing process.

Ms. Johnson

421B. Advanced Clinical Nursing of Children. (2 courses)

(Formerly numbered 470.1) Discussion, two hours, laboratory, up to 30 hours. Prerequisites: course 421A, consent of instructor. To develop increased competence in managing total care of pediatric patients with emphasis on patients with a particular nursing problem, disease entity or age group. To attain skill in working collaboratively as a leader with other health personnel.

Ms. Johnson

421C. Clincial Specialization in Nursing of Children. (2 courses)

(Formerly numbered 470.1.) Discussion, two hours, laboratory, up to 30 hours. Prerequisites: course 421B, consent of instructor. Refinement and extension of professional knowledge and skills in the nursing of children.

Ms. Johnson

422A. Clinical Maternity Nursing.

(Formerly numbered 420.4.) Discussion, two hours; laboratory, up to 16 hours. Prerequisites: consent of instructor, one course in Selected Problems in Nursing Care. Intensification and expansion of knowledge and expertise in giving care to mothers and infants in all phases of reproductive process. Pertinent variables considered as well as nursing process. Care of selected patients in family life and health care system.

Ms. Reeder

422B. Advanced Clinical Maternity Nursing. (2 courses)

(Formerly numbered 470.4.) Discussion, two hours, laboratory, up to 30 hours. Prerequisites: consent of instructor, course 422A. Refinement and extension of knowledge and expertise in the field of maternity nursing. Caring for mothers and infants at risk or normal reproductive processes with problems. Emphasis on role of clinical specialist, adaptation of role to various settings within organizational structure.

Ms. Reeder

422C. Clincial Specialization in Maternity Nursing. (2 courses)

(Formerly numbered 470.4.) Discussion, two hours; laboratory, up to 30 hours. Prerequisites: consent of instructor, course 422B. The refinement and extension of professional knowledge and skills in the practice of advanced maternity nursing.

Ms. Reeder

423A. Clinical Medical-Surgical Nursing.

(Formerly numbered 420.3.) Discussion, two hours; laboratory, up to 16 hours. Prerequisite: one course in Selected Problems in Nursing Care. A clinical practicum in a selected medical-surgical setting with emphasis on application of nursing problem theory and use of a conceptual framework in practice, and on further development of knowledge and skills required of the professional practitioner.

Ms. Moidel

423B. Advanced Clinical Medical-Surgical Nursing. (2 courses)

(Formerly numbered 470.3.) Discussion, two hours; laboratory, up to 30 hours. Prerequisites: consent of instructor, course 423A. A study of clinical specialization and other expanding roles in nursing. Emphasis is placed upon continued refinement and extension of professional knowledge and skills in a selected clinical area. Practicum is planned in congruence with student's nursing career goals.

Ms. Moidel

423C. Clinical Specialization in Medical-Surgical Nursing. (2 courses)

(Formerly numbered 470.3.) Discussion, two hours; laboratory, up to 30 hours. Prerequisites: consent of instructor, course 423B. The refinement and extension of professional knowledge and skills in the practice of advanced medical-surgical nursing.

Ms. Moidel

424A. Clinical Psychiatric Nursing.

(Formerly numbered 420.2) Discussion, two hours; laboratory, up to 16 hours. Prerequisite: one course in Selected Problems in Nursing Care. Development and demonstration of advanced competence in the identification and classification of variables which affect the interpersonal process. Emphasis is placed upon the assessment process.

The Staff

424B. Advanced Clinical Psychiatric Nursing. (2 courses)

(Formerly numbered 470.2.) Discussion, two hours; laboratory, up to 30 hours. Prerequisites: consent of instructor, course 424A. Refinement and extension of knowledge and skills in clinical field of psychiatric nursing. Emphasis is placed upon learning and application of a variety of nursing intervention techniques.

The Staff

424C. Clinical Specialization in Psychiatric Nursing. (2 courses)

(Formerly numbered 470.2.) Discussion, two hours; laboratory, up to 30 hours. Prerequisites: consent of instructor, course 424B. The refinement and extension of professional knowledge and skills in the practice of advanced psychiatric nursing.

The Staff

429A-429B. Preceptorship in Adult Primary Ambulatory Care Nursing. (2 courses each)

(Formerly numbered 470.5.) Discussion, two hours; laboratory, up to 30 hours. Prerequisites: consent of instructor, course 402A-402B. Application of nurse practitioner knowledge and skills with a selected ambulatory patient population. Focuses on refinement of assessment skills, patient management, and issues and trends in health care delivery.

The Staff

440A-440B. Clinical Specialization in Community Mental Health Consultation.

(Fomerly numbered 476A.) Lecture, two hours; laboratory, one hour; clinical, eight to ten hours. Prerequisites: consent of instructor, course 424B, concurrent with 441A and 441B. The study and application of mental health consultation theory and practices relevant to community mental health nursing. The development of the nursing role in the interdisciplinary health team approach to mental health services. This course is offered on an In Progress basis which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.

Ms. Brown

441A-441B. Clinical Specialization in Community Organization.

(Formerly numbered 476B.) Lecture, two hours; clinical, eight to ten hours. Prerequisites: consent of instructor, course 424B, concurrent with 440A and 440B. Theories and practices relevant to community development; mental health program planning; health advocacy; primary and secondary prevention of mental illness; and planned changes are stressed. This course is offered on an In Progress basis which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.

Ms. Clemence

III. Functional Preparation

***370. Supervised Practice Teaching in Nursing.**
Lecture, two hours; laboratory, ten hours. Prerequisite: course 472. The application of specific teaching strategies and the principles of learning and instruction into actual supervised practice teaching situations.
Ms. Huckabay

470. Conditions of Learning and Instruction in Nursing.
(Formerly numbered 430A.) Lecture, four hours; audio-visual instruction. A systematic study of theories of learning and instruction, and critical analysis of the relevant issues and patterns of nursing education. Focuses on the development of a theory of nursing instruction by integrating theories of learning with conceptual models of nursing.
Ms. Huckabay

471. Curriculum Development in Nursing.
(Formerly numbered 430B.) Lecture, four hours. Prerequisite: course 470. A critical appraisal of patterns of nursing education from the standpoint of the changing order. Focuses on the relationship between philosophy, objectives, selection and organization of learning experiences and the evaluative process.
Ms. Huckabay

472. Microteaching in Nursing.
(Formerly numbered 370.) Lecture, two hours; laboratory, four hours. Prerequisite: course 471. Instructional skills and the application of theories of learning and instruction to the practice and teaching of nursing within a micro teaching laboratory setting. Reference is made to ways in which teaching skills relate to broader educational issues.
Ms. Huckabay

475. Human Relations in Administration.
(Formerly numbered 425.) Lecture, four hours. A systematic study of the principles of human relations in administration with emphasis upon their application to the field of nursing.
Mr. Ferguson

476. Nursing Administration.
(Formerly numbered 434.) Lecture, four hours. A study of theories of management and their relationship to nursing in health care facilities. Emphasis is placed on organizational theory, decision making and the process of change.
Ms. Wood

477A. Supervised Practice in Nursing Administration. (1 to 2 courses)
(Formerly numbered 475.) Laboratory, 10 to 20 hours; seminar, two hours. Prerequisite: course 476. Application of management theory in nursing service settings. Critical appraisal of theory and process. Guided experience in administration in hospitals or health agencies.
Ms. Wood

477B. Internship in Nursing Administration. (2 courses)
(Formerly numbered 436.) Seminar, two hours; laboratory, 30 hours. Prerequisite: course 477A. Directed learning in nursing service organizations with critical appraisal of the applicability of administrative theories. May be repeated for credit.
Ms. Wood

IV. Individual Study and Research

596. Directed Individual Studies for Graduate Students. (1 to 2 courses)
Prerequisite: consent of instructor. Opportunity for graduate students in nursing to pursue special research interests. May be repeated for credit, but only one quarter course (4 quarter units) may be applied toward the Master of Nursing degree. Graded only on a satisfactory/unsatisfactory basis.
The Staff

597. Individual Study for Comprehensive Examination. (1 to 2 courses)
Individual study for comprehensive examination. May be repeated for credit, but only one quarter course (4 quarter units) may be applied toward the Master of Nursing degree. Graded only on a satisfactory/unsatisfactory basis.
The Staff

598. Research for Thesis. (1 to 2 courses)
Prerequisite: consent of instructor. May be repeated for credit, but only one quarter course (4 quarter units) may be applied toward the Master of Nursing degree. Graded only on a satisfactory/unsatisfactory basis.
The Staff

*Courses numbered in the 300 series are not applicable to University minimum requirements for graduate degrees.

■ ORIENTAL LANGUAGES

(Department Office, 222 Royce Hall)

[6]Hartmut E. F. Scharfe, Ph.D., *Professor of Indic Studies.*
Kenneth K. S. Chen, Ph.D., *Emeritus Professor of Oriental Languages.*
Kan Lao, B.A., Academician, *Emeritus Professor of Oriental Languages.*
Richard C. Rudolph, Ph.D., *Emeritus Professor of Oriental Languages.*
Ensho Ashikaga, M. Litt., Giko, *Associate Professor of Oriental Languages.*
Ben Befu, Ph.D., *Associate Professor of Oriental Languages (Chairman of the Department).*
Hung-hsiang Chou, Ph.D., *Associate Professor of Oriental Languages.*
Robert C. Epp, Ph.D., *Associate Professor of Oriental Languages.*
Shirleen S. Wong, Ph.D., *Associate Professor of Oriental Languages.*
Ping-leung Chan, Ph.D., *Assistant Professor of Oriental Languages.*
Herbert E. Plutschow, Ph.D., *Assistant Professor of Oriental Languages.*
_____, *Assistant Professor of Oriental Languages.*

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Y. C. Chu, M.A., *Lecturer in Chinese.*
Kuo-yi Pao (Unensecen), M.A., M.S., *Lecturer in Oriental Languages.*
Hanns-Peter Schmidt, Ph.D., *Professor of Iranian.*
George Takahashi, M.A., *Lecturer in Japanese.*

Department undergraduate advisers: Kuo-yi Pao, Chinese; Robert Epp, Japanese.
Department graduate advisers: Shirleen Wong, Chinese; Herbert Plutschow, Japanese.
Advising: At the beginning of each academic year all majors in the department should see the adviser concerning their program of studies. New students entering the Department should consult immediately with the appropriate adviser concerning their proposed study program.
Aim: The Department of Oriental Languages aims to provide the general undergraduate student with an exposure to the cultural heritage of China, Japan and India. This is accomplished through courses in civilization, religion, archaeology and literature in translation. For those undergraduates who wish to major in Oriental Languages, the Department offers a program leading to the B.A. degree in Chinese or Japanese, in which the emphasis is on a more specialized knowledge of the language and literature of the area of major interest. In the language program, the emphasis proceeds from an acquaintance with the spoken language (either Chinese or Japanese) to a reading knowledge of the modern and classical forms of the language.
No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition.

[6]Absent on leave, Fall Quarter, 1976.

Preparation for the Major

For the major in Chinese, courses 1A-1B-1C, 11A-11B-11C, 13A-13B, and 40A; also History 9B and 9C. For the major in Japanese, courses 9A-9B-9C, 19A-19B-19C, and 40B; also History 9B and 9C. Recommended for both majors: Anthropology 5C and 22.

The Major

Required for the major in Chinese: Six upper division quarter courses chosen from 113A, 113B, 121A, 121B, 121C, 122A, 122B, 124A, 124B, 124C, 139, 151, 152A, 152B, 163A, 163B, 163C. Also 140A or 140B, 199 (at least 1/2 course), Art 114B and either History 191A, 191B, 191C, or 191D.
Required for the major in Japanese: Six upper division quarter courses chosen from 119A, 119B, 119C, 129, 134A, 134B, 137, 139, 142A, 142B, 153A, 153B, 179A, 179B. The six courses must include 119B, 129 and 153A or 153B. Also 141A or 141B, 199 (at least ½ course), Art 114C and either History 195A, 195B or 195C.
In the event Art 114B or 114C is not offered, substitutions may be made as follows: course 170A, 170B or 170C for 114B, course 174 for 114C.
Recommended for both majors: Geography 186 and additional courses in history. Those planning to undertake graduate study are urged to include in their undergraduate program three courses in classical Chinese or Japanese at the upper division level. Those planning to undertake advanced graduate study are urged to include five quarters of French or German.

Requirements for Admission to Graduate Study

Students seeking admission to graduate status in Oriental Languages are expected to meet, in addition to general University requirements, not only the minimum requirements for the undergraduate major but, in addition, a minimum of three courses in classical Chinese or Japanese at the upper division level. Students whose undergraduate preparation was not in the field of Oriental Languages will be admitted only if they can meet the departmental standards in linguistic competence and complete the minimum departmental requirements for the equivalent of a B.A. degree within the period of one year. Selection will be based on 1) prior scholastic performance (at the junior, senior and/or graduate levels), 2) recommendations by professors and others, 3) score on the Graduate Record Exami-

nation (aptitude test), and 4) degree of commitment to the field of study. Undergraduate education in China or Japan will not of itself be deemed sufficient commitment for students from those countries. Foreign students are required to attain a satisfactory score on the Test of English as a Second Language administered by the Educational Testing Service, and may be required to take English 106J (Advanced Composition for Foreign Students) and 109J (Introduction to Literature) beyond the minimum University requirements in English. Evaluation of the student's total performance during his first year will determine whether he will be permitted to continue his studies.

Requirements for the M.A. Degree

1. For general requirements, see Master's Degrees.
2. Students majoring in Chinese will be required to present evidence of satisfactory completion of one year of Japanese, and those majoring in Japanese will be required to present evidence of satisfactory completion of one year of Chinese.
3. Complete at least five graduate courses and the requisite number of upper division courses within the department to make a total of nine courses.
4. All students will take comprehensive examinations in the areas of Chinese or Japanese 1) language and literature and 2) civilization. In addition, a brief research paper embodying the results of independent investigation will be required. The results of the examinations and the quality of the research paper will determine whether the student will be permitted to enter the Ph.D. program.

Requirements for the Ph.D. Degree

1. For general requirements, see Candidate in Philosophy Degree.
2. Requirements for the Master's degree in the department or its equivalent must be met for admission to the program (see Requirements for the M.A. Degree). A student admitted with a M.A. degree or advanced graduate standing from another institution will not automatically be exempted from any part of our graduate program. He may be required to submit a brief research paper showing his ability to conduct original research and his aptitude in communicating his findings.
3. The student will demonstrate a reading knowledge of French and German by passing the Graduate School Foreign Language Test administered by the Educational Testing Service (minimum passing score: 500), or by successful completion of a level 5 course (with a grade of C or better). (With the approval of the department, one of these languages may be substituted by another language.)
4. Students whose major field of interest is Chinese language and literature will present evidence of successful completion of three courses in modern Japanese at the intermediate level (19A-19B-19C) or higher; those whose major field of interest is Japanese language and literature will present evidence of successful completion of three courses in classical Chinese (13A-13B-13C) or higher. Those whose major field of interest is Buddhism must take one year of Sanskrit and, in addition, Mongolian or Tibetan.
5. All students working for the Ph.D. degree will be examined in three of the following seven fields: (1) Chinese language and literature, (2) Japanese language and literature, (3) Chinese archaeology, (4) Buddhism, (5) Chinese culture, (6) Japanese culture, and (7) a cognate field offered in another departmental or interdepartmental program in the graduate school. One of these three fields must be either Chinese language and literature or Japanese language and literature. The student will take these written qualifying examinations after satisfying all language requirements and necessary courses.
6. The student must pass an oral qualifying examination on the proposed dissertation topic and in appropriate related areas of study.
7. He will present a dissertation embodying the results of independent investigation.
8. A final oral defense of the dissertation will be optional at the discretion of the doctoral committee.

Lower Division Courses

1A-1B-1C. Elementary Modern Chinese.
Lecture, five hours. Not open to students with previous training. An introduction to standard spoken Chinese and Chinese characters with emphasis on conversation.
Mr. Chu, Mr. Pao

9A-9B-9C. Elementary Modern Japanese.
Lecture, five hours. Not open to students with previous training. Introduction to modern Japanese with attention to conversation, grammar and the written forms. Conversation drill to be based on material covered in class.
Mr. Takahashi

11A-11B-11C. Intermediate Modern Chinese.
Lecture, three hours; laboratory, one hour. A continuation of 1A-1B-1C, with balanced instruction in reading, writing and conversation.
Mr. Pao

13A-13B-13C. Introduction to Classical Chinese.
Lecture, three hours; reading or discussion, one hour. Prerequisite: course 1A or consent of the instructor. Study of the development of the writing system and introduction to literary Chinese.
Mr. Chou

19A-19B-19C. Intermediate Modern Japanese.
Lecture, three hours; laboratory, one hour. A continuation of 9A-9B-9C. Readings in modern Japanese with emphasis on comprehension and structural analysis.
Mr. Epp, Mr. Takahashi

40A-40B. History of Far Eastern Civilization.
Lecture, three hours; reading or discussion, one hour. (A) A survey of the development of the outstanding aspects of Chinese culture from prehistoric to modern times. No knowledge of Chinese required. (B) A survey of the development of Japanese culture and its relationship to the Asiatic mainland. No knowledge of Japanese required.
Mr. Chou, Mr. Plutschow

41. Introduction to Indian Culture.
Lecture, three hours; reading or discussion, one hour. No knowledge of Sanskrit required. A survey of the development of the main aspects of Indian culture from prehistoric to modern times with an accent on literature and philosophy.
Mr. Scharfe

Upper Division Courses

113A-113B. Intermediate Classical Chinese.
Lecture, three hours; reading or discussion, one hour. Prerequisite: courses 13A-13B. Further readings in the classics.
Mr. Chan, Ms. Wong

119A-119B. Advanced Modern Japanese.
Lecture, three hours; laboratory, one hour. A continuation of 19A-19B-19C. Emphasis on comprehension, grammar and proficiency in reading, composition and conversation in modern Japanese.
Mr. Takahashi

119C. Advanced Conversational Japanese.
Prerequisite: course 19C or consent of the instructor. Not open to native speakers of Japanese. Advanced modern Japanese with emphasis on the spoken language for majoring students.
The Staff

121A-121B-121C. Advanced Modern Chinese.
Lecture, four hours. Prerequisite: course 11C. Readings in modern prose and newspaper style.
Mr. Chu

122A-122B. Readings in Modern Chinese Literature.
Lecture, four hours. Prerequisite: course 121B or consent of the instructor. Readings and discussion of masterpieces of modern Chinese literature. (A) poetry and prose; (B) drama and fiction.
Mr. Chou, Ms. Wong

124A-124B-124C. Readings in Modern Expository Chinese.
Lecture, three hours. Prerequisite: course 121B or consent of the instructor. Readings in the social sciences, including Chinese Communist materials: (A) Nationalist Chinese materials including the May 4th Movement; (B) Political and military materials of Communist China; (C) Economic and educational materials of Communist China.
Mr. Chu

125A-125B-125C. Introduction to Calligraphic Art. (½ course)
Prerequisite: course 9C. Appreciation of the Japanese aesthetic tradition through calligraphy.

129. Introduction to Classical Japanese.
Lecture, three hours. Prerequisite: course 119B or consent of the instructor. Introduction to literary Japanese, with readings and discussions in the prose and poetry of the Heian Period.
Mr. Befu

***134A-134B. Readings in Contemporary Japanese Literature.**
Lecture, three hours. Prerequisite: course 19C. Readings in contemporary novels, short stories and literary essays.
Mr. Epp

137. Introduction to Kambun and Other Literary Styles.
Lecture, three hours. Prerequisite: course 119B or consent of the instructor. Introduction to Kambun, the Japanese literary rendering of Classical Chinese, and Sorobun, the epistolary style.
Mr. Befu, Mr. Plutschow

139. Introduction to Buddhist Texts.
Lecture, three hours. Prerequisite: course 13C, 121A or 119A. Studies on Buddhist terminology.
Mr. Ashikaga

140A-140B. Chinese Literature in Translation.
No knowledge of Chinese required. Lectures and collateral reading of representative works in English translation. (A) Poetry from earliest times to the present; (B) Drama and fiction from the 13th century to the 20th century.
Ms. Wong

*A and B are offered in alternate years.

141A-141B. Japanese Literature in Translation.
No knowledge of Japanese required. A survey of Japanese literature from the beginning to modern times, emphasizing Chinese, Buddhist and Western influences: (A) Beginning to 1600; (B) 1600 to modern times.
Mr. Plutschow

***142A-142B. Readings in Modern Expository Japanese.**
Lecture, three hours. Prerequisite: course 119B. (A) Japanese social sciences. (B) Japanese history.
Mr. Epp

151. Readings in Chinese Fiction.
Prerequisites: course 13B or 121C. Readings range from the *pien-wen* stories to the modern novel.
Mr. Chan

***152A-152B. Readings in Classical Chinese Poetry.**
Lecture, three hours. Prerequisite: course 113B. Discussion and collateral reading of representative works selected on the basis of such critical concerns as thematic patterns, image clusters, genres, and the characteristics of major poets.
Ms. Wong

***153A-153B. Modern Japanese Fiction.**
Lecture, three hours. Prerequisite: course 119A, or 134A or 134B. Advanced reading and discussion of novels and short stories, primarily of the Meiji and Taisho periods.
Mr. Epp

154A-154B. Mongolian.
Lecture, three hours; laboratory, one hour. To be offered when requested by a sufficient number of students.
Mr. Pao

160. Elementary Sanskrit.
Introduction to script and grammar, with reading exercises and attention to the significance of Sanskrit for the understanding of other Indo-European languages.
Mr. Scharfe

161. Intermediate Sanskrit.
Prerequisite: course 160 or equivalent. Advanced aspects of grammar and the reading of literary texts.
Mr. Scharfe

162. Advanced Sanskrit.
Prerequisite: course 161 or equivalent. In this course the entire Bhagavadgita or a comparable amount of other Sanskrit literature is read.
Mr. Scharfe

163A-163B-163C. Readings in Chinese Literary Texts.
Lecture, three hours. Prerequisite: course 113B. (A and B) Literary texts. (C) Historical texts.
Mr. Chan

164A-164B. Tibetan.
Lecture, three hours; reading or discussion, one hour.
Mr. Ashikaga

165. Readings in Sanskrit.
Prerequisite: course 162 or equivalent. Extensive reading in such texts as best serve the students' needs.
Mr. Scharfe

167. Introduction to Indic Philosophy.
A survey of the main trends in Indian philosophy from ancient to modern times.
Mr. Scharfe

*Not to be given 1976-1977.

170A-170B-170C. Archaeology in Early and Modern China.
170A. Introduction to Chinese archaeology: types of artifacts, monumental remains, bronze inscriptions. Early Chinese study of their own past: development of antiquarianism, earliest interpretation of archaeological data, Sung dynasty museums, classification and illustrated catalogues. Types of Chinese archaeological literature and early field work up to 1900.
170B. The beginnings of scientific archaeology in China. Excavations of prehistoric Shang and Chou sites and the foundation of modern archaeology by the Nationalist government.
170C. Survey of major excavations of sites of all periods carried out under the intensive archaeological program of the People's Republic of China.
Mr. Chou, Mr. Rudolph

172A. Introduction to Buddhism.
No language requirement. The life and teachings of the Buddha, the monastic organization, Buddhist literature, the spread of the religion to the countries of southeast Asia, and contemporary Buddhist movements in those countries.
The Staff

172B. Development of Buddhism.
No language requirement. Rise of Mahayana Buddhism in India, important Mahayana doctrines, Mahayana literature, art, and the spread of Mahayana Buddhism to Tibet, China and Japan. Discussion of Madhyamika, Vijnaptivada, Tantric, T'ien T'ai, Zen, and Pure Land schools.
The Staff

173. Chinese Buddhism.
No language requirement. The introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of the Chinese schools of Buddhism such as Pure Land and Zen, contributions to Chinese culture.
The Staff

174. Japanese Buddhism.
No language requirement. The development of Buddhism in Japan and its influence on Japanese culture with emphasis on the arts.
Mr. Ashikaga

175. The Structure of the Japanese Language.
Lecture, three hours; reading or discussion, one hour. Prerequisite: consent of the instructor. Phonology, morphology and syntax of Japanese.
Mr. Takahashi

176. Readings in Mongolian.
Mr. Pao

177. Readings in Tibetan.
Prerequisite: courses 164A-164B.
Mr. Ashikaga

179A. Readings in Medieval Japanese Literature.
Lecture, three hours. Prerequisite: course 129 or consent of the instructor. Readings and discussion in the prose, poetry and drama up till 1600.
Mr. Befu

179B. Readings in Edo Literature.
Lecture, three hours. Prerequisite: course 129. Readings and discussion in the prose, poetry and drama from 1600 to 1868.
Mr. Befu

188A-188B. Chinese Paleography.
Prerequisite: an advanced reading knowledge of classical Chinese. (A) Introduction to the earliest known Chinese writing that is found on the oracle bones, and information derived from this source. (B) The decipherment and interpretation of ancient texts and the development of the Chinese script, starting with the Chou dynasty.
Mr. Chan, Mr. Chou

199. Special Studies in Oriental Languages. (½ to 1 course)
Prerequisite: senior standing in the Department or advanced reading knowledge of Chinese or Japanese, and consent of the instructor. Required of incoming senior majors transferred from other institutions. Special individual study. May be repeated only once with consent of the instructor.
The Staff

Graduate Courses

203A-203B. Chinese Philosophical Texts.
May be repeated for credit with the consent of the instructor.
Mr. Chan

213. Chinese Buddhist Texts.
May be repeated for credit with the consent of the instructor.
The Staff

214A-214B. Pali and Prakrits.
A knowledge of Sanskrit equivalent to course 161, and consent of instructor. Grammatical studies and reading of texts. Comparative considerations.
Mr. Scharfe

221A-221B. Introduction to Panini's Grammar.
Prerequisite: course 162 or equivalent. Reading of selected passages of the text with an introduction to Panini's technique.
Mr. Scharfe

M222A-222B. Vedic.
(Same as Near Eastern Languages (Iranian Section) M222A-222B). Prerequisite: a knowledge of Sanskrit equivalent to course 162, and consent of instructor. Characteristics of the Vedic dialect and readings in the Rig-Vedic hymns. M222B only may be repeated for credit.
Mr. Schmidt

223. History of the Japanese Language.
The Staff

226. Seminar in Modern Japanese Poetry.
Analysis of modern poetry to discern how poets respond to their tradition and how they deal with the problems of man, society, and nature. May be repeated for credit with the consent of the instructor.
Mr. Epp

229A-229B. Japanese Buddhist Texts.
May be repeated for credit with the consent of the instructor.
Mr. Ashikaga

240. Advanced Chinese Classics.
Prose and poetry in the Classical style. May be repeated for credit with the consent of the instructor.
Mr. Chan, Ms. Wong

242A-242B. Japanese Classics.
242A. Prose and poetry up to 1600.
242B. Prose and poetry from 1600 to 1868. May be repeated for credit with the consent of the instructor.
Mr. Befu

244. Seminar in Chinese Fiction.
Prerequisites: course 113B and 151 and graduate standing in the department. Discussion of the historical development of Chinese fiction, and readings from *pien-wen, ch'uan-ch'i* stories, *hua-pen* stories, traditional and modern novels.
Mr. Chan

245. Seminar in Modern Japanese Fiction.
May be repeated for credit with the consent of the instructor.
Mr. Epp

247. Selected Readings in Sanskrit Texts.
May be repeated for credit with the consent of the instructor.
Mr. Scharfe

250. Seminar in Medieval Japanese Literature.
Prerequisite: one year of classical Japanese. Selected readings in travel poetry, travel diaries and other genres of Japanese travel literature of the Heian, Kamakura, Nambokucho and Muromachi periods. May be repeated for credit with the consent of the instructor.
Mr. Plutschow

251. Seminar: Selected Topics in Chinese Literature.
May be repeated for credit.
Ms. Wong

252. Seminar: Selected Topics in Japanese Literature.
May be repeated for credit.
Mr. Befu

253. Seminar: Selected Topics in Japanese Buddhism.
May be repeated for credit.
Mr. Ashikaga

255. Seminar: Selected Topics in Chinese or Indian Buddhism.
May be repeated for credit.
The Staff

261A-261B. Seminar in Classical Chinese Poetry.
Prerequisites; course 152A and/or B, or consent of the instructor. **261A.** Chinese poetry from the *Shih-ching* phase to the sixth century, with emphasis on the evolution of the lyric form during the Southern Dynasties (ca. 400-600). **261B.** The development of *shih* and *tz'u* from the T'ang period (ca. 600-900) and onward; traditional and modern critical approaches to classical Chinese poetry.
Ms. Wong

262. Seminar in Sinological Literature.
May be repeated for credit with the consent of the instructor.
The Staff

270. Seminar: Selected Topics in Chinese Archaeology.
Prerequisites: course 170A-170B-170C and a reading knowledge of Chinese. May be repeated for credit.
Mr. Rudolph

275. Seminar: Selected Topics in Chinese Cultural History.
Limited to majors with a reading knowledge of Chinese. May be repeated for credit.
Mr. Chou, Mr. Rudolph

285. Selected Topics in Buddhist Culture.
May be repeated for credit with the consent of the instructor.
Mr. Ashikaga

295. Bibliography and Methods of Research in Chinese.
Required of all graduate students in Chinese.
Mr. Chou

296. Bibliography and Methods of Research in Japanese.
Required of all graduate students in Japanese.
Mr. Befu

Professional Courses

301. Methods of Teaching an Oriental Language as a Foreign Language.
The Staff

Individual Study and Research

All of these courses will be graded Satisfactory/Unsatisfactory. A student may repeat these courses with the consent of the instructor; however, none of these may apply toward the minimum course requirement for the M.A.

501. Cooperative Program. (½ to 2 courses)
Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Individual Studies. (1 to 3 courses)
The Staff

597. Preparation for the Comprehensive Examination for the M.A. or the Qualifying Examination for the Ph.D.
The Staff

599. Research for and Preparation of the Doctoral Dissertation. (1 to 3 courses)
The Staff

Related Courses in Other Departments

Anthropology 103C. Peoples of Asia Japan.
139. Comparative Minority Relations.
206. Culture and Personality of Japan: Selected Topics.
209. Asian-Americans: Personality and Identity.
211. Selected Topics in Comparative Minority Relations.

Art 114A. The Early Art of India.
114B. Chinese Art.
114C. Japanese Art.
115A. Advanced Indian Art.
115B. Advanced Chinese Art.
115C. Advanced Japanese Art.
260. Asian Art.

English 100A. Introduction to Poetry.
140. Criticism.
201. Approaches to Literary Criticism.

Geography 186. Eastern Asia.
285. Asia.
290G. Seminar in Regional Geography: Eastern Asia.

History 124A-124B. Introduction to the History of Religions.
191A-191E. History of China.
193. Diplomatic History of the Far East.
195A-195B-195C. Japanese History.
196A. Early History of India.
201B. Themes in Early and Modern Chinese History.
212. Intellectual History of Recent China.
214. Social and Intellectual History of Recent Japan.
230. Advanced Historiography: L. China. M. Japan. P. History of Religions.
240. Topics in History: L. China. M. Japan. P. History of Religions.
279A-279B. Seminar in Chinese History.
281A-281B. Seminar in Modern Japanese History.
282A-282B. Seminar in the History of Religions.

Linguistics 103. Introduction to General Phonetics.
120A. Linguistic Analysis: Phonology.
120B. Linguistic Analysis: Grammar.
220. Linguistic Areas: H. Far East.
225. Linguistic Structures. H. Japanese. P. Chinese.

Music 171. Ethnomusicology
Performance Organization:
C. Music of China.
G. Music and Dance of Japan.

Political Science 135. International Relations of East Asia.
136. International Relations of the Western Pacific Area.
159. Chinese Government and Politics.
160. Japanese Government and Politics.
250. Seminars in Regional and Area Political Studies: C. Chinese and East Asian Studies. D. Japanese and Western Pacific Studies.

Sociology 134. Comparative Social Institutions of East Asia.

■ PATHOLOGY

(Department Office, 13-267 Center for the Health Sciences)

Luciano Barajas, M.D., *Professor of Pathology in Residence/Anatomic Pathology.*
**W. Jann Brown, M.D., *Professor of Pathology (Neuropathology).*
William H. Carnes, M.D., *Professor of Pathology.*
Walter F. Coulson, M.D., *Professor of Pathology (Vice-Chairman of the Department).*
Baldwin G. Lamson, M.D., *Professor of Pathology.*
Harrison Latta, M.D., *Professor of Pathology.*
M. Michael Lubran, M.D., Ph.D., *Professor of Pathology in Residence/Clinical Pathology.*
Julien L. Van Lancker, M.D., *Professor of Pathology (Chairman of the Department).*
**M. Anthony Verity, M.D., *Professor of Pathology (Neuropathology).*
Roy L. Walford, M.D., *Professor of Pathology.*
Luciano Zamboni, M.D., *Professor of Pathology in Residence (Vice-Chairman of Department).*
Louis J. Zeldis, M.D., *Professor of Pathology (Vice-Chairman of the Department).*
John M. Andrews, M.D., *Associate Professor of Pathology and Neurology in Residence (Neuropathology).*

**Member of the Brain Research Institute.

Robert Y. Foos, M.D., *Associate Professor of Pathology.*
Lazaro E. Gerschenson, M.D., *Associate Professor of Pathology.*
Ruth Gussen, M.D., *Adjunct Associate Professor of Pathology.*
William J. Martin, Ph.D., *Adjunct Associate Professor of Pathology.*
Donald E. Paglia, M.D., *Associate Professor of Pathology.*
David D. Porter, M.D., *Associate Professor of Pathology.*
George S. Smith, M.D., *Associate Professor of Pathology.*
Jerry Waisman, M.D., *Associate Professor of Pathology.*
John F. Ward, Ph.D., *Associate Professor of Pathology in Residence and Associate Research Chemist.*
Garth E. Austin, M.D., Ph.D., *Assistant Professor of Pathology.*
David S. Barkely, Ph.D., *Assistant Professor of Pathology in Residence.*
Judith A. Berliner, Ph.D., *Adjunct Assistant Professor of Pathology.*
Arthur H. Cohen, M.D., *Assistant Professor of Pathology in Residence/Nephropathology.*
Denis O. Rodgerson, Ph.D., *Adjunct Associate Professor of Pathology.*
Joseph M. Mirra, M.D., *Assistant Professor of Pathology.*
Geoffrey H. Moyer, M.D, *Assistant Professor of Pathology.*

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Joseph Raymond, M.D., *Lecturer in Pathology.*
Dorothy L. Rosenthal, M.D., *Lecturer in Pathology.*
Takanori Tomura, M.D., Ph.D., *Lecturer in Pathology.*

Graduate study programs in the department are offered to a limited number of medical students between the second and third or between the third and fourth years. For further information consult the chairman of the Department. The following courses are open to qualified nonmedical graduate students in so far as facilities permit.

Graduate Courses

231A. Pathological Anatomy and Physiology.
Prerequisite: regular graduate student status and completion of curriculum satisfying basic requirements for study of human pathology. Lectures, demonstrations and individual study of a student loan collection of microscopic slide preparations and of specimens from recent autopsies. Kodachrome photomicrographs and projection of microslides will be presented. Concentration will be in the area of General Pathology. (Fall Quarter).

The Staff

231B-231C. Pathophysiology of Disease. (¾ course each)
Prerequisite: course 200A. Regular graduate student status and completion of curriculum satisfying basic requirements for study of human pathology. Lectures, demonstrations and individual study of a student loan collection of microscopic slide preparations and of specimens from recent autopsies. Kodachrome photomicrographs and projection of microslides will be presented. The major disease states are presented using an interdepartmental approach as manifestations of pathophysiologic processes rather than as isolated entities. This course is offered on an In Progress Basis which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.

The Staff

235A-235B. Regulation of Gene Expression in Mammalian Cells. (½ course each)
Prerequisite: consent of instructor. Description of intracellular information flow in mammalian cells by stimuli of different natures as well as induced changes such as induction, repression, differentiation and neoplastic transformation will be analyzed. Use of culture models and its biopathological implications will be stressed. To be offered alternate years. 235A, Fall Quarter, and 235B, Winter Quarter.

Ms. Berliner, Mr. Gerschenson

M240. Immunopathology. (½ course)
Lecture, two hours per week. (Same as Medicine M240.) Prerequisite: Immunology course and consent of instructor. Study of the role of immunologic phenomena in the production of lesions and disease. Topics will include immuno complex disease, antitissues antibody, immunologic mediators, cell-mediated immunity, and infectious diseases.

Mr. Glassock, Mr. Porter

242A. Molecular Mechanisms in Disease. (½ course)
Prerequisite: course 231A, consent of instructor. The course concerns itself with a description of molecular events resulting from administration of injurious chemical and physical agents (u.v., x-rays, carcinogens, toxins, etc.) and from reactions to injuries (e.g., necrosis, degeneration, hyperplasia, neoplasia, inflammation, etc.); and also with an interpretation of structural and functional disturbances in terms of the molecular alterations.

Mr. Van Lancker and the Staff

242B. Molecular Mechanisms in Disease. (½ course)
Prerequisite: course 242 or 242A; consent of instructor. This course is a continuation of Pathology 242A, both of which concern themselves with descriptions of molecular events resulting from administration of injurious chemical and physical agents (u.v., x-rays, carcinogens, toxin, etc.) and from reactions to injuries (e.g., necrosis, degeneration, hyperplasia, neoplasia, inflammation, etc.); and also with an interpretation of structural and functional disturbances in terms of molecular alterations.

Mr. Van Lancker and the Staff

242C. Molecular Mechanisms in Disease. (½ course)
Prerequisite: course 242A, 242B; consent of instructor. This course is a continuation of Pathology 242A and 242B which deal with the biochemistry and molecular biology of disease processes produced by nutritional deficiencies, inherited metabolic errors and the administration of injurious chemical or physical agents. This particular segment will cover aspects of neoplasia relation to alternations in the control of cell growth, chemical carcinogenesis and the biology of cancer.

Mr. Moyer and the Staff

244. Electron Microscopy in Experimental Pathology. (¾ course)
Prerequisite: consent of the instructor. Ultrastructural aspects of pathology including introduction to use of modern methods of electron microscopy in pathological studies, essentials of normal ultrastructure and ultrastructural phenomena in general pathology.

Ms. Berliner, Mr. Zamboni

250A-250B-250C. Pathology Graduate Student Seminar.
Prerequisite: open only to students in experimental pathology. Required for all pathology graduate students. Review and discussion of current literature and research in special topics of experimental pathology.

Mr. Gerschenson

251. Pathology Graduate Student Laboratory Seminar.
Prerequisite: consent of instructor. The course consists of ten, two-hour seminars which may include demonstrations of apparatus and methods dealing with new and advanced experimental techniques of value in experimental pathology. The seminars will be conducted by pathology department staff and guest lecturers. Subjects covered will include the biochemistry, biological and morphological techniques in tissue fractionation, tissue culture and radioautography (electron microscopy, etc.) that are frequently in the study of disease mechanisms.

Mr. Lubran

†253. Free Radical Pathology. (½ course)
Lecture, four and one half hours per week. Prerequisites: Basic biochemistry, Physical Chemistry. Free radicals, mechanisms of formation, properties and reactions. Their reactions with significant biomolecules. Modes of production *in vivo*. Reactions *in vivo*. Protection against and sensitization towards these damaging effects.

Mr. Ward

‡260. Quantitative Approaches to Microscopic Anatomy. (½ course)
Lecture, two hours per week. Prerequisite: consent of instructor. Practical and theoretical approaches in the application of measurement to anatomical structures. General principles of estimation of volume, surface area and number will be covered by stereology and other techniques.

Ms. Berliner, Ms. Eisenberg

596. Directed Individual Study or Research. (1 to 3 courses)
Individual research with members of our staff or of other departments, the latter for the purpose of supplementing programs available in our department. Graded S/U.

597. Preparation for Qualifying Exams. (½ to 2 courses)
Prerequisite: one year of course work in pathology. Individual study for qualifying exam. Graded S/U.

599. Preparation of Doctoral Dissertation. (½ to 2 courses)
Prerequisite: completion of qualifying exam and most of doctoral research. Completion and writing of thesis. Graded S/U.

■ PHARMACOLOGY

(Department Office, 23-278 Center *for the Health Sciences)*
**John A. Bevan, B.Sc., M.B., B.S., *Professor of Pharmacology.*
Arthur K. Cho, Ph.D., *Professor of Pharmacology.*
**Robert George, Ph.D., *Professor of Pharmacology (Vice Chairman of the Department).*
Murray E. Jarvik, M.D., Ph.D., *Professor of Pharmacology and Psychiatry.*

**Member of the Brain Research Institute.

†To be given Spring Quarter, 1977 only.

‡To be given Winter Quarter, 1977 only.

**Donald J. Jenden, B.Sc., M.B., B.S., *Professor of Pharmacology and Biomathematics (Chairman of the Department).*
**Peter Lomax, M.D., D.Sc., *Professor of Pharmacology.*
**Dermot B. Taylor, M.A., M.D., *Professor of Pharmacology.*
Jeremy H. Thompson, M.D., F.R.C.P.I., *Professor of Pharmacology.*
**M. David Fairchild, Ph.D., *Adjunct Associate Professor of Pharmacology.*
Che Su, Ph.D., *Associate Professor of Pharmacology in Residence.*
Rosemary D. Bevan, M.D., *Adjunct Assistant Professor of Pharmacology.*
Don H. Catlin, M.D., *Assistant Professor of Pharmacology and Medicine.*

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Il Jin Bak, Ph.D., D.D.S., *Adjunct Associate Professor of Neurology and Pharmacology.*
Robert O. Bauer, M.D., *Professor of Anesthesiology, Obstetrics and Gynecology and Pharmacology.*
Joseph H. Beckerman, Pharm.D., *Lecturer in Pharmacology.*
Mark A. Goldberg, M.D., Ph.D., *Associate Professor of Neurology and Pharmacology.*
William L. Hewitt, M.D., *Professor of Medicine and Pharmacology.*
Louis Levy, Ph.D., *Adjunct Associate Professor of Medicine and Pharmacology.*
Joseph A. Steinborn, Ph.D., *Lecturer in Pharmacology.*

Admission to Graduate Status

In addition to meeting the requirements of the Graduate Division, the student must have received the bachelor's degree in a biological or physical science or in the premedical curriculum, provided that the following, or their equivalents, have been completed: 6 semester units of college mathematics, 8 units of physics, 16 units of chemistry (including quantitative analysis and organic chemistry), 8 units of zoology (including comparative gross and microscopic anatomy), 8 units of mammalian physiology (including laboratory), 10 units of biochemistry (including laboratory).

In suitable cases, students who have not completed the above requirements may be admitted to graduate status, but the deficiencies will have to be removed within a specified time.

Requirements for the Degree of Master of Science

Students entering graduate study in the Department of Pharmacology will be expected to pursue the Ph.D. degree. Exceptional cases may be considered for the degree of Master of Science. In those cases, candidates for the master's degree must meet the general requirements set by the Graduate Division for this degree.

**Member of the Brain Research Institute.

Requirements for the Doctor of Philosophy Degree

Advancement to Candidacy. In addition to the general requirements of the Graduate Division, the student may be required to pass a series of qualifying examinations both written and oral. The Departmental Guidance Committee may also stipulate additional requirements. This committee will be appointed by the Chairman of the Department.

The responsibility for completion of all technical requirements for the doctor's degree rests solely with the candidate.

Departmental Requirements. In addition to the general requirements of the Graduate Division the student must complete the following courses or their equivalents: Biological Chemistry 101A-101B-101C; Physiology 101-102; Histology; Pharmacology 202 (Pharmacological Basis of Therapeutics); Pharmacology 234A-234B-234C (Experimental Methods in Pharmacology); Pharmacology 236 (Neuropharmacology); Pharmacology 237 (Autonomic, Cardiovascular and Gastrointestinal Pharmacology); Pharmacology 238 (Introduction to Therapeutics); Psychopharmacology M239; Pharmacology 241 (Introduction to Chemical Pharmacology); Pharmacology 242 (Advanced Chemical Pharmacology); Pharmacology 251 (Seminar); two quarters of Physical Chemistry; and courses in Calculus and Biostatistics.

Upon completion of the first two years of study each student will be required to take a comprehensive oral examination at which time the student will be recommended 1) for continuation of his studies towards the Ph.D. degree; 2) for further remedial study or; 3) for termination.

Upper Division Courses

101A-101B-101C. Elements of Pharmacology. (2 courses)
Prerequisite: enrollment in School of Dentistry or consent of the instructor. Required course for junior dental students. A general consideration of the modes of action and the pharmacological and toxicological effect of drugs with a more detailed study of those agents used in clinical dentistry and the principles governing their use.
Mr. Lomax in charge

***102. Essentials of Pharmacology. (½ course)**
Lectures. Prerequisite: consent of the instructor. A series of lectures on the principles governing interactions between drugs and biological systems, with particular attention to the application of these principles to therapeutics.
Mr. Thompson in charge

199. Special Studies. (½ to 2 courses)
Prerequisite: consent of instructor and Chairman of the Department. Special studies in pharmacology, including either reading assignments or laboratory work or both, designed for appropriate training of each student who registers in this course.

Graduate Courses

201. Principles of Pharmacology and Toxicology.
Lectures. Prerequisite: mammalian physiology; biochemistry. A series of lectures on the principles governing interactions between drugs and biological systems, with particular attention to the application of these principles to therapeutics and toxicology.
Mr. Jenden in charge

202. Pharmacological Basis of Therapeutics. (2 courses)
Lectures, discussions, case presentations and laboratories. Prerequisite: Principles of Pharmacology and Toxicology. A detailed and systematic consideration of the principal categories of drugs, their mechanisms of action and the rationale for their therapeutic use.
Mr. Jenden in charge

***231. Introduction to Pharmacology. (½ course)**
Prerequisite: consent of the instructor. Lectures, discussions and assigned reading on the scope of pharmacology and its relation to other sciences.
Mr. Jenden

***232. Fundamental Principles of Drug Action.**
Prerequisite: Inorganic, organic and physical chemistry. Advanced lectures on the scientific basis of pharmacological action. Interaction between drugs and cell components. Principles governing absorption, distribution, metabolism and excretion. Diffusion of drugs into and through tissues. Relationships between structure and action in relevant series of drugs.
Mr. Bevan, Mr. Taylor

233. Quantitative Models in Pharmacology. (½ course)
Prerequisite: consent of instructor. The theory and practice of the application of statistical and mathematical methods to the development of quantitative models in pharmacology, toxicology and therapeutics.
Mr. Steinborn

234A-234B-234C. Experimental Methods in Pharmacology. (½ course each)
Prerequisite: consent of instructor. A survey of experimental methods and instrumentation used in the analysis, identification, and study of mechanisms of action of pharmacologically active compounds.
Mr. Cho, Mr. George, Mr. Su

235. Systematic Pharmacology and Toxicology.
Prerequisite: Principles of Pharmacology and Toxicology. Lectures, discussions and directed private study of the principal categories of drugs, their pharmacological properties and mechanisms of action.
Mr. Jenden in charge

236. Neuropharmacology.
Prerequisite: neurophysiology. Advanced neuropharmacology, including actions and modes of action of drugs acting on the central nervous system, interactions between drugs and nervous tissue, movements of drugs through the blood brain barrier, and distribution to the central nervous system, problems of central transmission.
Mr. George

237. Neurotransmission.
Prerequisite: course 241, 243A-243B-243C. Consent of instructor. A detailed examination of neurochemical transmission, dealing in particular with the cholinergic and adrenergic transmission mechanisms and pharmacological agents that affect them. The evidence for mechanisms involving other possible transmitters will also be critically examined.
Mr. Bevan, Mr. Cho, Mr. Su

238. Introduction to Therapeutics.
Prerequisite: Registration as a graduate student in the Department of Pharmacology and completion of the first year of studies, or consent of the instructor. A systematic consideration of the etiology, symptoms, signs and pathogenesis of the principal groups of diseases amenable to drug therapy.
Mr. Lomax, Mr. Thompson

*Not to be given 1976-1977.

M239. Psychopharmacology.
(Same as Psychiatry M239.) Prerequisite: consent of the instructor. A presentation of the effects of drugs upon behavior with special attention to drugs used in psychiatry and drug seeking behavior. Physiological and biochemical mechanisms underlying such actions will be analyzed. Reports on relevant current research will be made.
Mr. Jarvik

241. Introduction to Chemical Pharmacology.
Prerequisite: Organic and Biological Chemistry. Introduction to general principles of pharmacology. The role of chemical properties of drugs in their distribution, metabolism and excretion.
Mr. Cho

242. Chemical Pharmacology. (½ course)
Prerequisite: course 241 (Introduction to Chemical Pharmacology). Selected topics in Chemical Pharmacology.
Mr. Cho

251. Seminar in Pharmacology. (½ course each)
Mr. Lomax

252. Seminar in Chemical Pharmacology. (½ course)
Prerequisite: consent of the instructor. Oral reports and discussions of topics of current interest in the application of chemical concepts and techniques to pharmacology. May be taken for credit three times.
Mr. Cho

253. Seminar in Environmental Toxicology. (½ course)
Prerequisite: consent of the instructor. Oral reports and discussions of current research on chemical pollutants in the environment, their effects on biological systems and the mechanism of these effects.
Mr. Jenden

261. Introduction to Clinical Pharmacology. (½ course)
Prerequisite: consent of the instructor. Lectures, case presentations and discussions designed to acquaint graduate students with the special problems and effects encountered in clinical use of drugs, including absorption, metabolism and excretion, drug interactions and interference with clinical laboratory analysis.
Mr. Thompson

291. Special Topics in Pharmacology. (½ course)
Prerequisite: consent of instructor. Examination in depth of topics of current importance in pharmacology. Emphasis on recent contributions of special interest to advanced doctoral candidates, academic staff or visiting faculty. May be taken for credit three times.
The Staff

Individual Study and Research

596. Directed Individual Research in Pharmacology. (1 to 3 courses)
The Staff

599. Research for and Preparation of the Doctoral Dissertation. (1 to 3 courses)
The Staff

■ PHILOSOPHY

(Department Office, 321 Dodd Hall)

Rogers Albritton, Ph.D., *Professor of Philosophy.*
Alonzo Church, Ph.D., *Professor of Philosophy and Mathematics in Residence.*
Keith S. Donnellan, Ph.D., *Professor of Philosophy.*
Philippa Foot, M.A., *Professor of Philosophy in Residence.*
Montgomery Furth, Ph.D., *Professor of Philosophy.*
Donald Kalish, Ph.D., *Professor of Philosophy.*
David Kaplan, Ph.D., *Professor of Philosophy.*
Herbert Morris, Ph.D., *Professor of Philosophy and Law.*
Richard Wasserstrom, Ph.D., *Professor of Philosophy and Law.*
Robert M. Yost, Ph.D., *Professor of Philosophy.*
Hugh Miller, Ph.D., *Emeritus Professor of Philosophy.*
Wesley Robson, Ph.D., *Emeritus Professor of Philosophy.*
Marilyn McCord Adams, Ph.D., *Associate Professor of Philosophy.*
Robert Merrihew Adams, Ph.D., *Associate Professor of Philosophy (Chairman of the Department).*
Thomas E. Hill, Jr., Ph.D., *Associate Professor of Philosophy.*
Warren S. Quinn, Ph.D., *Associate Professor of Philosophy.*
Bernard R. Boxill, Ph.D., *Assistant Professor of Philosophy.*
Tyler Burge, Ph.D., *Assistant Professor of Philosophy.*
Gregory Kavka, Ph.D., *Assistant Professor of Philosophy.*

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David J. Hills, B.A., *Acting Assistant Professor of Philosophy.*

Preparation for the Major

Courses 21, 22, 31, and one other lower division course in Philosophy.

The Major

Twelve upper division or graduate philosophy courses (48 units). Seven of the twelve courses must be distributed among the groups into which the undergraduate and graduate courses are divided, in the following manner: two courses (8 units) in each of three of the groups, and one course (4 units) in the remaining group.

Courses listed under "No Group" may apply toward the major, but not toward a group requirement. A maximum of eight units of course 199 may apply toward the major.

Upon the recommendation of the Philosophy Department faculty, honors in philosophy will be awarded at graduation to a major whose grade point average in upper division philosophy courses is 3.3 and who has completed two graduate courses (8 units) in philosophy with an average grade of 3.5.

Students intending to do graduate work in Philosophy should consult with the graduate adviser as well as with the undergraduate adviser.

Admission to Graduate Status

Students interested in admission to graduate study should write to the Graduate Adviser, Department of Philosophy for documents describing the graduate program.

An undergraduate major in Philosophy is not required, although some undergraduate preparation is expected.

The graduate program is designed for those who wish to work for the Ph.D. degree. Normally, persons are not admitted who wish to pursue only an M.A. program.

Admission is normally granted for the Fall Quarter only.

First Year Graduate Program

During the Fall, Winter, and Spring Quarters of his first full academic year, each graduate student enrolls in Philosophy 200A-200B-200C. Students who have not taken Philosophy 31 and 32, or their equivalent, do so during their first year. These courses serve as the core of the first year graduate program.

First Year Examination

At the end of the first full year of graduate study, each student takes a written examination on the material covered in Philosophy 200A-200B-200C that year, plus a written examination on elementary logic.

Candidates for the M.A. may, if necessary, repeat the First Year Examination at the end of their second year, since it serves as the M.A. Comprehensive Examination.

Admission to the Doctoral Program

Following a student's First Year Examination, the faculty determines whether the student is to be admitted to the doctoral program. This decision is based on his performance in his first year courses, including Philosophy 200A-200B-200C, on his performance in the First Year Examination, and on any other available evidence concerning his ability to complete the program successfully. (Passage of the First Year Examination is neither necessary nor sufficient for admission to the doctoral program.) In exceptional circumstances the decision may be postponed for at most two quarters.

Requirements for the Master's Degree

General Requirements. See Master's Degrees.

Foreign Language. A reading knowledge of one of the following languages: Greek, Latin, French, or German. On petition to the Department, another language relevant to the candidate's field of specialization may be chosen.

Comprehensive Examination. Passage of the First Year Examination which all graduate students are required to take.

Course Requirement. At least nine courses (36 units) numbered over 100 (excluding 199), five courses (20 units) of which must be in philosophy courses numbered between 200 and 296, including 200A-200B-200C.

Requirements for the Candidate in Philosophy Degree

The Candidate in Philosophy Degree (C. Phil.) is awarded upon a Ph.D. candidate's formal advancement to candidacy. A student is advanced to candidacy for the doctorate when he has completed all requirements for the Ph.D. except the dissertation, and the final examination. The Candidate in Philosophy is not a terminal degree. The Department will not recommend a student for advancement to candidacy and at the same time disqualify him for continued registration and further study or research on his dissertation. If a student withdraws from the

University after advancement to candidacy and at award of the C.Phil., then the Department will readmit him upon application, provided the period of absence has not exceeded seven years. Any student, of course may himself decide not to proceed beyond the C.Phil. Four quarters of academic residence, three of which (normally the last three) must be spent in continuous residence at UCLA, are required for the C.Phil.

Requirements for the Doctor's Degree

General Requirements. See Candidate in Philosophy Degree.

Foreign Language. A good reading knowledge of one of the following languages: Greek, Latin, French, German. On petition to the Department, another language relevant to the candidate's field of specialization may be substituted. This requirement may be met either (a) by the completion, at UCLA or elsewhere, of the equivalent of the final course in a two year sequence of college courses in the chosen language, with a grade of C or better, or (b) by passing a translation examination, administered by the Department, from a philosophical book selected by the candidate with Departmental approval.

Course Requirement. Twelve courses in the 100 and 200 series (excluding 199), distributed as follows:

Logic: 135 and either 133 or 134. Students are encouraged to take 135 as the last of these courses.

Metaphysics and epistemology: Two courses or seminars in the 200 series, including the required first year seminar in metaphysics and epistemology.

Ethics and value theory: Two courses or seminars in the 200 series, including the required first year seminar in ethics.

History of philosophy: Three courses or seminars in the 200 series, including the required first year seminar in the history of philosophy.

Elective: Three additional upper division or graduate courses or seminars, of the student's choice.

First Year Examination. Before admission to the doctoral program, each student must take a First Year Examination on the contents of the three required first year seminars (200A-200B-200C) and on the contents of the beginning logic courses (31 and 32). Passage of the examination is a requirement for the M.A. but not for the Ph.D. Performance in the examination, however, is an important part of the evidence considered in determining admission to the doctoral program (see above).

Proposition Requirement. Two accepted propositions, one in Ethics and Value Theory, the other in Metaphysics and Epistemology. A proposition is a substantial research paper which formulates a philosophical problem, reviews some of the pertinent history and contemporary literature, proposes further steps toward a solution, and surveys difficulties to be anticipated in working out that solution.

Preparation for Admission to Candidacy. In the term following completion of the course and proposition requirements, the student must submit a general indication of a topic or problem area for his dissertation. A faculty dissertation supervisor is then chosen, with whom the student must register for at least four units of course 596 each quarter that he is registered until he is admitted to candidacy. In any case, substantial written evidence of progress in the dissertation project must be submitted before the oral qualifying examination can be held. No other courses are required between completing the twelve-course requirement and admission to candidacy.

Oral Qualifying Examination. An oral examination, administered by the doctoral committee appointed by the Dean of the Graduate Division. The candidate is examined (a) on substantial written evidence of progress in the dissertation project (as described above) which he has submitted to the committee at least ten days in advance of the examination, and (b) on the field of the dissertation and any related fields in which competence is required for successful completion of the dissertation.

Dissertation. A dissertation on a subject chosen by the candidate and approved by his doctoral committee and the Dean of the Graduate Division.

Final Examination. An oral examination in the field of the student's special interest as represented by his dissertation may be required at the option of members of the doctoral committee who are to approve the dissertation. Normally, the decision whether to require such an examination is made at the time of the oral qualifying examination.

For details of requirements for all graduate degrees in Philosophy as well as the timetable under which the various requirements are to be completed, consult the department's *Graduate Manual,* obtainable upon request from the Department office.

Lower Division Courses

All lower division courses are introductory and without prerequisites except as otherwise stated.

1. Ancient Philosophical Classics.
Lecture, three hours; discussion section, one hour. Selected topics from the following: the origins of Western science, cosmology and philosophy; the philosophical thought of the Pre-Socratic philosophers, Plato, and Aristotle.
Mr. Albritton, Mr. Furth, Mr. Quinn

2. Introduction to the Philosophy of Religion.
Lecture, three hours; discussion section, one hour. An introductory study of such topics as the nature and grounds of religious belief, the relation between religion and ethics, the nature and existence of God, the problem of evil, and what can be learned from religious experience.
Mr. Adams, Mrs. Adams

3. Human Perfections and Ideal Societies.
Lecture, three hours; discussion section, one hour. A study of various conceptions of human perfection and social utopias. Readings will be chosen from such authors as Marx, Nietzsche, Plato, Thomas More, Robert Owen, and Edward Bellamy.
Mr. Hill

4. Philosophical Analysis of Contemporary Moral Issues.
Lecture, three hours; discussion section, one hour. A critical study of principles and arguments advanced in discussion of current moral issues. Possible topics: revolutionary violence, rules of warfare, sexual morality, the right of privacy, punishment, nuclear warfare and deterrence, abortion and mercykilling, experimentation with human subjects, rights of women, the drug culture.
Mr. Hill, Mr. Kavka, Mr. Wasserstrom

5A. Philosophy in Literature.
Lecture, three hours; discussion section, one hour. A philosophical inquiry into such themes as freedom, responsibility, guilt, love, self-knowledge and self-deception, death and the meaning of life, by examination of great literary works in the Western tradition.
Mr. Morris

5B. Recurring Philosophical Themes in Black Literature.
Lecture, three hours; discussion section, one hour. Analysis of some main themes in Afro-American political writings; for example, assimilation, cultural nationalism, and separatism in the writings of Booker T. Washington, Frederick Douglass, W.E.B. du Bois, and others.
Mr. Boxill

6. Historical Introduction to Moral and Political Philosophy.
Lecture, three hours; discussion section, one hour. A study of some classic works in moral and political philosophy. Questions that may be discussed include: What is justice? Why be moral? Why obey the law? Which form of government is best? How much personal freedom should be allowed in society?
Mr. Hill, Mr. Kavka

7. Mind, Mechanism and Freedom.
Lecture, three hours; discussion section, one hour. An introductory study of the concepts of mind, determinism and freedom, as discussed by such philosophers and psychologists as Hume, William James, and B. F. Skinner.
Mr. Donnellan

8. Introduction to the Philosophy of Science.
Lecture, three hours; discussion section, one hour. An introductory study of philosophical problems about the construction, confirmation, meaning, and explanatory force of scientific theories. Historically important scientific theories that can be understood without much mathematical or technical background will be selected for study.
Mr. Hills

21. Skepticism and Rationality.
Lecture, three hours; discussion section, one hour. Can we know anything with certainty? How can we justify any of our beliefs? An introduction to the study of these and related questions, through the works of some great philosophers of the modern period, such as Descartes, Leibniz, Berkeley, or Hume.
Mr. Donnellan, Mr. Furth, Mr. Yost

22. Introduction to Ethical Theory.
Lecture, three hours; discussion section, one hour. Intended primarily as preparation for upper-division courses in moral and political philosophy. Critical discussion of some of the following topics: the nature of moral theory, moral relativism, egoism, moral responsibility, utilitarianism and justice, the meaning of ethical terms.
Mr. Hill, Mr. Kavka, Mr. Quinn

31. Logic, First Course.
Lecture, three hours; discussion section, one hour. Recommended for students who plan to pursue more advanced studies in logic. The elements of symbolic logic, sentential and quantificational; forms of reasoning and structure of language.
Mr. Burge, Mr. Kalish, Mr. Kaplan

32. Logic, Second Course.
Lecture, three hours; discussion section, one hour. Prerequisite: course 31, preferably in the preceding quarter. Symbolic logic: extension of the systematic development of course 31. Quantifiers, identity, definite descriptions.
Mr. Burge, Mr. Kalish, Mr. Kaplan

98. Freshman Seminar.
Discussion, three hours. Prerequisites: Freshman status and consent of the instructor. The course will be offered by different faculty members in different quarters. The content will be a suitable topic within the research specialty of the faculty member offering the

course. Consult the department for topic to be treated in a given quarter.

The Staff

Upper Division Courses

GROUP I

M101A. Plato—Earlier Dialogues.

(Formerly numbered 101A. Same as Classics M165A.) Lecture, three hours; discussion section, one hour. Prerequisite: course 1 or consent of the instructor. A study of selected topics in the early and middle dialogues of Plato.

Mr. Furth, Mr. Lewis, Mr. Quinn

M101B. Plato—Later Dialogues.

(Formerly numbered 101B. Same as Classics M165B.) Lecture, three hours; discussion section, one hour. Prerequisite: Philosophy M101A or Classics M165A. A study of selected topics in the middle and later dialogues of Plato.

Mr. Furth, Mr. Lewis, Mr. Quinn

102. Aristotle.

Lecture, three hours; discussion section, one hour. Prerequisite: course 1 or consent of the instructor (courses M101A-101B are not required). A study of selected works of Aristotle.

Mr. Furth

104. Topics in Islamic Philosophy.

Lecture, three hours; discussion section, one hour. Prerequisite: one course (4 units) in philosophy or consent of the instructor. The development of Muslim philosophy in its great age (from Kindo to Averroes, 850 to 1200), considered in connection with Muslim theology and Mysticism.

Mr. Anawati

105. Medieval Philosophy from Augustine to Maimonides.

Lecture, four hours; Prerequisite: one course in philosophy or consent of the instructor. The development of early medieval philosophy within the framework of Judaeo-Christian theology and its assimilation and criticism of the Greek philosophical heritage. Focus on the problem of universals, the existence and nature of God, the problem of evil, and the doctrines of the Trinity and atonement. Selected writings from Augustine through Maimonides, read in English translation.

Mrs. Adams

106. Later Medieval Philosophy.

Lecture, four hours. Prerequisite: one course in philosophy or consent of the instructor (course 105 is not required). Metaphysics, theory of knowledge, and theology of Aquinas, Duns Scotus, and Ockham, with less full discussion of other authors from the 13th through early 15th centuries. Selected texts read in English translation.

Mrs. Adams

107. Topics in Medieval Philosophy.

Lecture, four hours. Prerequisite: one course in philosophy; 105 or 106 recommended. The study of the philosophy and theology of some one medieval philosopher such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham; or the study of a single area such as logic or theory of knowledge in several medieval philosophers. Consult the department for topic to be treated in a given quarter. May be repeated for credit with consent of instructor.

Mrs. Adams

108. Problems in 17th and 18th Century Philosophy.

Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. A study of the views of several important philosophers of the period from Descartes through Kant, on selected problems such as skepticism and certainty, mind and body, the concept of matter, the existence of God, or causality, free will and determinism. Consult the department for topic to be treated in a given quarter.

Mr. Adams, Mr. Furth

109. Descartes.

Lecture, four hours. Prerequisite: one course in philosophy or consent of the instructor. A study of the philosophy of Descartes.

Mr. Yost

111. Leibniz.

Lecture, three hours; discussion section, one hour. Prerequisite: course 21 or consent of the instructor. A study of the philosophy of Leibniz. May be concurrently scheduled with course 211, in which case there will be a weekly discussion meeting for undergraduates only, and fewer readings and shorter papers will be required of undergraduates than of graduates. Enrollment is limited to 30 students when offered concurrently.

Mr. Adams

112. Locke and Berkeley.

Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. A study of the philosophies of Locke and Berkeley; the emphasis may sometimes vary from one figure to the other.

Mr. Donnellan, Mr. Hills

114. Hume.

Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. Selected topics from the metaphysical, epistemological and ethical writings of Hume.

Mr. Donnellan, Mr. Hills, Mr. Quinn

115. Kant.

Lecture, three hours; discussion section, one hour. Prerequisite: course 21 or 22 or consent of the instructor. A study of Kant's views on related topics in theory of knowledge, ethics, and politics.

Mr. Hill, Mr. Hills

116. Nineteenth Century Philosophy.

Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. Selected topics in nineteenth century thought.

117. Late 19th and Early 20th Century Philosophy.

Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. Selected topics in the work of one or more of the following philosophers: Bolzano, Frege, Husserl, Meinong, the early Russell and Wittgenstein.

Mr. Burge

GROUP II

125. Introduction to Modern Logic.

Lecture, three hours; discussion section, one hour. Open to lower division students with consent of the instructor. A survey of elementary topics in sentential logic, axiomatic foundations of arithmetic, calculus of classes and relations, elementary theory of probability, modal logic.

Mr. Kalish

126A. Philosophy of Science.

Lecture, three hours; discussion section, one hour. Prerequisite: course 32 or course 125. An analysis of explanation, confirmation, and theory in the sciences.

126B. Philosophy of Science.

Lecture, three hours; discussion section, one hour. Prerequisite: course 126A or consent of the instructor. Certain philosophical problems regarding the content of the sciences.

126C. Philosophy of Science: Social Sciences.

Lecture, three hours; discussion section, one hour. Prerequisite: two courses in philosophy or consent of the instructor. A discussion of topics in the philosophy of social science: e.g., the methods of the social sciences in relation to the physical sciences; value-bias in social inquiry; concept formation; theory construction; explanation and predication; the nature of social laws.

Mr. Boxill

127A-127B. Philosophy of Language.

Lecture, four hours. Prerequisite: course 31 or consent of the instructor. With the consent of the instructor, course 127B may be taken without course 127A. Semiotic; syntax, semantics, pragmatics. The semantical concept of truth, sense and denotation, synonymy and analyticity, modalities and tenses, indexical terms, semantical paradoxes. Indirect discourse, subjunctive conditionals. Either course may be repeated for credit with the consent of the instructor.

Mr. Burge, Mr. Church, Mr. Kaplan

128A. Philosophy of Mathematics.

Lecture, four hours. Prerequisite: course 31, 32, and preferably one additional course in logic. The philosophy of mathematics: logicism of Frege and Russell, arithmetic reduced to logic; ramified type theory and impredicative definition (Russell, Poincare, the early Weyl).

Mr. Church

128B. Philosophy of Mathematics.

Lecture, four hours. Prerequisite: course 128A or consent of the instructor. Intuitionism of Brouwer, Heyting, and the later Weyl; proof theory of Hilbert.

Mr. Church

129. Philosophy of Psychology.

Lecture, three hours; discussion section, one hour. Prerequisite: one 4-unit course in Psychology and one course in Philosophy. Selected philosophical issues arising from psychological theories. Relevance of computer simulation to accounts of thinking and meaning; relations between semantical theory and learning theory; psychological aspects of the theory of syntax; behaviorism, functionalism and alternatives; physiology and psychology.

Mr. Burge

133. Logic, Third Course.

Lecture, four hours. Prerequisite: course 32. Topics in logic and semantics; formal theories, definitions, alternative theories of descriptions.

Mr. Kalish, Mr. Kaplan

134. Introduction to Set Theory.

Lecture, four hours. Prerequisite: course 32, or upper division standing in mathematics and consent of the instructor. Introduction to axiomatic set theory: sets, natural numbers, relations, functions, cardinality, infinity.

Mr. Kalish

135. Introduction to Metamathematics.

Lecture, four hours. Prerequisite: course 133 or 134 or consent of the instructor. Models, satisfaction, truth, definability; logical truth and logical consequence; consistency and completeness.

Mr. Church, Mr. Kalish, Mr. Kaplan

136. Modal Logic.

Lecture, four hours. Prerequisite: course 135. The logic of necessity and possibility. Various formulations of the syntax and semantics of such logics. The problem of interpreting quantified modal logic, deontic, and other non-extensional logics.

Mr. Kaplan

GROUP III

150. Society and Morals.

Lecture, three hours; discussion section, one hour. Prerequisite: course 22 or consent of the instructor. A

critical study of principles and arguments advanced in discussion of current moral and social issues. The topics will be similar to those of course 4, but familiarity with some basic philosophical concepts and methods will be presupposed. May be repeated for credit with the consent of the instructor.

Mr. Hill, Mr. Kavka, Mr. Wasserstrom

151A-151B. History of Ethics.

Lecture, three hours; discussion section, one hour. Prerequisite: two courses in philosophy or the consent of the instructor. Course 151A is not a prerequisite for 151B. **151A.** Selected classics in earlier ethical theories. **151B.** Selected classics in later ethical theories.

Mr. Hill, Mr. Kavka, Mr. Quinn

153. Topics in Ethical Theory.

(Formerly numbered M153.) Lecture, three hours; discussion section, one hour. Prerequisite: course 22 or consent of the instructor. A study of selected problems in ethical theory. Topics may include the analysis of moral language, the justification of moral beliefs, and various conceptions of the fundamental principles of morality.

Mr. Hill, Mr. Kavka, Mr. Quinn

M154. Moral Issues and the Professions.

(Same as CPS M110.) Lecture, three hours; discussion section, one hour. Prerequisite: consent of the instructor; course 22 recommended but not required. A philosophical examination of specific moral issues, with special attention to problems which arise in medicine, law, engineering, business, and other professions. Critical analysis of principles presupposed in alternative answers, and discussions of the relevance of moral theories to the resolution of the problems. Discussion and individual research is stressed. Restricted enrollment: 20. Philosophy M154/CPS M110 cannot be taken in fulfillment of major requirements in Philosophy. Either Philosophy M154/CPS M110 or Philosophy 150 can be taken: credit will not be given for both.

The Staff

156. Topics in Political Philosophy.

Lecture, three hours; discussion section, one hour. Prerequisite: two courses in philosophy or consent of the instructor; course 22 is advised. Analysis of some basic concepts in political theory. May be repeated for credit with the consent of the instructor.

Mr. Boxill, Mr. Kavka

157. History of Political Philosophy.

Lecture, three hours; discussion section, one hour. Prerequisite: two courses in philosophy or consent of the instructor; course 22 is advised. Selected classics in the history of political philosophy.

Mr. Boxill, Mr. Kavka

161. Aesthetic Theory.

Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. Theories of art; theories of aesthetic value; philosophical problems of art criticism.

Mr. Quinn

166. Introduction to Legal Philosophy.

Prerequisite: one course in philosophy or consent of instructor. An examination, through the study of recent philosophical writings, of such topics as: the nature of law, the relationship of law and morals, legal reasoning, punishment, and the obligation to obey the law.

Mr. Morris, Mr. Wasserstrom

GROUP IV

170. Philosophy of Mind.

Lecture, three hours; discussion section, one hour. Prerequisite: two relevant courses in philosophy or consent of the instructor. An analysis of various problems concerning the nature of mind and mental phenomena, such as the relation between the mind and the body, and our knowledge of other minds.

Mr. Donnellan

172. Philosophy of Language.

Lecture, three hours; discussion section, one hour. Prerequisite: two relevant courses in philosophy or linguistics, or consent of the instructor. Analysis of the concepts of meaning, reference and truth in natural languages; syntactic and semantic descriptions of natural languages; theory of speech acts.

Mr. Donnellan

174. Contemporary Philosophy.

Lecture, three hours; discussion section, one hour. Prerequisite: two lower division courses in philosophy or one upper division course in philosophy or one course in logic or consent of the instructor. Analysis of the views of several recent philosophers.

Mr. Donnellan

175. Topics in Philosophy of Religion.

Lecture, three hours; discussion section, one hour. Prerequisite; course 21 or 22 or consent of the instructor. An intensive investigation of one or two topics or works in the philosophy of religion, such as the attributes of God, arguments for or against the existence of God, or the relation between religion and ethics. Consult the department for topic to be treated in a given quarter. May be repeated for credit with the consent of the instructor.

Mr. Adams, Mrs. Adams, Mr. Albritton

177A. Existentialism.

Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. Analysis of the methods, problems and views of some of the following: Kierkegaard, Nietzsche, Heidegger, Jaspers, Sartre, Marcel, and Camus. Possible topics: metaphysical foundations, nature of mind, freedom, problem of the self, other people, ethics, existential psychoanalysis.

177B. Historical Studies in Existentialism.

Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. A study of the central philosophical texts of one of the following: Kierkegaard, Nietzsche, Heidegger, Jaspers, Sartre, or Camus. The course will focus primarily on explication and interpretation of the texts.

178. Phenomenology.

Lecture three hours; discussion section, one hour. Prerequisite: two courses in philosophy or consent of the instructor. Introduction to the phenomenological method of approaching philosophical problems via the works of some of the following: Brentano, Husserl, Heidegger, Scheler, Sartre, Merleau-Ponty, Ricoeur. Topics fall in the areas of ontology, epistemology, and particularly philosophy of mind.

182. Elements of Metaphysics.

Lecture, three hours; discussion section, one hour. Prerequisite: course 21 or consent of the instructor. Study of basic metaphysical questions: nature of the physical world, of minds, and of universals; and the answers provided by alternative systems, e.g., phenomenalism, materialism, dualism.

Mr. Adams

183. Theory of Knowledge.

Lecture, four hours. Prerequisite: course 21 or consent of the instructor. An analysis of the concept of empirical knowledge.

Mr. Yost

184. Topics in Metaphysics.

Lecture, four hours. Prerequisite: course 21 or consent of the instructor. An intensive investigation of one or two topics or works in metaphysics, such as: personal identity, the nature of dispositions, possibility and necessity, universals and particulars, causality. Consult the department for topics to be treated in a given quarter. May be repeated for credit with the consent of the instuctor.

Mr. Adams, Mr. Donnellan

185. Space and Time.

Lecture, three hours; discussion section, one hour. Prerequisite: two courses in philosophy or consent of the instructor. An analysis of philosophical problems concerning the nature of space and time, including traditional puzzles as well as questions raised by modern science.

186. Topics in the Theory of Knowledge.

Lecture, four hours. Prerequisite: course 182 or 183 or consent of the instructor. An intensive investigation of one or two selected topics or works in the theory of knowledge, such as: a priori knowledge, the problem of induction, memory, knowledge as justified true belief. Consult the department for topics to be treated in a given quarter. May be repeated for credit with the consent of the instructor.

Mr. Albritton, Mr. Yost

188. Philosophy of Perception.

Lecture, four hours. Prerequisite: two courses in philosophy or consent of the instructor. A critical study of the main philosophical theories of perception and the arguments used to establish them.

Mr. Yost

NO GROUP

190. Third World Political Thought.

Lecture, three hours; discussion section, one hour. The political philosophy of various third world thinkers. The topics chosen may vary from year to year, but typically will be chosen from the following: Franz Fanon, Singhar and Cesaire's "Negritude," W.E.B. du Bois' Pan-Africanism, Che and Mao.

Mr. Boxill

191. Mysticism.

Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy. A study of writings of mystics, concentrating on the phenomenology of mystical experience, epistemological problems connected with such experiences, and the relevance of such experiences for certain systems of ethics and metaphysics.

Mrs. Adams

192. Philosophical Analysis of Issues in Women's Liberation.

Lecture, four hours. Prerequisite: one course in Philosophy or consent of instructor. A critical study of concepts and principles which arise in the discussion of women's rights and liberation. Topics may include economic and educational equality, preferential treatment, abortion, sex roles, sexual morality, marriage, love, friendship.

193. Christian Ethical Thought.

Lecture, three hours; discussion section, one hour. Reading of selected classic and contemporary authors in the Christian ethical tradition, with philosophical analysis and assessment of their views on morality and the religious life.

Mr. Adams

195. 19th and 20th Century Religious Thought.

Lecture, three hours; discussion section, one hour. Modern Religious Thought. A philosophical approach to Western religious thought of the last two hundred years, through study of selected works by such authors as Kant, Schleiermacher, Kierkegaard, Buber, Camus, and Tillich.

Mr. Adams

198. Undergraduate Seminar in Philosophy.

Lecture, three hours; discussion, one hour. Prerequisite: consent of the instructor. Variable Topics; Consult Schedule of Classes or Department Announcements for current topic.

The Staff

199. Special Studies. (½ to 2 courses)
Prerequisite: consent of the instructor. As many as eight units of this course can be used for the philosophy major, but the course cannot be substituted for a course in one of the four groups on the basis of similarity of subject matter.

The Staff

Graduate Courses

NO GROUP

200A-200B-200C. Seminar for First Year Graduate Students.
Prerequisite: open only to first-year students in philosophy. Selected topics in metaphysics and epistemology, history of philosophy, and ethics. Required for all first-year graduate students.

The Staff

GROUP I

201. Plato.
A study of the later dialogues.

202. Aristotle.
Prerequisite: undergraduate preparation in the history of Greek philosophy. Analysis of major problems in Aristotle's philosophy based on the reading, exposition and critical discussion of relevant texts in English translation.

Mr. Furth

203. Seminar: History of Ancient Philosophy.
(Formerly numbered 251A.) Prerequisite: consent of the instructor. Selected problems and philosophers.

Mr. Furth

206. Topics in Medieval Philosophy.
Lecture/discussion: four hours. Prerequisite: consent of the instructor. The study of the philosophy and theology of one or several medieval philosophers such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham; or the study of a single area such as logic or theory of knowledge in several medieval philosophers. Consult the department for topic to be treated in a given quarter. May be repeated for credit with the consent of the instructor.

Mrs. Adams

207. Seminar: History of Medieval and Renaissance Philosophy.
(Formerly numbered 251B.) Prerequisite: consent of the instructor. Selected problems and philosophers.

Mrs. Adams

208. Hobbes.
(Formerly numbered 203.) Prerequisite: consent of the instructor. Hobbes' political philosophy, especially the *Leviathan,* with attention to its relevance to contemporary political philosophy.

Mr. Kavka

209. Descartes.
Prerequisite: consent of the instructor. Selected topics in the philosophy of Descartes.

Mr. Yost

211. Leibniz.
Prerequisite: consent of the instructor. Selected topics in the philosophy of Leibniz. May be concurrently scheduled with course 111, in which case there will be a two hour biweekly discussion meeting for graduates only, and additional readings and a longer term paper will be required of graduates.

Mr. Adams

212. Locke and Berkeley.
Prerequisite: consent of the instructor. Selected topics in the philosophy of Locke and Berkeley. May be repeated for credit with the consent of the instructor.

Mr. Donnellan

214. Hume.
Prerequisite: consent of the instructor. Selected topics in the philosophy of Hume. May be repeated for credit with the consent of the instructor.

Mr. Quinn

215. Kant.
(Formerly numbered 207.) Prerequisite: consent of the instructor. An intensive study of selected writings of Immanuel Kant.

Mr. Hill

216. Nineteenth Century Philosophy.
(Formerly numbered 211.) Prerequisite: consent of the instructor. Topics in nineteenth century philosophy.

The Staff

219. Seminar: History of Modern Philosophy.
(Formerly numberd 251C.) Prerequisite: consent of the instructor. Selected problems and philosophers.

The Staff

GROUP II

M221A-221B-221C. Set Theory.
(Same as Mathematics M221A-221B-221C.) Prerequisite: Mathematics 112A or course 134 or consent of the instructor. Students may not receive credit for both Mathematics M221A-221B-221C and Philosophy M221A-221B-221C. Sets, relations, functions. Partial and total orderings; well-orderings. Ordinal and cardinal arithmetic, finiteness and infinity, the continuum hypothesis, inaccessible numbers. Formalization of set theory. Zermelo-Fraenkel Theory, von Neumann-Gödel Theory. Constructability. Results on relative consistency and independence.

Mr. Chang, Mr. Kalish

222A-222B-222C. Gödel Theory.
222A. Prerequisites: several courses in logic, preferably including course 135. First in a series of three courses leading up to Gödel's incompleteness theorem and Tarski's definition of truth.
222B. Prerequisite: course 222A. Second-order arithmetic. Second in a series of three courses leading up to Gödel's incompleteness theorem and Tarski's definition of truth.
222C. Prerequisites: courses 222A and 222B. Gödel numbering and Gödel theory. Final course in the Gödel Theory series.

Mr. Church

224. Philosophy of Physics.
Prerequisite: consent of the instructor. Selected philosophical topics related to physical theory, depending on interests and background of the participants. Might include: space and time; observation in quantum mechanics; foundations of statistical mechanics.

225. Probability and Inductive Logic.
Prerequisite: course 134 or Mathematics 112A-112B or consent of the instructor.

226. Topics in Mathematical Logic.
Prerequisite: consent of the instructor. Content will vary from quarter to quarter. Consult the department for topic to be treated in a given quarter. May be repeated for credit with the consent of the instructor.

Mr. Kalish, Mr. Kaplan

227. Philosophy of Social Science.
Prerequisite: consent of the instructor. An examination of philosophical problems concerning concepts and methods used in the social sciences. Topics considered may include: the relation between social processes and individual psychology, the logic of explanation in the social sciences, determinism and spontaneity in history, the interpretation of cultures radically different from one's own. Students with a primary interest, and advanced preparation, in a social science are encouraged to enroll.

The Staff

230. Seminar: Logic.
(Formerly numbered 261.) Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor.

Mr. Church, Mr. Kaplan

231. Seminar: Intensional Logic.
(Formerly numbered 260.) Prerequisite: consent of the instructor. Topics may include the logic of sense and denotation, modal logic, the logic of demonstratives, epistemic logic, the intensional logic of *Principia Mathematica,* possible worlds semantics. May be repeated for credit with the consent of the instructor.

Mr. Church, Mr. Kaplan

233. Seminar: Philosophy of Physics.
(Formerly numbered 263.) Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor.

The Staff

GROUP III

241. Topics in Political Philosophy.
(Formerly numbered 236.) Prerequisites: courses 150, 156, or 157; or any two courses in philosophy; or consent of the instructor. An examination of one or more topics in political philosophy; e.g., justice, democracy, human rights, political obligation, alienation.

Mr. Boxill

245. Seminar: History of Ethics.
(Formerly numbered 270.) Prerequisite: consent of the instructor. Selected topics.

Mr. Hill

246. Seminar: Ethical Theory.
(Formerly numbered 271.) Prerequisite: consent of the instructor. Selected topics. Content will vary from quarter to quarter. May be repeated for credit with the consent of the instructor.

Mr. Hill, Mr. Kavka, Mr. Quinn

247. Seminar: Political Theory.
(Formerly numbered 272.) Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor.

Mr. Boxill, Mr. Kavka

248. Problems in Moral Philosophy.
(Formerly numbered 273.) Prerequisite: consent of the instructor. An intensive study of some leading current problems in moral philosophy. May be repeated for credit with the consent of the instructor.

Mrs. Foot

255. Seminar: Aesthetic Theory.
(Formerly numbered 277.) Prerequisite: consent of the instructor. Selected topics. May be repeated for credit with the consent of the instructor.

Mr. Quinn

256. Topics in Legal Philosophy.
(Formerly numbered 276A-276B.) Prerequisite: consent of the instructor. An examination of topics such as the concept of law, the nature of justice, problems of punishments, legal reasoning, and the obligation to obey the law. For the specific topic to be examined in any particular offering of the course consult the instructor. The course may be repeated for credit with the consent of the instructor.

Mr. Morris, Mr. Wasserstrom

257. Seminar: Philosophy of Law.
(Formerly numbered 275.) Prerequisite: consent of the instructor. Selected topics in the philosophy of law. May be repeated for credit with the consent of the instructor.

Mr. Morris, Mr. Wasserstrom

GROUP IV

275. Human Action.
(Formerly numbered 241.) Prerequisites: two upper division philosophy courses or consent of the instructor. An examination of theories, concepts and problems concerning human actions. Topics might include: analysis of intentional actions: determinism and freedom; the nature of explanations of intentional actions.
Mr. Albritton, Mr. Donnellan

280. Seminar: Phenomenology.
Prerequisite: consent of the instructor.

282. Seminar: Metaphysics.
Prerequisite: consent of the instructor.

283. Seminar: Theory of Knowledge.
Prerequisite: consent of the instructor.
Mr. Donnellan, Mr. Yost

284. Seminar: Philosophy of Perception.
Prerequisite: consent of the instructor.
Mr. Yost

286. Philosophy of Psychology.
Relevance of computer simulation to accounts of thinking and meaning; relations between semantical theory and learning theory; psychological aspects of the theory of syntax; behaviorism, functionalism and alternatives; physiology and psychology.
Mr. Burge

287. Seminar: Philosophy of Language.
Prerequisite: consent of the instructor.
Mr. Burge, Mr. Donnellan, Mr. Furth

288. Seminar: Wittgenstein.
Prerequisite: consent of the instructor.
Mr. Albritton

289. Seminar: Philosophy of Religion.
Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor.
Mr. Adams, Mrs. Adams, Mr. Albritton

Professional Course

495. Teaching of College Philosophy. (½ to 1 course)
Prerequisite: consent of the instructor. Seminars, workshops and apprentice teaching. Selected topics including evaluation scales, various teaching strategies and their effects, and other topics in college teaching. May be repeated for credit. Graded only on a satisfactory/unsatisfactory basis.
The Staff

Individual Study and Research

The courses in the 500 series do not apply toward the course requirement for the master's degree.

596A-596B. Directed Individual Studies. (½ to 2 courses)
Any properly qualified graduate student who wishes to pursue a problem through reading or advanced study may do so if his proposed project is acceptable to a member of the staff. May be repeated for credit. Course 596A offered only on a graded basis; 596B only on a satisfactory/unsatisfactory basis.
The Staff

599. Research for Doctoral Dissertation. (½ to 2 courses)
Prerequisite: advancement to candidacy for the doctoral degree. May be repeated for credit. Offered on a satisfactory/unsatisfactory basis only.
The Staff

■ PHYSICS

(Department Office, 3174 Knudsen Hall)

Ernest S. Abers, Ph.D., *Professor of Physics.*
Rubin Braunstein, Ph.D., *Professor of Physics.*
Nina Byers, Ph.D., *Professor of Physics.*
Marvin Chester, Ph.D., *Professor of Physics.*
W. Gilbert Clark, Ph.D., *Professor of Physics.*
John M. Cornwall, Ph.D., *Professor of Physics.*
John Dawson, Ph.D., *Professor of Physics.*
Robert J. Finkelstein, Ph.D., *Professor of Physics.*
A. Theodore Forrester, Ph.D., *Professor of Physics and Engineering.*
Burton Fried, Ph.D., *Professor of Physics.*
Christian Fronsdal, Ph.D., *Professor of Physics.*
Roy P. Haddock, Ph.D., *Professor of Physics.*
Theodore Holstein, Ph.D., *Professor of Physics.*
George J. Igo, Ph.D., *Professor of Physics.*
Charles Kennel, Ph.D., *Professor of Physics.*
**Leon Knopoff, Ph.D., *Professor of Physics and Geophysics.*
Kenneth R. MacKenzie, Ph.D., *Professor of Physics (Chairman of the Department).*
Steven A. Moszkowski, Ph.D., *Professor of Physics.*
Bernard M. K. Nefkens, Ph.D., *Professor of Physics.*
Richard E. Norton, Ph.D., *Professor of Physics.*
Raymond L. Orbach, Ph.D., *Professor of Physics.*
Philip A. Pincus, Ph.D., *Professor of Physics.*
J. Reginald Richardson, Ph.D., *Professor of Physics.*
Isadore Rudnick, Ph.D., *Professor of Physics.*
J. J. Sakurai, Ph.D., *Professor of Physics.*
Robert A. Satten, Ph.D., *Professor of Physics.*
David S. Saxon, Ph.D., *Professor of Physics.*
Peter Schlein, Ph.D., *Professor of Physics.*
Julian Schwinger, Ph.D., *Professor of Physics.*
William E. Slater, Ph.D., *Professor of Physics.*
Donald H. Stork, Ph.D., *Professor of Physics.*
Harold K. Ticho, Ph.D., *Professor of Physics.*
Alfred Y. Wong, Ph.D., *Professor of Physics.*
Chun Wa Wong, Ph.D., *Professor of Physics.*
Eugene Wong, Ph.D., *Professor of Physics.*
Byron T. Wright, Ph.D., *Professor of Physics.*
Alfredo Baños, Jr., Dr.Eng., Ph.D., *Emeritus Professor of Physics.*
Hans E. Bommel, Ph.D., *Emeritus Professor of Physics.*
Joseph Kaplan, Ph.D., Sc.D., L.H.D., *Emeritus Professor of Physics.*
Norman A. Watson, Ph.D., *Emeritus Professor of Physics.*
Charles D. Buchanan, Ph.D., *Associate Professor of Physics.*
Ferdinard V. Coroniti, Ph.D., *Associate Professor of Physics and Geophysics.*
Seth J. Putterman, Ph.D., *Associate Professor of Physics.*
Charles A. Whitten, Jr. Ph.D., *Associate Professor of Physics.*
Paul M. Chaikin, Ph.D., *Assistant Professor of Physics.*
Gary A. Williams, Ph.D., *Assistant Professor of Physics.*

♦

S. Merton Burkhard, M.S., *Lecturer in Physics.*

Preparation for the Major in Physics

Required: Physics 8A-8E; Chemistry 1A-1B-1C; Mathematics 31A-31B-31C, 32A-32B-32C.

The Major in Physics‡

The following courses are required: Physics 105A, 105B, 110A, 110B, 112A, 115A, 115B, 131A, three courses from the Physics 180 series; three additional upper division physics lecture courses selected from Physics 108, 112B, 114, 122, 123, 124, 126, 131B and 140. An upper division course in Mathematics may be substituted for Physics 131B *upon approval of an adviser.* A "C" average is required in the above courses. A reading knowledge of Russian, German or French is recommended. This major leads to the Bachelor of Science degree.

Students preparing for graduate school should take additional courses in physics and mathematics. Physics 122, 123, 124, 126, and 140 are recommended.

The Major in General Physics

This major leads to the degree "B.A. in General Physics." It is intended to provide the necessary flexibility for those students who are interested in fields which can benefit from a strong background of knowledge of physics. Those students who intend to continue work in the Ph.D. in physics are advised to work for the B.S. in physics as described under the "Major in Physics." The course requirements for the B.A. in General Physics are as follows: Physics 105A, 110A, 110B, 112A, 115A, 131A, one course from the 180 series, two upper division physics electives (excluding 185, and 199), and five upper division courses in no more than two departments other than physics. A "C" average in the upper division physics courses is required.

**Member of the Institute of Geophysics and Planetary Physics.

‡A mimeographed brochure giving more detailed information than is contained in this bulletin is obtainable from the Office of Undergraduate Affairs, Department of Physics.

Requirements for the Standard Secondary Credential

For the Requirements, consult the UCLA ANNOUNCEMENT OF THE GRADUATE SCHOOL OF EDUCATION.

Requirements for the Degree of Master of Science§

Prescribed Courses. The University requires a total of nine courses for the M.S. degree. The Physics Department requires that a minimum of six of the nine be graduate courses in physics of which the student must pass any four of the five fundamental courses: 231A, 220, 210A, 215A, and 221A. The remaining three courses may be satisfied by upper division or graduate courses, not necessarily in physics, which are acceptable to the Physics Department. No more than two of the three courses may be chosen from Physics 596 or seminar courses. Physics 597 and Physics 598 are not acceptable courses for the M.S. degree.

Comprehensive Examination. A passing grade on a written comprehensive examination is required. It is required that it be taken during the first year by UCLA graduates in physics or not later than the fourth quarter of residence by other students. This examination is given twice a year in the Fall and Spring Quarters.

Although this Department operates under the "comprehensive examination plan," rather than the "thesis plan," arrangements generally can be made for a student to write a master's thesis, provided he has a particularly interesting research problem, and provided some professor is willing to undertake the guidance of his work. In this case the student must petition the Departmental Committee of Graduate Advisers for permission to pursue the "thesis plan." The comprehensive examination requirement is waived if the petition is approved.

Scholarship Requirements. A B average is required in physics as well as an overall B average in all courses taken in graduate status.

The Master of Arts, Teaching (M.A.T.) Degree

This degree leads to qualification for teaching credentials at the secondary school or junior college level. The program consists of at least five graduate physics courses, four of which are chosen from 231A, 220, 215A, 210A, or 221A; five additional graduate or upper division courses in physics and education; and a special physics teaching laboratory, Physics 370. For those who have not completed credential requirements, the five additional courses will include Education 100 or 112, 124, 130, and 330 (supervised teaching at the secondary or junior college level). In addition, the student must pass a comprehensive physics examination. A brochure which describes the program is available on request to the Department of Physics.

Requirements for the Degree of Doctor of Philosophy§

For the general requirements see the Graduate Division. The qualifying examinations for candidates for the Ph.D. degree in physics include (1) a written comprehensive examination; (2) the final written examinations in each of the courses 220, 210A, 221A, 215A, and 231A; (3) a comprehensive departmental oral examination; and (4) a qualifying oral examination in the student's chosen field conducted by a committee appointed by the Graduate Council upon nomination by the Department Chairman. The same committee guides the candidate's research, approves his dissertation, and conducts a final examination.

Normal Progress for Graduate Students. The normal schedule of progress toward the Ph.D. degree is as follows: the written comprehensive examination should be taken by the fourth quarter in residence at UCLA; examinations in the five fundamental courses should be completed no later than the end of the fifth quarter; a specialized course of study should begin during the second year; the comprehensive oral examination should be completed no later than the eighth quarter, and the oral qualifying examination (advancement to candidacy) no later than the end of the eleventh quarter; the dissertation and final oral examination should be finished during the fourth and fifth years.

Lower Division Courses

Physics 1Q, Contemporary Physics, is intended for entering freshmen physics majors, and will normally be taken in the first quarter of residence. There are no course prerequisites. Although it is not a required course or a part of or prerequisite to any general physics sequence of courses, it serves a purpose which general introductory courses do not fulfill adequately, if at all, namely to indicate the nature of current research problems in physics.

Physics 8A-8E form a sequence of courses in general physics for majors in physics. All or part of the sequence is also required or recommended as first choice for major students in: astronomy, chemistry, engineering, geology, mathematics, meteorology, and certain interdepartmental fields of concentration. Physics 8A-8E covers (at a slower pace) the material formerly covered in 7A-7D.

Physics 8AH-8DH is an honors sequence intended for students with an outstanding record in high school science courses and a deep interest in physics. This sequence covers the same material as the Physics 8A-8D sequence but in greater depth.

The Department desires to take into account prior preparation in physics. Students who feel their background would permit acceleration may be exempted from courses 8A-8E, by taking the final examination with a class at the end of any quarter. These will serve as placement examinations. Qualified students are urged to discuss such possibilities with their advisers.

Physics 3A-3B-3C form a one-year sequence of courses in general physics (with laboratory) primarily for students in the biological and health sciences but open to any student who meets the prerequisites. In this sequence only algebra and trigonometry are used in providing a mathematical description of physical phenomena: calculus is not used.

Physics 6A-6B-6C form a one-year sequence of courses in basic physics for students in the biological and health sciences. However, unlike Physics 3A-3B-3C, calculus is used throughout and satisfactory completion of basic calculus courses is a prerequisite for admission to this sequence. Individual departments will, on an individual basis, advise students as to which physics sequence is required for each major. After an interim period, it is expected that all biology and bacteriology majors will be required to complete the physics 6A-6B-6C sequence.

Physics 10 is a one-quarter, non-laboratory course which surveys the whole field of physics. It is designed for the liberal arts student and satisfies in part the College of Letters and Science E requirement in the Physical Sciences for non-physical science majors. Any two or more courses from Physics 10, 3A, 6A, and 8A shall be limited to six units credit.

Lower Division Courses

1Q. Contemporary Physics. (½ course)

Prerequisite: a major in physics. A review of current problems in physics with emphasis on those being studied in our research laboratories at UCLA. The significance of the problems and their historical context.

3A. General Physics: Mechanics of Solids and Fluids.

Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: three years of high school mathematics including trigonometry, or two years of high school mathematics and a one-term college course in mathematics with trigonometry included in the group of courses; or the equivalent courses. Physics 3A is not open for credit to students who have credit for Physics 8A or the equivalent. The fundamentals of classical methanics: Newton's Laws; conservation of momentum, angular momentum, energy; Kepler's Laws; dynamics of systems of particles; fluid mechanics.

3B. General Physics: Heat, Sound and Electricity and Magnetism.

Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: course 3A or equivalent. Temperature, heat and the laws of thermodynamics. Introduction to wave motion, resonance. Sound and acoustics. Electric and magnetic fields. Electric power. Elements of DC and AC circuits.

3C. General Physics: Light, Relativity, and Modern Physics.

Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: course 3B or equivalent. Light, optical instruments. Introduction to relativity. The electron and the atom. Matter waves. Nuclear and particle physics.

6A. Physics for Life Science Majors: Mechanics and Wave Motion.

Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: Mathematics 3A, 3B and 3C or the equivalent. Mathematics 3C may be taken concurrently.

6B. Physics for Life Science Majors: Electricity and Magnetism.

Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: Physics 6A.

6C. Physics for Life Science Majors: Thermodynamics, Light and Modern Physics.

Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: course 6B.

8A. General Physics: Mechanics of Solids.

(Formerly numbered 7A.) Lecture and demonstration, four hours; discussion, one hour. Prerequisites:

§A brochure giving additional information of interest to graduate students in physics is obtainable from the Office of Graduate Affairs, Department of Physics.

high school physics or chemistry, preferably both; Mathematics 31A completed and 31B concurrent with Physics 8A; or equivalent courses.

8AH. General Physics: Mechanics of Solids-Honors Sequence.

Lecture and demonstration, four hours; discussion, one hour. This course, intended for students with an outstanding record in high school science courses and a deep interest in physics, covers the same material as Physics 8A but in greater depth. Prerequisites: Mathematics 31A (or preferably 31AH) completed and 31B (or preferably 31BH) concurrent with Physics 8AH; or equivalent courses. Enrollment in Physics 8AH rather than 8A is left to the judgment of the student. In case of doubt, consult the instructor scheduled to give the course.

8B. General Physics: Vibration, Wave Motion, Sound, Fluids, Heat, and Kinetic Theory.

(Formerly numbered 7C.) Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisites: course 8A; Mathematics 31B completed and 31C concurrent with Physics 8B; or equivalent courses.

8BH. General Physics: Vibration, Wave Motion, Sound, Fluids, Heat, and Kinetic Theory-Honors Sequence.

Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. This course covers the same material as 8B but in greater depth. Prerequisites: course 8AH, or course 8A with a grade of A, or the recommendation of the 8A instructor; Mathematics 31B (or preferably 31BH) completed and 31C (or preferably 31CH) concurrent with 8BH; or equivalent courses.

8C. General Physics: Electricity and Magnetism.

(Formerly numbered 7B.) Lecture and demonstration, four hours; discussion, one hour; laboratory, two hours. Prerequisites: course 8B; Mathematics 31A completed and 32A concurrent with Physics 8C.

8CH. General Physics: Electricity and Magnetism—Honors Sequence.

Lecture and demonstration, four hours; discussion, one hour; laboratory, two hours. Prerequisites: course 8BH, or course 8B with a grade of A, or the recommendation of the 8B instructor; Mathematics 31C (or preferably 31CH) completed and 32A (or preferably 32AH) concurrent with Physics 8CH; or consent of the instructor.

8D. General Physics: Electromagnetic Waves, Light, and Relativity.

(Formerly numbered 7D.) Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisites: course 8C; Mathematics 32A completed and 32B concurrent with Physics 8D; or equivalent courses.

8DH. General Physics: Electromagnetic Waves, Light, and Relativity— Honors Sequence.

Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. This course covers the same material as 8D but in greater depth. Prerequisites: course 8CH, or course 8C with a grade of A, or the recommendation of the 8C instructor; Mathematics 32A (or preferably 32AH completed and 32B (or preferably 32BH) concurrent with 8DH; or the consent of the instructor.

8E. General Physics: Modern Physics.

Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisites: course 8 D; Mathematics 32B completed and 32C concurrent with Physics 8E; or equivalent courses.

10. Physics.

Lecture and demonstration, three hours; quiz and discussion, one hour. No special mathematical preparation is required. This course satisfies in part the College of Letters and Science requirements in the physical sciences for non-physical science majors. Topics will be selected from: Planetary motion, Newton's Laws, gravitation, electricity and magnetism, wave motion, light, sound and heat, relativity, quantum mechanics, atoms, and subatomic particles. As time permits, the development of physical ideas will be placed in their cultural and historical perspective.

11. Modern Physics for Non-Science Majors.

Prerequisite: course 10. A sequel to course 10. Lecture and demonstration, three hours; quiz and discussion one hour. Topics will be selected from: the concept of energy, quantum theory, nuclear physics, relativity.

Upper Division Courses

Prerequisite for all upper division courses: Physics 8A 8E; Mathematics 31A-31B-31C, 32A-32B, and (except for Physics 105A and 116) 32C; or consent of the instructor. Students must complete one quarter of upper division physics before enrolling in the 180 laboratory series.

105A. Analytic Mechanics.

Newtonian mechanics and conservation laws, gravitational potentials, calculus of variations, Lagrangian and Hamiltonian mechanics, central force motion, linear oscillations.

105B. Analytic Mechanics.

Prerequisite: course 105A. Relativity with four-vectors, non-intertial reference frames, dynamics of rigid bodies, coupled oscillators, normal modes of oscillation, vibrating strings, and wave propagation.

108. Physical Optics.

Prerequisite: courses 110B and 131A. Interference, diffraction, dispersion, molecular scattering, absorption of radiation. Anisotropic media; crystal optics, optical activity, Faraday and Kerr effects. Non-linear optics. Theory of spectral line width. Coherence and partial coherence.

110A. Electricity and Magnetism.

Prerequisite: course 131A. Electrostatics and magnetostatics.

110B. Electricity and Magnetism.

Prerequisite: course 110A. Faraday's law and Maxwell's equations. Propagation of electromagnetic radiation. Multipole radiation and radiation from an accelerated charge. The special theory of relativity.

112A. Thermodynamics.

Fundamentals of thermodynamics including the first, second, and third laws. The statistical mechanical point of view and its relation to thermodynamics. Some simple applications of the foregoing.

‡112B. Thermodynamics.

Applications of thermodynamics and statistical mechanics to particular systems.

114. Mechanics of Wave Motion and Sound.

Vibrating systems and wave propagation in gases, liquids and solids including elements of hydrodynamics and elasticity. Applications in ultrasonics, low temperature physics, solid state physics, architectural acoustics.

115A. Elementary Quantum Mechanics.

Prerequisite: course 131A and 105B (the latter may be taken concurrently). The classical background, basic ideas and methods of quantum mechanics.

115B. Elementary Quantum Mechanics.

Prerequisite: course 115A. Development of the methods and concepts of quantum mechanics.

116. Electronics.

Three hours of lecture and three hours of laboratory. Alternating current circuits, vacuum tube characteristics and parameters, transistor characteristics and parameters, amplifiers, oscillators, non-linear tube and transistor circuits.

M122. Plasma Physics.

(Same as Engineering M118). Prerequisite: course 100B for Engineering students only; or course 110A. Atomic processes and particle motions; equilibrium and shielding; fluid and kinetic descriptions; transport properties; m waves and instabilities; electromagnetic interaction. Production, confinement, heating and diagnostics. Application to fusion and space.

123. Atomic Structure.

(Formerly numbered 113.) Prerequisite: course 115B. The theory of atomic structure. Interaction of radiation with matter.

124. Nuclear Physics.

Prerequisite: course 115A. Nuclear charge, mass, radius, spin, and moments; nuclear models; nuclear forces; alpha, beta, and gamma emission.

126. Elementary Particle Physics.

Prerequisite: course 115B. Experimental determination of the properties of elementary particle states. Relativistic kinematics and phase space; angular momentum and isotopic spin formalism; elastic and inelastic scattering; invariance principles and conservation laws; strong, electromagnetic, and weak interactions. Survey of important experiments.

131A. Mathematical Methods of Physics.

Matrix algebra and eigenvalue problems, vector differential operators and curvilinear coordinates, ordinary and partial differential equations, special functions, Sturm-Liouville Problem, Fourier series and integrals.

131B. Mathematical Methods of Physics.

Prerequisite: course 131A. Green's functions and boundary value problems, complex variables and selected topics from: Tensors, Laplace transforms, probability theory, perturbation theory, approximation techniques.

140. Introduction to Solid State Physics.

Prerequisite: course 115B or equivalent. Introduction to the basic theoretical concepts of solid state physics with applications. Crystal symmetry; cohesive energy; diffraction of electron, neutron, and electromagnetic waves in a lattice; the reciprocal lattice; phonons and their interactions; free electron theory of metals; energy bands.

‡Enrollment is limited and controlled. For details consult the Office of Undergraduate Affairs.

‡180A. Nuclear Physics Laboratory.

‡180B. Physical Optics and Spectroscopy Laboratory.

‡180C. Solid State Physics Laboratory.

‡180D. Acoustics Laboratory.

‡180E. Plasma Physics Laboratory.

‡180F. Elementary Particle Physics Laboratory.

†185. Foundations of Physics.
Prerequisite: senior standing in physics or consent of the instructor. The historical development and philosophical sources of classical and modern physics.

199. Special Studies in Physics. (½ to 1 course)
May be repeated, but not more than three courses may be applied toward the bachelor's degree.

Graduate Courses

210A. Electromagnetic Theory.
Boundary value problems in electrostatics and magnetostatics. Multipole expansions; dielectrics and macroscopic media. Maxwell's equations and conservation laws. Wave guides and resonators; simple radiating systems.

210B. Electromagnetic Theory.
The electromagnetic potentials and the Hertz vectors. Cylindrical waves. Spherical waves. The Debye potentials. Multipole radiation. Classical relativistic electrodynamics. Radiation from moving charges.

†213A. Advanced Atomic Structure.
Group representation theory. Angular momentum and coupling schemes. Interaction of radiation with matter.

†213B. Advanced Atomic Structure.
The n-j symbols, continuous groups, fractional parentage coefficients, n electron systems.

†213C. Molecular Structure.
Application of group theory to vibrational and electronic states of molecules. Molecular orbital theory. Raman effect. Angular momentum and coupling in molecules.

†214A. Advanced Acoustics.
Propagation of waves in elastic and fluid media. Reflection, refraction, diffraction, and scattering of waves in fluids. Attenuation mechanisms in fluids.

†214B. Advanced Acoustics.
Propagation in nonhomogeneous fluids and in moving fluids. Radiation pressure, acoustic streaming, and attenuation in large amplitude sound fields. Propagation of sound in liquid helium. Mechanisms resulting in attenuation for elastic waves in solids.

215A. Statistical Physics.
Thermodynamics and statistical mechanics with applications.

215B. Nonequilibrium Statistical Mechanics.
Probability theory, Markov processes, equations of change, BBGKY hierarchy and its consequences, Boltzmann equation, Chapman-Enskog method, transport coefficients, fluctuation-dissipation theorems, density matrix, H-theorems.

215C. Quantum Statistical Mechanics and the Many Body Problem.
Classical methods for interacting systems; quantum field theory techniques in statistical mechanics; Green's-function approach; the Coulomb gas; the imperfect Bose gas; electron-phonon interaction; superconductivity; phase transitions; theory of Fermi liquid.

220. Foundations of Classical and Quantum Mechanics.
(Formerly numbered 220A.) An integrated presentation of the foundations of classical and quantum mechanics.

221A. Quantum Mechanics with Applications.
Prerequisite: course 220 or consent of the instructor. Quantum Mechanics with applications. Rotations and other symmetry operations, perturbation theory, scattering theory.

221B. Quantum Mechanics with Applications.
Prerequisite: course 221A. Formal theory of collision processes. Introduction to relativistic quantum mechanics.

221C. Quantum Mechanics.
Continuation of nonrelativistic quantum mechanics.

222A-222B-222C. Plasma Physics.
Properties of a Coulomb gas, with and without a magnetic field: equilibrium, oscillations, instabilities, fluctuations, collective phenomena, transport properties, and radiation. Description via single-particle orbit theory, magnetohydrodynamics, and kinetic equations of various types.

†223. Advanced Classical Mechanics.
(Formerly numbered 220B.) Prerequisite: course 220. Topics such as nonlinear mechanics, ergodic theory, mechanics of continuous media.

224. Introduction to the Strong Interaction.
Evidence concerning the strong interaction, particularly as exemplified in nucleon-nucleon and pion-nucleon systems. Isospin, the scattering matrix, the density matrix and polarization, the properties of pions, the one pion exchange potential, phase shift analysis.

225A. Advanced Nuclear Physics.
An advanced course in the structure of complex nuclei, nuclear models, and nuclear reactions. Normally preceded by course 224.

225B. Advanced Nuclear Physics.
Nuclear beta decay, neutrino experiments, parity violation, conserved vector current theory, interaction between nucleons and the electromagnetic field.

226A. Elementary Particle Physics.
Prerequisite: courses 221B and 224. Relativistic kinematics and phase space calculations: S-matrix theory, cross-section and decay-rate calculations; C,P,T invariance; survey of elementary particles, determination of quantum numbers, higher symmetries; inelastic scattering and K-matrix theory; low energy scattering experiments, peripheral model; nonleptonic decays.

226B. Elementary Particle Physics.
Review of Feynman rules, nucleon form factors; gamma decay; universal Fermi interaction, nucleon and muon decay, muon capture nonconservation of parity; survey of nonleptonic and leptonic decays of baryons and mesons, the KK system; conserved vector current theory, SU(3) and weak interactions; high energy scattering.

230A-230B-230C. Relativistic Quantum Theory.
Quantum electrodynamics, general quantum field theory, S-matrix theory.

231A. Methods of Mathematical Physics.
Students may not receive credit for both Physics 231A and Mathematics 266A. Linear operators, review of functions of a complex variable, integral transforms, partial differential equations.

231B. Methods of Mathematical Physics.
Students may not receive credit for both Physics 231B and Mathematics 266B. Ordinary differential equations, partial differential equations, and integral equations. Calculus of variations.

231C. Methods of Mathematical Physics.
Students may not receive credit for both Physics 231C and Mathematics 266C. Perturbation theory. Singular intergral equations. Numerical methods.

†232. Relativity.
The special and general theories with applications to elementary particles and astrophysics.

235. Group Theory and Quantum Mechanics.
Prerequisite: course 221A. Group representation theory and applications to the quantum mechanics of atoms, molecules, and solids.

240A. Solid State Physics.
Prerequisite: course 140. Phenomena of solid state physics. Semiconductors, magnetism and magnetic resonance, the Mossbauer effect, superconductivity.

240B. Solid State Physics.
Prerequisite: course 140. Phenomena of solid state physics. Dielectric properties of solids, transport processes, optical phenomena in insulators, ferro-electricity, point defects, dislocations.

†241A. Solid State Theory.
Prerequisites: courses 215A, 221A and 140. Energy bands in solids, elementary excitations and their interactions.

†241B. Solid State Theory.
Prerequisite: course 241A. Transport theory, superconductivity.

†241C. Solid State Theory.
Prerequisite: course 241B. Collective effects in magnetism, introduction to many body effects in solids.

†242A-242B-242C. Advanced Solid State Theory.
Prerequisites: courses 241A-241B-241C (may be taken concurrently). Many body effects in solids.

‡Enrollment is limited and controlled. For details consult the Office of Undergraduate Affairs.

†Not to be given every year.

260. Seminar-Problems in Plasma Physics.

261. Seminar in Special Problems in Theoretical Physics.

262. Seminar in Physics of the Solid State.

264. Seminar in Advanced Physical Acoustics.

266. Seminar in Propagation of Waves in Fluids.

268. Seminar in Spectroscopy.

269A. Seminar in Nuclear Physics.

269B. Seminar in Elementary Particle Physics.

†284. Advanced Laboratory in Acoustics and Cryogenics.

Selected advanced experiments in acoustics and cryogenics designed to train the student in the techniques and instrumentation used in acoustic research and low temperature physics.

290. Research Tutorial in Plasma Physics.

Seminars and discussion by staff and students, directed toward problems of current research interest in the plasma physics group, both experimental and theoretical. Each graduate student doing research in plasma physics will be required to take three quarters of Physics 290, ordinarily during his second or third year.

291. Research Tutorial in Elementary Particle Theory.

Prerequisite: courses 226A, 230A, and 230B. Seminars and discussion by staff, postdoctoral fellows, and graduate students enrolled in this course. Each graduate student doing research in elementary particle theory is required to take this course, ordinarily in his second or third year of study. May be repeated for credit.

292. Research Tutorial in Spectroscopy, Low Temperature, and Solid State Physics.

Seminars and discussion by staff and students on problems of current research interest in spectroscopy, low temperature, and solid state physics. Each graduate student doing research in these fields is required to take this course, ordinarily during his second or third year. May be repeated for credit.

295. Research Tutorial in Solid Earth Physics.

Seminars and discussions in solid earth physics. Each physics graduate student doing research in solid-earth physics is required to take this course, or Physics 292 if appropriate, ordinarily in his second or third year of study. May be repeated for credit.

298. Research Tutorial in Experimental Elementary Particle Physics.

Seminars and discussions by staff and students on current problems in experimental elementary particle physics. Each graduate student doing research in this field is required to take this course students, ordinarily during his second or third year. May be repeated for credit. Enrollment limited to six students.

299. Research Tutorial in Nuclear Physics.

Seminars and discussions in nuclear physics by staff and students, in both experiment and theory. Each graduate student doing research in nuclear physics is required to take this course, ordinarily during his second or third year. May be repeated for credit.

Professional Course in Method

370. The Teaching of Physics.

Prerequisite: consent of the instructor. A study of the physics laboratory experiments and demonstrations available today for secondary school and community college physics courses. This course is part of the Master of Arts, Teaching (M.A.T.) program, but is open to other interested students also.

Individual Study and Research

501. Cooperative Program. (½ to 2 courses)

Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be Graded S/U.

596. Directed Individual Studies. (½ to 2 courses)

597. Preparation for Master's Comprehensive Examinations and Doctoral Qualifying Examinations.

598. Master's Thesis Research and Writing.

599. Doctoral Research and Writing. (2 to 3 courses)

■ PHYSIOLOGY

(Department Office, 53-247 Center for the Health Sciences)

**Allan J. Brady, Ph.D., *Professor of Physiology.*

**Jennifer S. Buchwald, Ph.D., *Professor of Physiology and Psychiatry.*

**Sergio Ciani, Ph.D., *Professor of Physiology.*

**Jared M. Diamond, Ph.D., *Professor of Physiology.*

George Eisenman, M.D., *Professor of Physiology.*

**Susumu Hagiwara, M.D., Ph.D., *Professor of Physiology.*

Glenn A. Langer, M.D., *Professor of Physiology and Medicine (Vice Chairman of the Department).*

**Wilfried F. H. M. Mommaerts, Ph.D., *Professor of Physiology and Medicine (Chairman of the Department).*

Gordon Ross, M.D., *Professor of Physiology and Medicine.*

**Ralph R. Sonnenschein, M.D., Ph.D., *Professor of Physiology (Vice Chairman of the Department).*

**Bernice M. Wenzel, Ph.D., *Professor of Physiology and Psychiatry.*

Fred N. White, Ph.D., *Professor of Physiology.*

**Ernest M. Wright, Ph.D., *Professor of Physiology.*

**Victor E. Hall, M.D., *Emeritus Professor of Physiology.*

Donald B. Lindsley, Ph.D., *Emeritus Professor of Physiology and Psychology.*

**Michael H. Chase, Ph.D., *Associate Professor of Physiology in Residence.*

**Earl Homsher, Ph.D., *Associate Professor of Physiology.*

John McD. Tormey, M.D., *Associate Professor of Physiology.*

**Donald O. Walter, Ph.D., *Adjunct Associate Professor of Physiology and Anatomy.*

Sally Krasne, Ph.D., *Assistant Professor of Physiology.*

Michael S. Letinsky, Ph.D., *Assistant Professor of Physiology.*

Charles J.C. Kean, Ph.D., *Adjunct Assistant Professor of Physiology.*

Paul M. Quinton, Ph.D., *Assistant Professor of Physiology and Medicine in Residence.*

♦

W. Ross Adey, M.D., *Professor of Anatomy and Physiology.*

Alan D. Grinnell, Ph.D., *Professor of Biology and Physiology.*

Morton I. Grossman, M.D., Ph.D., *Professor of Medicine and Physiology.*

William D. Odell, M.D., Ph.D., *Professor of Medicine and Physiology in Residence.*

Daniel H. Simmons, M.D., Ph.D, *Professor of Medicine and Physiology.*

Maria W. Seraydarian, Ph.D., *Professor of Nursing.*

♦

Henry L. Batsel, Ph.D., *Lecturer in Physiology.*

**Mary A. B. Brazier, Ph.D., D.Sc., *Emeritus Professor of Anatomy and Physiology in Residence.*

John Field, Ph.D., *Emeritus Professor of Medical History and Physiology.*

**Douglas Junge, Ph.D., *Associate Professor of Oral Biology and Physiology.*

Judith M. Metzger, Ph.D., *Assistant Professor of Nuclear Medicine and Radiation Biology and Physiology in Residence.*

**Eduardo H. Rubinstein, M.D., Ph.D., *Associate Professor of Anesthesiology and Physiology in Residence.*

William K. Stell, M.D., Ph.D., *Associate Professor of Ophthalmology.*

Brian Whipp, Ph.D., *Associate Professor of Physiology and Medicine in Residence.*

**Charles D. Woody, M.D., *Associate Professor of Physiology, Anatomy and Psychiatry in Residence.*

Admission to Graduate Status

Candidates for admission to graduate status in the Department of Physiology must conform to the general admission requirements set by the Graduate Division and have received the bache-

†Not to be given every year.

**Member of the Brain Research Institute

lor's degree in a biological or physical science or in the premedical curriculum. Candidates must also submit to the Department the scores achieved on the Graduate Record Examination (both the Aptitude Test and the Advanced Test). In general, at the time of admission, students must have completed courses in mathematics through calculus (equivalent to Mathematics 11A-11B-11C). Ideal course preparation for graduate study in the Department should also include 12 quarter units of physics, 16 quarter units of chemistry (including quantitative analysis, physical and organic chemistry), and 16 quarter units of biology or zoology (including comparative vertebrate anatomy) and 4-8 quarter units of Basic electrical circuit theory. In certain cases, at the discretion of the Department, students lacking some of this preparation but with a strong background in areas pertinent to physiology may be admitted to graduate status, provided that essential deficiencies are removed by appropriate courses within a specified time after admission.

Master of Science Degree

Students entering graduate study in the Department of Physiology will normally be expected to pursue the Ph.D. degree only. Exceptional cases may be considered for the Master of Science Degree. In those cases, candidates for the M.S. degree must meet the general requirements set by the Graduate Division for this degree. See the Graduate Division.

Requirements for the Doctor's Degree

General University Requirements. Candidates for the doctorate in physiology must conform to the general requirements set by the Graduate Division for this degree. See the Graduate Division.

Departmental Requirements. Course requirements ordinarily are: (1) Physiology 200 (2) Physical Chemistry 110A, 110B; (3) Physiology 101 (Neuromuscular and Cardiovascular Physiology); (4) Physiology 102 (Renal, Respiratory and Gastrointestinal Physiology); (5) Physiology 221, 222, 223 (Graduate Commentary); (6) Biological Chemistry 101A, 101B, and 101C or Chemistry 153 (Biochemistry); (7) Biology 154 (Functional Ultrastructure of Cells); (8) Physiology 213 (Electrical Properties of Cells).

At the completion of the first year of study students will normally take the Department Written Exam at which time the student will be 1) recommended for continuation of his studies toward the Ph.D. degree, 2) recommended for further remedial study or 3) terminated. Near the completion of the second year of study the student may elect to take a Departmental Oral exam (optional) or to waive this exam and proceed directly to the University Qualifying Oral Examination (mandatory) administered by the student's graduate committee.

The student should begin his research work as soon as he has completed his basic program and selected a sponsor.

Foreign Language Requirement. No foreign languages are required for the completion of the Ph.D. or M.S. degree. The time usually ascribed to language studies will be devoted to a more detailed preparation in physical sciences and mathematics.

Student's Responsibilities. Prospective candidates for the doctor's degree are responsible for completion of all technical requirements for this degree. Careful study should be made of the requirements set by the Graduate Division (see the Graduate Division).

Upper Division Courses

100. Elements of Human Physiology. (1½ courses)

Prerequisite: enrollment in School of Dentistry or consent of the instructor. Required course for first-year dental students. Lectures, laboratories, and demonstration-discussions concerning functional activities of the living body in terms of both cellular and systemic functions. Examples will be presented, where possible, on the basis of information relevant to oral function.

Mr. Homsher and the Staff

101. Neuromuscular and Cardiovascular Physiology. (1¾ courses)

Prerequisites: Basic courses in chemistry, physics, and biology, at least one year each; organic chemistry; histology; gross anatomy, human or comparative. Primarily for first year medical students, but open to others with consent of the instructor. Lectures, laboratory and conferences. An analysis of the electrical properties of muscle and nerve, the contractility of muscle and the heart, and the cardiovascular system and its regulation.

Mr. Tormey and the Staff

102. Renal, Respiratory and Gastrointestinal Physiology. (1½ courses)

Prerequisites: same as for course 101. Primarily for first year medical students but open to other students with consent of the instructor, Lectures, laboratory and conferences. A continuation of course 101, dealing with the respiration, and the distribution of water, electrolytes and metobolites by the renal and gastrointestinal systems, and the special physiology of certain organs.

Mr. Tormey and the Staff

103. Basic Neurology.

Lecture, four hours; discussion, one hour. Prerequisites: same as for course 101. A survey of the structure and function of the receptors, peripheral and central nervous system. Must be taken concurrently with Anatomy 103. Enrollment limited to medical students.

Ms. Bachwald

105N. Human Physiology.

Prerequisite: enrollment in the School of Nursing or consent of the instructor. Required course for third year nursing students. Lecture and discussion emphasizing a correlative approach to anatomy and physiology of the human body.

Ms. Seraydarian

199. Special Studies. (¼ to 2 courses)

Prerequisite: consent of the instructor. Special studies in physiology, including either reading assignments or laboratory work or both, designed for appropriate training of each student who registers in this course.

The Staff

Graduate Courses

200. Transport Phenomena in Membranes. (1½ courses)

Prerequisite: consent of instructor. The purpose of this introductory course is to provide a physical basis for the understanding of transport across biological membranes. A review of thermodynamic concepts will be followed by a discussion of simple model systems to illustrate basic permeation mechanisms. This will then be used as a background for a discussion of ions and non-electrolyte transport across natural membranes.

Mr. Ciani, Mr. Wright

202. Permeability of Biological Membranes to Ions. (1½ course)

Prerequisites: Chemistry 113B and 113C or the equivalent, or consent of the instructor. Topics include: ion permeation mechanisms, ion distribution, and physical basis of ion discrimination across cell membranes.

Mr. Diamond

203. Neurophysiology.

Prerequisite: same as for course 101. Advanced consideration of the physiology of sensory receptors and the peripheral and central nervous system.

Mr. Letinsky

204. Cardiovascular Physiology. (½ course)

Prerequisite: course 101 and consent of the instructor. Advanced consideration of special topics in the physiology of the circulatory system.

Mr. Sonnenschein

207. Neurophysiology.

Prerequisite: consent of the instructor. Seminar and laboratory course designed to acquaint the student with behavioral techniques and concepts relevant to research problems encountered in modern neurophysiology, and to consider means of integrating them with neurophysiological methods

The Staff

209. Mathematical Modeling of Physiological Systems. (¾ course)

Prerequisite: consent of the instructor. Mathematical analysis of neuronal systems, with emphasis on stochastic models of nervous activity.

Mr. Walter

210A-210B-210C. Basic Foundation in Endocrinology. (½ course each)

Prerequisites: courses 101, 102; Biological Chemistry 101A, 101B, and 101C or consent of the instructor. A consideration of recent advances in endocrinology. Biosynthesis, secretion, transport, action, metabolism and excretion of each of the hormones. Major emphasis on basic concepts of endocrine physiology with lesser emphasis on patho-physiology

Mr. Odell and the Staff

211A-211B-211C. Basic Foundation in Endocrinology. (½ course each)

Prerequisite: same as for courses 201A-201B-210C. In-depth seminar-lecture series on Endocrinology. Physiology 211 is a continuation of the Physiology 210 series, 210 and 211 are given on alternate years and the two courses do not have to be taken in sequence.

Mr. Odell and the staff

212A-212B-212C. Critical Topics in Physiology. (¼ course each)

Prerequisite: consent of the instructor. Advanced treatment of critical topics in physiology by staff and guest lecturers for graduate and postdoctoral students in the biomedical sciences.

The Staff

213. Electrical Properties of Cells. (1½ courses)

Prerequisite: consent of the instructor. Lectures and problems sets concerning circuit analysis of electrical analogues of biological systems, linear cable properties of cylindrical and spherical cells, excitation and conduction in excitable cells, microelectrodes, operational amplifiers, volume regulation in cells, voltage clamping, voltage and time dependent conductances of excitable cells.

Mr. Brady, Mr. Heath

221. Graduate Commentary: Excitation and Contraction. (½ course)

Prerequisites: same as for course 101. For graduate students. An advanced supplementation of the topics being presented in course 101.

Mr. Brady and Staff

222. Graduate Commentary: Renal, Respiratory and Gastrointestinal Physiology. (½ course)

Prerequisite: course 101. For graduate students. An advanced supplementation of the topics being presented in course 102.

The Staff

223. Graduate Commentary: Physiology of the Nervous System. (½ course)

Prerequisites: same as for course 101; consent of the instructor. For graduate students. An advanced supplementation of the topics being presented in basic neurology.

Ms. Buchwald

224. Physiology of Nerve Cells. (½ course)

Prerequisites: basic knowledge of neurobiology; consent of instructor. Electrical properties of the membrane during excitation and synaptic transmission in nerve cells.

Mr. Hagiwara

225. Biological and Artificial Membranes. (½ course)

Prerequisite: consent of the instructor. Advanced lectures and seminars on the electrical properties of membranes of single cells and the molecular mechanisms for ion permeation in well-defined model membranes.

Mr. Eisenman

226. Bilayer Membranes.

Prerequisite: consent of the instructor. Advanced lectures and laboratory demonstrating physical and chemical principles that underlie the behavior of lipid bilayer membranes, both artificial and natural.

The Staff

227. Theoretical Problems in Membrane Permeation. (½ course)

Prerequisite: consent of the instructor. Tutorial directed to specific theoretical problems of interest to the student.

Mr. Ciani

M232. Vertebrate Visual System, I: The Retina. (½ to 1 course)

(Same as Anatomy M232 and Ophthalmology M232.) Prerequisite: microscopic anatomy and neurophysiology and consent of instructor. The functional organization of the retina is considered, with emphasis on cellular structure and electrophysiology. Topics will be selected from: light absorption and generation of photoreceptor response; synaptic mechanisms and pathways for analysis of form, color, etc.; coding in optic nerve fibers. May be repeated for credit with departmental approval.

Mr. Stell and the Staff

251A-251B-251C. Seminar in Physiology. (¼ course each)

Prerequisite: consent of the instructor. Review and discussion of current physiological literature, research in progress, and special topics.

The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 3 courses)

Prerequisite: consent of the instructor.

The Staff

598. Thesis Research for Master's Candidates. (½ to 3 courses)

Prerequisite: consent of the instructor.

The Staff

597. Preparation for the Doctoral Qualifying Examination or the Master's Comprehensive Examination. (½ to 3 courses)

Prerequisite: consent of the instructor.

The Staff

599. Dissertation Research for Ph.D. Candidates. (½ to 3 courses)

Prerequisite: consent of the instructor.

The Staff

■ PLANETARY AND SPACE SCIENCE

(See Geophysics and Space Physics)

■ PLANT SCIENCE

(See Department of Biology Sciences.)

■ POLITICAL SCIENCE

(Department Office 4289 Bunche Hall)

Hans H. Baerwald, Ph.D., *Professor of Political Science.*

Irving Bernstein, Ph.D., *Professor of Political Science.*

John C. Bollens, Ph.D., *Professor of Political Science.*

Bernard Brodie, Ph.D., *Professor of Political Science.*

David T. Cattell, Ph.D., *Professor of Political Science.*

4 Mattei Dogan, Docteur es Lettres, *Professor of Political Science.*

Ernest A. Engelbert, M.P.A., Ph.D., *Professor of Political Science.*

Leonard Freedman, Ph.D., *Professor of Political Science.*

Robert C. Fried, Ph.D., *Professor of Political Science.*

William P. Gerberding, Ph.D., *Professor of Political Science.*

Robert Jervis, Ph.D., *Professor of Political Science.*

Malcolm H. Kerr, Ph.D., *Professor of Political Science.*

Roman Kolkowicz, Ph.D., *Professor of Political Science.*

Andrzej Korbonski, Ph.D., *Professor of Political Science (Chairman of the Department).*

Michael F. Lofchie, Ph.D., *Professor of Political Science.*

Richard P. Longaker, Ph.D., *Professor of Political Science.*

Dwaine Marvick, Ph.D.[4], *Professor of Political Science.*

Charles R. Nixon, Ph.D., *Professor of Political Science.*

David C. Rapoport, Ph.D., *Professor of Political Science.*

John C. Ries, Ph.D., *Professor of Political Science.*

David O. Sears, Ph.D., *Professor of Political Science and Psychology.*

Foster H. Sherwood, Ph.D., LL.D., *Professor of Political Science.*

John R. Sisson, Ph.D., *Professor of Political Science.*

Richard L. Sklar, Ph.D., *Professor of Political Science.*

David O. Wilkinson, Ph.D., *Professor of Political Science.*

David A. Wilson, Ph.D., *Professor of Political Science.*

Charles E. Young, Ph.D., *Professor of Political Science.*

Winston W. Crouch, Ph.D., *Emeritus Professor of Political Science.*

J. A. C. Grant, Ph.D., LL.D., *Emeritus Professor of Political Science.*

H. Arthur Steiner, Ph.D., *Emeritus Professor of Political Science.*

Richard E. Ashcraft, Ph.D., *Associate Professor of Political Science.*

Richard D. Baum, Ph.D., *Associate Professor of Political Science.*

L. Blair Campbell, Ph.D., *Associate Professor of Political Science.*

David G. Farrelly, Ph.D., *Associate Professor of Political Science.*

Robert S. Gerstein, LL.B., Ph.D., *Associate Professor of Political Science.*

Edward Gonzalez, Ph.D., *Associate Professor of Political Science.*

Douglas S. Hobbs, Ph.D., *Associate Professor of Political Science.*

Karen J. Orren, Ph.D., *Associate Professor of Political Science.*

Duane E. Smith, Ph.D., *Associate Professor of Political Science.*

Leo M. Snowiss, Ph.D., *Associate Professor of Political Science.*

Steven L. Spiegel, Ph.D., *Associate Professor of Political Science.*

Ezra N. Suleiman, Ph.D., *Associate Professor of Political Science.*

E. Victor Wolfenstein, Ph.D., *Associate Professor of Political Science.*

Ciro Zoppo, Ph.D., *Associate Professor of Political Science.*

Paul J. Halpern, Ph.D., *Assistant Professor of Political Science.*

Carl P. Hensler, Ph.D., *Assistant Professor of Political Science.*

Paul Jabber, Ph.D., *Assistant Professor of Political Science.*

Stephen D. Krasner, Ph.D., *Assistant Professor of Political Science.*

Susan Kaufman Purcell, Ph.D., *Assistant Professor of Political Science.*

Raymond A. Rocco, Ph.D., *Assistant Professor of Political Science.*

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Thad A. Brown, M.A., *Lecturer in Political Science.*

Arthur Cyr, Ph.D., *Assistant Professor of Political Science in Residence.*

James G. Fisk, B.S., *Adjunct Professor of Political Science.*

Marvin Hoffenberg, M.A., *Professor of Political Science in Residence.*

Joel S. Ish, Ph.D., *Lecturer in Political Science.*

Edward Merrow, M.A., *Acting Assistant Professor of Political Science.*

Don T. Nakanishi, M.A., *Acting Assistant Professor of Political Science.*

John R. Petrocik, M.A., *Acting Assistant Professor of Political Science.*

M. Stephen Weatherford, M.A., *Lecturer in Political Science.*

[4] In residence Spring Quarter, 1977.

Goals of the Undergraduate Program in Political Science

The undergraduate program aims to provide an understanding of basic political processes and institutions as these operate in different national and cultural contexts, of the interaction between national states, of the changing character of the relations between citizens and governments, and of the values and criteria by which the quality of political life is judged. This program may be individually focused to serve the needs of the liberal arts major, the student seeking preparation for graduate work in Political Science, Public Administration, Law, and other professional fields, and the student preparing for specialized roles in political and public organizations.

Inquiries about the program and any possible recent changes should be addressed to the Undergraduate Counselor, Department of Political Science.

Preparation for the Major

Two lower division courses (8 units): Political Science 1; and Political Science 2, 3, or 4. These courses must be taken for a letter grade.

The Major

Requirements I. For those students *who had less than 84 quarter units at the beginning of the fall quarter 1975* the following requirements apply: (all other students, see Requirements II below).

Ten upper division political science courses (for a total of 40 units) numbered from 100 to 199 must be taken for a letter grade. In addition, the student is required to complete 4 upper division courses (for a total of 16 units) in one or more of the following social sciences: Anthropology, Management (only 150, 180, 190A-190B), Economics, Geography, History, Psychology (except 115, 116, 117), Sociology. These courses must also be taken for a letter grade. Upper division political science courses are organized into six fields: (I) Political Theory, (II) International Relations, (III) Politics, (IV) Comparative Government, (V) Public Law, and (VI) Public Administration and Local Government.

In fulfilling the requirement of 10 upper division political science courses, the student must satisfy the following: A *concentration* in one field by completing at least four upper division courses in that field. It is recommended that one of these courses be an Undergraduate Seminar, 197A - F. (See field concentration requirements below).

A *distribution* of two courses in each of two other fields. Political Science 110, Introduction to Political Theory, is required of all political science majors. This course in Field I may count for either the concentration or the distribution requirement.

Two additional elective courses in political science to comprise the total of ten. Political Science 110 may be counted as one of these if it is not used to satisfy the concentration or distribution requirement.

Field Concentration Requirements. Specific requirements for field concentration are as follows: (I) *Political Theory*: Political Science 110 and 3 additional courses in Field I.

(II) *International Relations*: Political Science 2 and any 4 upper division courses in Field II. Four units from 175A-175B may be counted as one of the 4 courses in Field II. Only one of the defense studies courses—138A, 138B, and 138C—may be counted toward field concentration requirement.

(III) *Politics*: Any four courses in Field III. Political Science 182A may also be counted toward concentration in this field.

(IV) *Comparative Government*: Political Science 168 and any 3 additional courses in Field IV. Political Science 115, 188A or 188B—but not more than one of them—may also be counted toward concentration in this field. Political Science 3 is recommended as the second lower division course.

(V) *Public Law:* Political Science 170 or 171 and any 3 additional courses in Field V. Political Science 171 is a prerequisite for Political Science 172A or 172B. Political Science 117 or 187—but not more than one of them—may also be counted toward concentration in this field.

(VI) *Public Administration and Local Government:* Any 4 courses in Field VI. Political Science 138C, 173 or 174—but not more than one of them—may also be counted toward concentration in this field.

Note: No course may be counted toward both concentration and distribution requirements.

Also, courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than 3 of these courses may be applied toward the major.

Political Science 195 and 199 may not apply to fulfill either the concentration or distribution requirement.

Requirements II. Those students *who had more than 84 quarter units at the beginning of the fall quarter 1975* are required to complete nine upper division political science courses (for a total of 36 units) numbered from 100 to 199 for a letter grade. In addition the student is required to complete 4 upper division social sciences (for a total of 16 units) as outlined in Requirements I. These courses must also be taken for a letter grade.

Each political science major will be required to complete successfully Political Science 110, *Introduction to Political Theory.* Each major must also concentrate in one field by successfully completing at least three (3) upper division courses in that field. These courses count toward satisfaction of the requirement for nine upper division courses in the department. (See below for special field concentration requirements.) In addition the student must satisfy a distribution requirement by successfully completing at least one (1) course in each of three (3) other fields. Political Science 110 counts as one course in Political Theory (Field I) for either the concentration or the distribution requirement. Political Science 197 and 199 are not applicable to fulfillment of either the concentration or the distribution requirement. Only one of the defense studies courses—138A, 138B, and 138C—may be counted toward field distribution requirements.

Specific requirements for *field concentration* are as follows: (I) *Political Theory:* Political Science 110 and any 2 additional courses in Field I: (II) *International Relations:* Political Science 2 and any 3 courses in Field II. Four units from 175A-175B may be counted as one of the three courses in Field II: (III) *Politics:* Any 3 courses in Field III. Political Science 182A may also be counted toward concentration in this field; (IV) *Comparative Government:* Political Science 168 and any 2 additional courses in Field IV. Political Science 115, 188A, or 188B—but not more than one of them—may also be counted toward concentration in this field; (V) *Public Law:* Political Science 170 or 171 and any 2 additional courses in Field V. Political Science 117 or 187—but not more than one of them—may also be counted toward concentration in this field; (VI) *Public Administration and Local Government:* Any 3 courses in Field VI. Political Science 138C, 173, or 174—but not more than one of them—may also be counted toward concentration in this field.

Courses 119, 139, 149 169, 179, and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.

No course may be counted toward both concentration and distribution requirements.

Undergraduate Seminars

Each quarter the department will offer a series of seminars, limited to 20 students, offered in each field and open to students studying under either Requirements I or II. The prerequisites will be two upper division courses in the field in which the seminar is offered, a 3.25 average at the upper division level in political science or discretion of the instructor.

The courses will be numbered: 197A-Theory, 197B-International Relations, 197C-Politics, 197D-Comparative Government, 197E-Public Law and 197F-Public Administration and Local Government.

These courses may count for either the concentration or distribution requirement and students who qualify are encouraged to take them.

The Honors Program

Qualifications. The honors program in political science is open to seniors or students who have completed five upper division courses in political science, two of which are in one field, and must have at least a 3.25 average at the upper division level in political science.

The Program. Students wishing to qualify for graduation with Departmental Honors must have a 3.25 grade point average in upper division political science and complete the following: (1) A one-year seminar (P.S. 195A, 195B, 195C). The first quarter of the seminar, P.S. 195A, is a general seminar on political science and involves research. The second and third quarters, P.S. 195B and 195C, are devoted to writing a senior thesis under the direction of a faculty member. The honors thesis will be read by the respective field committees and judged for its quality and graded as to high honors, honors, pass, no pass, which is equivalent to A,B,C,F on the grade scale. (2) Seven upper division courses, excluding the 197A-F series courses, distributed as follows: three courses in one field and four additional courses, two in each of two other fields. These seven courses plus the one-year seminar will comprise the ten upper division courses required for the major. (3) Four upper division courses in the social sciences other than political science.

Note: Those students who are studying under Requirements II may take two courses from the 197A-F Undergraduate Seminars series for Honors credit. The instructor will designate whether the student's work in the course qualifies for Honors.

Related Curricula. For the curricula in international relations and public service, see the College of Letters and Science.

For those students of politics who wish to acquire for future professional use a background in

modern quantitative methods of data generation, handling and analysis, an information sheet is available in the Undergraduate Adviser's office.

Admission To Graduate Status

In addition to the requirements of the Graduate Division described in this announcement, the Department requires three letters of recommendation, GRE score (Aptitude Test only) or Law School aptitude scores. The Department deadline for receipt of all materials is January 15 for the following fall quarter, and for the winter and spring quarters following that fall.

Financial Assistance

The fellowship-assistantship application is separate from the admissions application, and may be obtained either from the UCLA Fellowship Office or from Graduate Admissions. In order to be eligible for a fellowship or teaching assistantship students must make sure their file is complete and be admitted to the Department of Political Science. The Graduate Division deadline for receipt of all materials pertaining to a fellowship-assistantship application is December 15.

Since sources of financial assistance are limited, applicants should be aware that chances of receiving any support for their first year here are very small, and will remain small thereafter. Some graduate students find employment with individual professors as readers and research assistants; these jobs are arranged between the student and professor after a quarter is in session, and are entirely separate from the fellowship-assistantship application.

Political Science Teaching Assistantships. Teaching Assistantships are ordinarily awarded only to students who have been graduate students in the Department for at least one year. They are not automatically renewable and must be reapplied for each year. The Department does not ordinarily offer teaching assistantships to students who have (1) held teaching assistantships for three years in the Department or (2) held University administered fellowships and/or teaching assistantships for four years.

Departmental Regulations Concerning Retention of Teaching Assistantships in Cases of Terminal M.A.'s. (1) Graduate students holding teaching assistantships who receive terminal M.A. degrees as a result of the M.A. examining sequence will lose the teaching assistantships effective the end of the quarter in which they complete their M.A. degree requirements. (2) Graduate students holding teaching assistantships who fail the M.A. evaluation sequence and are not allowed to receive the M.A. degree will have their status as graduate students in the Department terminated effective the end of the quarter in which they took the M.A. examinations. Their teaching assistantships will be terminated at the same time.

Graduate Fields of Study

Six fields of study are offered to graduate students in the Political Science Department: *Political Theory; International Relations; Politics; Comparative Government; Public Law; Public Adminstration and Local Government.*

A Ph.D. candidate, with the help of his/her advisor, may develop a special program in Political Science. Further information is contained in the section on the Ph.D. Preliminary Evaluation Sequence.

The Department offers three types of graduate courses in each of six fields of study: (1) the 210 series of general courses; (2) the 220 through 240 series of specialized substantive courses; (3) the 250 through 270 series of seminars. Seminars will ordinarily be taken by advanced graduate students.

The M.A. Program

The Department normally operates under Plan II (a one-field examination and overall evaluation), although Plan I (thesis) may be followed in rare cases with the approval of the Department.

Course Requirements. (1) A student must take a minimum of five graduate courses in Political Science at UCLA distributed among three fields of study, and four other courses to fulfill the M.A. course requirements. 203A and 203B together may be used as one field. The latter four courses will normally be taken in the Social Sciences or related areas. Lower division courses may not be used for credit. The course P.S. 596 will not normally be counted toward the five graduate course requirement for the M.A. The course P.S. 597 cannot be used for credit for any of the course requirements for either the M.A. or the Ph.D. (2) There is no language requirement for the M.A. degree. (3) The minimum course load for M.A. candidates is six courses during the first three quarters in residence. The minimum course load for all graduate students who have not completed their Ph.D. requirements is two courses (8 units) per quarter. M.A. candidates may, however, include 4 units of Political Science 597 as part of this 8-unit requirement in the quarter of their examination.

Graduate Work at Other Campuses of the University of California. Work completed while in graduate standing on other campuses of the University of California may be used to satisfy part of the total course requirement; up to four courses may be transferred toward the nine courses required for the M.A. Two graduate courses completed at another U.C. campus may be used toward the requirement of five graduate courses. Transferring courses requires departmental approval.

Graduate Work Completed at Schools Other than University of California. With the approval of the Department and the Graduate Division, credit for a maximum of two quarter courses completed while in graduate standing at another institution (other than a U.C. campus) can be applied toward the nine course requisite for the M.A. These courses may not be used to satisfy the five graduate course requirement for the M.A. University Extension courses are not accepted for graduate credit by the department.

M.A. Examination Sequence. By the end of the fourth quarter of graduate study the M.A. candidate will take a written examination in one of the six fields of Political Science, plus an oral screening examination covering his/her general knowledge of Political Science. The M.A. written examination will be distinct from the Ph.D. preliminary examination and at a different level. The oral examining committee will evaluate the student's entire record, including performance in the M.A. examinations and evaluations of course work taken, and recommend one of the following: a) that the student receive the M.A. degree and be encouraged to proceed toward the Ph.D.; b) that the student receive the M.A. degree (when all departmental and University requirements are met) and that his/her status as a graduate student in the Department be thereafter terminated; c) that the student not be awarded the M.A. degree and that his/her status as a graduate student in the Department be terminated at the end of the current quarter. Students are encouraged to request an oral evaluation of their academic work in the Department prior to taking the M.A. evaluation sequence. This should be done early in the quarter in which the student takes the examination, with the Graduate Advisor, the chairperson of their field committee, or another faculty member of their choice serving as evaluator. M.A. candidates may defer taking the examination sequence only with the permission of the Graduate Studies Committee.

Candidates are allowed to take the M.A. examination sequence one time only. Graduate students who receive terminal M.A. degrees as a result of the examination sequence will be expected to complete their course requirements for the M.A. degree as soon as possible, and no later than the quarter following notification of termination. Students receiving the terminal M.A. are not allowed to continue registering in the Department once they have completed the M.A. degree course requirements.

M.A. Thesis Plan. Students wishing to write an M.A. thesis (Plan I) instead of taking the M.A. comprehensive examinations (Plan II) may do so by selecting a faculty committee willing to oversee the thesis. This committee must consist of three faculty members, two from Political Science and one from another UCLA department, and must be approved by the Political Science Department chairman. The thesis must be submitted by the third quarter of residence, and must be approved by the thesis committee. Students opting for the thesis plan will not normally be recommended for continuation in the departmental Ph.D. program. If they wish to continue for the Ph.D. they must take the regularly scheduled M.A. comprehensive examination and be given approval at that time to continue for the Ph.D. in the Department.

The Ph.D. Program

An M.A. in Political Science or the equivalent is a prerequisite. A student entering with an M.A. from another university must first pass the M.A. screening examinations during the first three quarters in residence before being considered a Ph.D. candidate in the Department. (This is the same examination given to entering M.A. candidates.) Any deferral of the screening examination beyond the first three quarters requires the approval of the Graduate Studies Committee. During the fall quarter each field examining committee will hold a meeting for graduate students in order to acquaint them with the faculty, the scope of the field and the preparations for the screening and Ph.D. preliminary examinations in the field.

Foreign Language or Research Methodology Requirement. For the Ph.D. graduate students must fulfill one of the following requirements: (1) demonstration of advanced proficiency in one foreign language suitable for field research. This level and the manner of examination will be determined for each language by the Department of Political Science. Ordinarily advanced proficiency is demonstrated by passing the E.T.S. examination with a minimum score of 650. Where judged by the student's advisor as neces-

sary for the successful conduct of research, the student choosing this option shall be required to demonstrate proficiency in that language through an oral examination conducted by a competent member of the Department of Political Science, or the equivalent; (2) demonstration of advanced proficiency in a research methodology. Such methods are to include statistics and computer language and technology. This requirement can be satisfied by the demonstration of proficiency in examinations established by a competent committee of the Political Science faculty. Each graduate student is required to get the approval of his/her doctoral advisor regarding the choice between these two options. Students in the Ph.D. program are expected to have completed this requirement prior to taking the Ph.D. evaluation sequence.

Course Requirements. Before taking the Ph.D. preliminary examination sequence, a student must have completed satisfactorily the basic graduate courses (or their equivalent) in four fields (three written examination fields and one writeoff field). Each Political Science field committee will specify the courses the student must take as basic preparation for the preliminary examination in its field. A minimum of two graduate courses will be required by each field, and fields may specify a third course as part of the basic preparation for the exam sequence. For the Ph.D. degree a candidate must satisfy a two-quarter research requirement in each of two fields. This research requirement will be defined by each individual field. The research requirement cannot be counted toward the two-course minimum field requirement. Students admitted to the Department with graduate work completed elsewhere may petition the Graduate Committee for permission to apply course credits to the Department requirements. The course P.S. 597 cannot be used for credit for any course requirements for the Ph.D. Students may not fulfill their required courses with lower division courses.

Ph.D. Preliminary Evaluation Sequence. (1) Field requirements. Within three years after entrance to the graduate program the student shall be expected to demonstrate competence in four fields (three major fields and one "writeoff" field); (2) Soon after entering into the Ph.D. program, and no later than the end of the second year of graduate study, each student shall have a doctoral chairperson appointed who shall advise, assist and supervise his/her preparation for the comprehensive examinations. This chairperson may be drawn from any field in political science, but will normally represent the student's principal field; (3) Writeoff field. The student shall present for approval to the Graduate Advisor his/her program of study for the write-off field. This field, if it is to be taken in the Department, shall consist of a minimum of two graduate courses. The field requirement is met when the student has successfully passed these courses with a grade of A or B. If the field is to be taken outside the Department, it shall be defined as in 4. below; (4) Outside field. A student may petition to be examined in one field outside the Department. The student together with his/her advisor and the instructor under whom he/she wishes to do the work outside the Department will submit a written proposal for this field. The proposal must state the substantive material to be covered, the course program and why the outside field is being proposed. A minimum of three courses, including two graduate courses, must be taken in the outside field. The proposal must be signed by the student's advisor and the outside instructor and submitted to the Department graduate office six months in advance of the time the student expects to take the preliminary examinations. Whether or not the outside field is a writeoff, the outside instructor shall be nominated to serve on the student's doctoral committee. (5) Special field. A student may work out with one or more faculty members special programs in Political Science which cross traditional field lines, such as a program in public policy. Such a program, however, may not be used to circumvent the breadth requirements for the Ph.D. Any individual program must be approved by the Graduate Studies Committee of the Department. (6) The Ph.D. examinations. Within two years after completing the M.A. examinations or M.A. screening sequence the student continuing for the Ph.D. will take the Ph.D. preliminary examination sequence. The Ph.D. preliminary examinations to certify that the student is ready for the University oral examination will consist of a written comprehensive examination in three fields, or a written comprehensive examination in two fields and in the major field a research paper plus a comprehensive departmental oral examination. Each written examination will be comprehensive and general rather than specialized. The examinations will be prepared and graded by the departmental field examination committees, or, in the case of outside fields and special fields, by an ad hoc committee of three. The examination sequence is given twice a year, in November and in May. Students must complete all three written examinations during a single examination period. The Graduate Studies Committee will decide when a student is ready to go on to the University oral. No student will be allowed to go on to the University oral until he/she has passed the examinations in three fields. Upon successful completion of the University oral examination, the student is eligible for advancement to candidacy and for the C. Phil. degree. If the student chooses to go on to the Ph.D. degree the student will submit to his/her Doctoral Committee for its approval a research proposal for the dissertation. The dissertation must be approved within seven years after being advanced to candidacy.

Master of Public Administration

No new students will be admitted for the academic year 1976-77. The following requirements apply only to students admitted to the program by the Fall quarter, 1975, and who complete the degree by the end of the Spring quarter, 1977. Inquiries regarding the program can be addressed to the Department of Political Science.

The program leading to the degree of Master of Public Administration is designed both for those who have recently earned a bachelor's degree and wish to prepare for a career in governmental administration, and for public servants who wish to increase their level of competence in theoretical and practical aspects of public administration. The program is administered by the Department of Political Science but is in essence an interdisciplinary program. Specific inquiries regarding this program should be addressed to: Director, Master of Public Administration Program.

Students who complete the Master of Public Administration program and who wish to enter the Ph.D. program in Political Science must apply to the Graduate Division. The applications will be reviewed by the Graduate Admissions Committee of the Department. Candidates who are accepted for Ph.D. work in Political Science will have their M.P.A. comprehensive examinations accepted in lieu of the Departmental M.A. screening examination. (See above.)

University Requirements. See the Graduate Division of this bulletin.

Admission to the Program. (a) The student must have received the degree of Bachelor of Arts with undergraduate training or work experience which the Master of Public Administration admissions committee regards as satisfactory preparation. (b) In addition to the application for admission to graduate status to be filed with the Graduate Division, an M.P.A. application must be submitted to the Director of the M.P.A. Program.

Course Requirements. The candidate must complete an approved program of at least nine courses of upper division and graduate work (36 units), consisting of not less than five graduate courses in the 200 series. All programs must be approved by the Director of the M.P.A. Program.

Comprehensive Examinations. Candidates must demonstrate competence in three fields: (1) administrative theory and processes; (2) political environment and institutions; and (3) a program specialty. Administrative Theory and Processes. (Competence in all categories required.) Administrative theory; governmental organization and relations; staff and management processes; legislative and legal controls. Political Environment and Institutions. (One option to be chosen.) State and local government; national government; international and comparative government. Program Specialty. (One option to be chosen; listing is illustrative.) Administrative law; defense; business regulation; community and group relations; community development; education; finance and budgeting; foreign policy administration; housing and redevelopment; information systems; international development planning and administration; law enforcement; manpower and employment; natural resources; personnel; planning; public health; public relations; public welfare; science and technology; transportation.

Written examinations are conducted in each of the three fields of study. An oral examination follows completion of the written examinations. The oral examination committee determines whether a student has passed or failed the examination sequence. A student who fails the sequence shall be permitted to retake the examination(s), but only once, and at the next regularly scheduled examination period.

Internship. In addition to the 36 units (nine courses) of course credit, each candidate is required to complete an approved internship by working in a public agency or a government-related private organization before receiving the degree. In some instances, similar experience gained before entering the program may be substituted. In either case, an analytical report must be written and accepted. In the quarter when the report is to be completed, the candidate must be enrolled in course 401.

Lower Division Courses

1. Introduction to American Government.

Lecture, three hours; discussion, one hour. An introduction to the principles and problems of government with particular emphasis on national government in the United States. This course fulfills the requirement of American History and Institutions, and is required of all students majoring in political science.

The Staff

2. World Politics.

Lecture, three hours; discussion, one hour. There are no prerequisites for this course. An introduction to problems of world politics. This course is required of all students concentrating in Field II and may be used to fulfill one of the two requirements for the Preparation for the Major.

The Staff

3. Introduction to Comparative Government.

Lecture, three hours; discussion, one hour. Prerequisite: course 1. A comparative study of constitutional principles, governmental institutions, and political processes in selected contemporary states, with emphasis on the major European governments. This course may be used to fulfill one of the two course requirements for the Preparation for the Major.

The Staff

4A-4Z. Current Problems in Political Science.

Prerequisite: Successful completion of or concurrent enrollment in Political Science 1 and consent of the instructor. Proseminars will be offered each quarter dealing with selected political problems. Topics will be announced during the preceding quarter. Enrollment will be limited. Preference will be given to declared freshman majors. This course may be used to fulfill one of the two course requirements for the Preparation for the Major.

The Staff

6. Introduction to Quantitative Research.

Prerequisite: one previous course in political science, e.g. Political Science 1, 2, or 3. An introduction to the collection and analysis of political data. The course emphasizes the application of statistical reasoning to the study of relationships among political variables. Students use the computer as an aid in analyzing data from various fields of political science, among them comparative politics, international relations, American politics, and public administration. Will serve as a prerequisite for Political Science 102, 103, and 104A.

The Staff

Upper Division Courses

Prerequisite for all upper division courses: upper division standing or consent of instructor.

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102. The Statistical Analysis of Political Data.

Prerequisite: course 6. An introduction to statistical inference. Topics will include measures of central tendency, elementary probability theory, common probability distributions, least-squares and maximum likelihood estimation, confidence intervals and statistical tests, comparison of means, the analysis of variance, and multiple regression and correlation. Statistical techniques and topics will be illustrated with applications to a variety of political data.

The Staff

103. Formal Models of Politics.

Prerequisites: courses 1, 2, or 3, and course 102 or Economics 101A, Mathematics 2A, or 28 or consent of instructor. An exploration of the advantages and limitations of formal models, symbolic logic, and set theory in political science, to be followed by the study of several different kinds of formal models of political phenomena and their applications, e.g., theories of voting, party competition, coalition formation, bargaining, organization, and social welfare. Attention will also be given to the theory of games and so-called "economic theories."

The Staff

104A-104B. Introduction to Survey Research.

Prerequisite: course 6 for undergraduates or course 203C for graduates. Course 104A is prerequisite to course 104B. A two-quarter course in the fundamentals of survey research as a method. The first quarter will cover sampling theory and methods, the writing of questions, questionnaire construction, and interviewing. In addition, students will be introduced to attitudes, attitude measurement, and attitude change. Students will participate in the formulation of a research problem. The second quarter will involve conducting a survey. Students will be responsible for developing a survey questionnaire, designing a sample, collecting interviews, maintaining quality control, and coding the interviews for machine tabulation. The final requirement for the course is that the student perform a computer-aided analysis of some part of the data and submit a written report of that research. Both quarters must be taken to receive credit.

The Staff

GROUP I. POLITICAL THEORY

110. Introduction to Political Theory.

Lecture, three hours; discussion, one hour. An exposition and analysis of selected political theorists and concepts from Plato to the present. This course is required of all majors.

The Staff

111A. History of Political Thought: Ancient and Medieval Political Theory.

An exposition and critical analysis of the major political philosophers and schools from Plato to Machiavelli.

The Staff

111B. History of Political Thought: Early Modern Political Theory.

An exposition and critical analysis of the major political philosophers and schools from Hobbes to Bentham.

111C. History of Political Thought: Late Modern and Contemporary Political Theory.

An exposition and critical analysis of the major political philosophers and schools from Hegel to the present.

The Staff

112. Nature of the State.

A systematic analysis of modern concepts and problems of political association.

The Staff

114A-114B. American Political Thought.

Prerequisite: 114A or consent of instructor is prerequisite to 114B.

114A. An exposition and critical analysis of American political thinkers from the Puritan period to 1865.

114B. An exposition and critical analysis of American political thinkers from 1865 to the present.

Mr. Smith

115. Theories of Political Change.

Prerequisite: course 101 or consent of the instructor. A critical examination of theories of political change, the relation of political change to changes in economic and social systems, and the relevance of such theories for the experience of both western and nonwestern societies. This course may be counted in either Field I or IV.

Mr. Lofchie, Mr. Nixon

117. Jurisprudence.

Development of law and legal systems; consideration of fundamental legal concepts; contributions and influence of modern schools of legal philosophy in relation to law and government. This course may be counted in either Field I or V.

Mr. Gerstein, Mr. Sherwood

119A-119Z. Special Studies in Political Theory.

Prerequisites: course 101, one additional course in Field I, and consent of the instructor. Intensive examination of one or more special problems appropriate to political theory. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.

The Staff

GROUP II. INTERNATIONAL RELATIONS

120. Foreign Relations of the United States.

Lecture, three hours; discussion, one hour. A survey of the factors and forces entering into the formation and implementation of American foreign policy, with special emphasis on contemporary problems.

Mr. Cyr, Mr. Jabber, Mr. Spiegel

121. Studies in Formulation of American Foreign Policy.

A study of the formation of American foreign policy with respect to individual cases. Specific topics will be announced in the Schedule of Classes each quarter.

The Staff

123. International Organization and Administration.

A general survey of the institutions, political and administrative, of international organization, with emphasis on the United Nations.

The Staff

124. International Political Economy.

A study of the political aspects of international economic issues.

Mr. Krasner

126. Peace and War.

Theory and research on the causes of war and the conditions of peace.

Mr. Wilkinson

127. The Atlantic Area in World Politics.

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.

Mr. Cyr, Mr. Zoppo

128. The Soviet Sphere in World Politics.

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.

Mr. Cattell, Mr. Kolkowicz, Mr. Korbonski

131. Latin American International Relations.

The major problems of Latin-American international relations and organization in recent decades.

Mr. Gonzalez, Ms. Purcell

132A-132B. International Relations of the Middle East.

Prerequisite: course 132A is prerequisite to 132B, or consent of instructor for 132B.

132A. Contemporary regional issues and conflicts, with particular attention to inter-Arab politics, the Arab-Israeli problem, and the Persian Gulf area.

132B. Role of the Great Powers in the Middle East, with emphasis on American, Soviet and West European policies since 1945.

Mr. Jabber

135. International Relations of China.

The relations of China with its neighbors and the other powers, with emphasis on contemporary interests and policies of China vis-à-vis the United States and the Soviet Union.

Mr. Baum

136. International Relations of Japan.

The foreign policies of Japan, and the interests and policies of other countries, particularly the United States, as they relate to Japan.

Mr. Baerwald

137. International Relations Theory.
An examination of various theoretical approaches to international relations and their application to a number of historical cases and contemporary problems.
Mr. Krasner, Mr. Wilkinson

138A-138B-138C. Defense Studies.
138A. Defense Strategy and Policies.
Theories on the causes of war and the national and international security problems created by the threat of war. Special emphasis on the United States, concerning both its own military policy and its role in an international alliance structure.
Mr. Brodie

138B. The Conduct of Modern War.
A study of recent and contemporary wars with special emphasis on political and strategic problems.
The Staff

138C. Military Policy and Organization.
A study of the institutional and policy framework in the national military field. This course may be counted in either Field II or IV.
Mr. Ries

139A-139Z. Special Studies in International Relations.
Prerequisite: Two courses in Field II, or course 2 and one course in Field II, and consent of the instructor. Intensive examination of one or more special problems appropriate to international relations. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.
The Staff

M140. Political Psychology.
(Same as Psychology M138.) Prerequisite: Psychology 10. Examination of political behavior, political socialization, personality and politics, racial conflict, and the psychological analysis of public opinion on these issues.
Mr. Sears

GROUP III. POLITICS

141. Public Opinion and Propaganda.
Lecture, three hours; discussion, one hour. 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.
The Staff

142. The Politics of Interest Groups.
A systematic investigation of the role of political interest groups in the governmental process, with attention directed to the internal organization, leadership, and politics of such groups; to the goals and functions of various types of groups, and to the strategy and tactics of influence.
Mr. Halpern, Ms. Orren

143. Legislative Politics.
A study of those factors which affect the character of the legislative process and the capacity of representative institutions to govern in contemporary society.
Mr. Snowiss

144. The American Presidency.
A study of the nature and problems of presidential leadership, emphasizing the impact of the bureaucracy, congress, public opinion, interest groups, and the party system upon the presidency and national policy-making.
Mr. Halpern, Ms. Orren, Mr. Snowiss

145. Political Parties.
Organization, functions, and practices of political parties primarily in the United States, with attention to campaign functions, membership problems, political finance, and policy-formation practices.
The Staff

146. Political Behavior Analysis.
Prerequisite: course 141. The use of quantitative methods in the study of political behavior, especially in relation to voting patterns, political participation, and techniques of political action.
The Staff

147. Minority Group Politics.
Lecture, three hours; discussion, one hour. Prerequisites: course 1, plus one of the following: one additional 140-level course; or one upper-division course on race or ethnicity from History, Psychology, or Sociology; or consent of the instructor. A systematic evaluation of the functioning of the American polity, related to problems of race and ethnicity. Topics include: leadership, organization, ideology, conventional versus unconventional political behavior, inter-minority relations, co-optation, symbolism, and repression.
Mr. Rocco

149A-149Z. Special Studies in Politics.
Prerequisites: Two courses in Field III and consent of the instructor. Intensive examination of one or more special problems appropriate to politics. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.
The Staff

See also course 182A.

GROUP IV. COMPARATIVE GOVERNMENT

152. British Government.
The government and politics of the United Kingdom; the British constitution, parliament, parties and elections, foreign policies, administrative problems, and local governments.
The Staff

153. Governments of Western Europe.
The constitutional and political structure and development of France and other states of continental Western Europe, with particular attention to contemporary problems.
Mr. Dogan, Mr. Suleiman

154. Governments of Central Europe.
The constitutional and political structure and development of Germany and other Central European states, with particular attention to contemporary problems.
Mr. Korbonski

156. The Government of the Soviet Union.
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.
Mr. Cattell, Mr. Kolkowicz

157. Governments of Eastern Europe.
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.
Mr. Kolkowicz, Mr. Korbonski

159. Chinese Government and Politics.
Organization and structure of Chinese government with particular attention to the policies, doctrines, and institutions of Chinese Communism; political problems of contemporary China.
Mr. Baum

160. Japanese Government and Politics.
The structure and operation of the contemporary Japanese political system, with special attention to domestic political forces and problems.
Mr. Baerwald

161. Government and Politics in Southeast Asia.
The institutional and political processes and problems of states in Southeast Asia (Burma, Thailand, Malaya, Laos, Cambodia, Vietnam, Indonesia, and the Philippines).
Mr. Wilson

162. Government and Politics in South Asia.
The political experiences and institutions of the Indian subcontinent since 1947, with particular attention to the Republic of India, but also with reference to Pakistan and Ceylon.
Mr. Sisson

163A. Government and Politics in Latin America.
(Formerly numbered 168A.) A comparative study of governmental and political development, organization and practices in the states of Middle America.
Mr. Gonzalez, Ms. Purcell

163B. Government and Politics in Latin America.
(Formerly numbered 168B.) A comparative study of governmental and political development, organization and practices in the states of South America.
Mr. Gonzalez, Ms. Purcell

164. Government and Politics in the Middle East.
A comparative study of government in the Arab States, Turkey, Israel and Iran.
Mr. Jabber, Mr. Kerr

165. Government and Politics in North Africa.
A comparative study of the government and politics of the North African states, including the relationship between political development, political organization and social structure.
Mr. Kerr

166A-166B-166C. Government and Politics in Sub-Saharan Africa.
166A. Western Africa.
166B. Eastern Africa.
166C. Southern Africa.
Patterns of political change in Africa south of the Sahara with special reference to nationalism, nation-building and the problems of development. (Course is offered in three parts.)
Mr. Lofchie, Mr. Sklar

167. Ideology and Development in World Politics.
A comparative study of the major modes of political and economic development in the world today. Relations between industrial and non-industrial societies are examined in light of the current debate about imperialism.
Mr. Sklar

168. Comparative Political Analysis.
Prerequisites: Two courses in Field IV, or Political Science 3 and one course in Field IV. Major approaches to the study of comparative politics. Concepts and methodology of comparative analysis. Required of all students concentrating in Field IV.
The Staff

169A-169Z. Special Studies in Comparative Government.
Prerequisites: Two courses in Field IV, or course 3 and one course in Field IV, and consent of the instructor. Intensive examination of one or more special problems appropriate to comparative government. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No

more than three of these courses may be applied toward the major.

The Staff

See also Courses 115, 188A, 188B.

GROUP V. PUBLIC LAW

170. The Anglo-American Legal System.

Lecture, four hours; discussion, one hour. 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. Either this course or Political Science 171 is required of all students concentrating in Field V.

Mr. Gerstein

171. The Supreme Court.

Lecture, four hours, discussion, one hour. The history, procedures, and role of the Supreme Court in its legal-constitutional and political aspects. Emphasis will be given to the current and recent activities of the Court. Decisions of the Court, historical and current commentaries, and judicial biography will be utilized. Either this course or Political Science 170 is required of all students concentrating in Field V.

Mr. Gerstein, Mr. Hobbs, Mr. Longaker

172A. American Constitutional Law.

Prerequisite: course 171. Constitutional questions concerning the separation of powers, federalism, and the relationship between government and property.

Mr. Gerstein, Mr. Hobbs, Mr. Longaker

172B. American Constitutional Law.

Prerequisite: course 171. The protection of civil and political rights and liberties under the Constitution.

Mr. Gerstein, Mr. Hobbs

173. Government and Business.

The nature of the corporation; the regulation of competition; government promotion of economic interests; regulation of industries clothed with a public interest; government ownership and operation. This course may be counted in either Field V or VI.

Mr. Bernstein, Ms. Orren

174. Government and Labor.

The labor force and the nature of the trade union; regulation of labor relations; programs to encourage full employment and to mitigate unemployment; protective labor legislation. This course may be counted in either Field V or VI.

Mr. Bernstein

175A-175B. International Law.

A study of the nature and place of international law in the conduct of international relations. 175A and 175B may be offered in consecutive terms or simultaneously. If offered consecutively, 175A is preprequisite to 175B, and a student may take 175A alone for four units credit. If they are offered simultaneously, a student must take both courses for 8 units. A maximum of 4 units (1 course) may be counted in Field II.

Mr. Sherwood

179A-179Z. Special Studies in Public Law.

Prerequisites: course 170 or 171, one additional course in Field V, any special requirements, and consent of the instructor. Intensive examination of one or more special problems appropriate to public law. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.

The Staff

See also Courses 117, and 187.

GROUP VI. PUBLIC ADMINISTRATION AND LOCAL GOVERNMENT

180. State and Local Government.

A study of state political systems, including their administrative and local sub-systems; intergovernmental relationships; and their policy outputs, with specific attention being given to California.

The Staff

181. The Politics of Federal Bureaucracy.

Analysis of the causes and consequences of the emergence of the federal bureaucracy as a major actor in national policy-making and implementation. Emphasis will be placed on questions of power, performance, and responsiveness.

Mr. Fried

182A. Metropolitan Area Government and Politics.

An overview of the political and social organization, decision-making processes, policy problems, and conflicts of metropolitan areas and their central cities and suburbs. Attention is also given to the impact on these areas of the national and state political systems and racial, ethnic, and protest movements. This course may be counted in either Field III or VI.

Mr. Bollens

182B. City Government and Politics.

Prerequisite: course 182A or consent of the instructor. Intensive analysis of contemporary urban governance in the United States. Emphasis is given to such student participatory activities as field-work, research, and gaming of urban politics and policy problems.

Mr. Bollens

183. Administration of International Agencies and Programs.

An examination of the administrative patterns and practices of the United Nations agencies and overseas development programs, including distinctive characteristics of organization and management selection of personnel, and methods of financing.

The Staff

185. Public Personnel Administration.

The process of formulating and administering public personnel policies; concepts and principles utilized in selected governmental personnel systems. Focus will be primarily upon governmental systems in the United States (national, state, local, foreign service, military) but also comparisons will be made with selected other governmental systems.

186. National Policy and Administration.

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.

Mr. Engelbert, Mr. Fried, Mr. Ries

187. Law and Administration.

Legal controls of administration action. Substantive and procedural limits on administrative discretion imposed by legislation, executive and judicial agencies and the sources of legal powers of administrative bodies within these limits. This course may be counted in either Field V or VI.

Mr. Sherwood

188A. Comparative Public Administration.

An analysis of bureaucratic structures and function in the United States, other industrialized, and less developed countries, primarily at the national level. Special attention is paid to methods of comparative analysis and the utility of various models. This course may be counted in either Field IV or VI.

Mr. Fried, Mr. Suleiman

188B. Comparative Urban Government.

A cross-cultural examination of the forms and processes of urban government. Particular attention will be paid to the role of urbanization in political development. This course may be counted in either Field V or VI.

Mr. Fried

189A-189Z. Special Studies in Public Administration.

Prerequisites: Two courses in Field VI and consent of the instructor. Intensive examination of one or more special problems appropriate to public administration. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.

The Staff

190. Theories of Organization.

Prerequisite: courses 181 or 186. An examination of the theoretical frameworks for studying public and private bureaucracies, with emphasis upon ideologies, values, behavioral patterns, and concepts of organization.

Mr. Engelbert, Mr. Fried, Mr. Merrow

191. Urban and Regional Planning and Development.

A comparative study of governmental policies, procedures, and agencies involved in the planning and development of urban and regional communities and areas.

Mr. Bollens, Mr. Engelbert, Mr. Hoffenberg

See also Courses 138C, 173, and 174.

UNGROUPED

195A-195B-195C. Honors Seminar and Thesis.

Prerequisites: senior standing or completion of five upper division courses in political science, two of which are in one field and 3.25 grade-point average at the upper division level in political science and eligibility for College of Letters and Science Honors Status. Political Science 195A is prerequisite for 195B, and Political Science 195B is prerequisite for 195C. 195A: Seminar on Research Methodology in Political Science. 195B-195C: Honors Thesis Writing. Political Science 195A-195B-195C is a one-year honors seminar and thesis-writing sequence; the first quarter (195A) is a general seminar on research methods and design; the second and third quarters (195B-195C) are devoted to writing an honors thesis under the direction of a faculty member. The honors thesis will be read by the field committees and judged for its quality. Political Science 195A will be graded A-F. The grades A, B, C, and F will be equivalent to high honors, honors, pass, and no pass.

The Staff

197A-197F. Seminars for Majors.

Prerequisites: major in political science and upper division standing; a 3.25 grade-point average at the upper division level in political science courses; and two upper division courses in the field in which the seminar is offered.

197A. Political Theory
197B. International Relations
197C. Politics
197D. Comparative Government
197E. Public Law
197F. Public Administration and Local Government

Seminars may be offered concurrently with various graduate courses.

The Staff

199. Readings in Political Science. (½ to 1 course)

Prerequisites: upper division standing, consent of the instructor and approval by the Chairman of the Department. May be repeated for a total of four full courses. Individual study. See additional information in statement of requirements for the major in political science.

The Staff

Graduate Courses

GENERAL

203. Introduction to Political Inquiry.

203A. Problems of Scientific Inquiry and Normative Discourse.

203B. Major Conceptual Frameworks and Approaches to Political Science.

Normally, 203A or its equivalent will be taken prior to 203B.

203C. Quantitative Research Methods in Political Science.

An introduction to the analysis of political data. The relationships among theory, concepts, measurements, and inference will be stressed. The nature of measurement will be discussed and there will be an introduction to scaling, index construction, and the measurement of political variables. The student will become familiar with such ideas as: variables, relationships, association and correlation, controls and causal ordering. Students will be introduced to basic techniques of data collection and analysis. They will also engage in computer-aided interpretation of political data.

The Staff

211. Political Theory.

An analysis of the central problems of political inquiry and their relation to political philosophy.

The Staff

212. International Relations.

An examination of contemporary theories and methodologies in international relations, with applications to contemporary international politics.

Mr. Jervis

215A-215B. Comparative Government.

Prerequisites: course 215A or consent of instructor is prerequisite for 215B. Approaches to the study of comparative politics and problems of comparative political analysis.

The Staff

216. Public Law.

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.

The Staff

218A. Public Administration and Local Government.

An analysis of the nature and scope of public administration and its role in modern political systems. An introduction to the problems of government of local subsystems.

The Staff

218B. Approaches to Organizational Analysis.

Analysis of several of the major conceptual alternatives for the study of organizations, with emphasis given to public administrative organizations. Among the topics covered are structural-functional and systemic approaches to organization, rational-choice models, and social psychological analyses. Each alternative is critically evaluated for its strengths and weaknesses as a guide to understanding organizational analysis.

The Staff

218C. The Administrative System.

A behavioral analysis of the processes of public administrative structures in the American political system. Emphasis on the possibilities for and limits on rational decision-making and program innovation and on the problems of maintaining public responsibility.

The Staff

SUBSTANTIVE COURSES

220. Special Studies in Political Theory.

Directed work in the history of political theory for students preparing for the M.A. or Ph.D. examination in political theory.

The Staff

221. Selected Texts in Political Theory.

A critical examination of major texts in political theory with particular attention to their philosophic system, their relations to the contemporary political and intellectual currents, and the importance of the system for present-day political analysis. May be concurrently scheduled with Political Science 197E.

The Staff

222. Selected Topics in Political Theory.

A critical examination of a major problem in political theory. May be concurrently scheduled with Political Science 197A.

The Staff

224A-224K. Studies in Politics.

224A. Quantitative Applications.

A survey of quantitative research techniques and their application to the study of political phenomena.

Mr. Hensler, Mr. Marvick

224B. Political Recruitment.

A critical evaluation of the literature concerned with the backgrounds of public men, and with the screening and sponsoring mechanisms affecting their careers and political perspectives.

Mr. Marvick, Mr. Snowiss

224C. Politics and Society.

The application of selected classical and contemporary sociological theories to politics.

Mr. Halpern

224D. Group Theories of Politics.

Critical appraisal of "group theory" approaches to the study of political decision-making, with special attention to empirical research problems and findings.

Ms. Orren

224E. Legislative Behavior.

The analysis of the major approaches to the study of representative institutions, with special emphasis upon the assumptions, concepts, methods, and theoretical implications associated with each approach.

Mr. Marvick, Mr. Snowiss

224F. Executive Politics and the Presidency.

An analysis of executive organization and leadership with emphasis on the American Presidency. Special attention to theories of organization and personality and the relationship between the executive and other institutions and groups. May be concurrently scheduled with course 197C.

Mr. Halpern, Mr. Snowiss

M224G. Political Psychology.

(Same as Psychology M228.) A survey of psychological approaches to political analysis; topics include personality, small group analysis, experimental social-psychology, and cognitive psychology.

Mr. Hensler, Mr. Sears

M224H. Comparative Community Political Systems.

(Same as Architecture and Urban Planning M214.) Critical evaluation of the literature on community power and secondary analysis of data from extant research (primarily American, but increasingly comparative). Special attention to power distributions, leadership recruitment, and public and private decision making.

The Staff

224I. Political Parties.

A critical examination of the literature on party systems and organization. Special attention will be given to political functions, electoral campaigns, and party cadres.

Mr. Marvick

224J. Mass Political Attitudes and Behavior.

An analysis of the development and change of political attitudes in mass publics, and their relationship to voting, protest, and violence.

Mr. Hensler, Mr. Marvick, Mr. Sears

224K. Polity and Economy.

An analysis of the theoretical and practical relationships between economic organization and governmental institutions. Study will include the development and political implications of the market system, banking and finance, corporate enterprise, and organized labor.

Mr. Halpern, Ms. Orren

228A. Personnel and Human Relations.

An analysis of the policies, processes, organizations, and interrelationships involved in manning the public services.

Mr. Crouch

228B. Public Planning, Programming, and Budgeting.

Public budgeting processes within a political and organizational framework. Special emphasis on the Federal program-budgeting system and the interplay between contemporary bureaucratic and decision theory of rational allocation of resources.

Mr. Hoffenberg, Mr. Ries

M228C. Political and Administrative Aspects of Planning.

(Same as Architecture and Urban Planning M205.) A study of the political constraints on and support for effective planning. To be explored are the relationships between planning performance and government structure, political culture, and the scope of planning goals.

Mr. Engelbert, Mr. Fried

228D. The National Administrative System.

An examination of the formulation and implementation of policy at the federal level. The consequences of administrative performance for American political and social life will be explored.

The Staff

228E. State Administrative Systems.

An analysis of state administrative systems, their local sub-systems, and their outputs. May be concurrently scheduled with Political Science 197F.

The Staff

M229. Urban Government.

(Same as Architecture and Urban Planning M217.) An analysis of the policies, processes, interrelations, and organization of governments in heavily populated areas.

Mr. Bollens, Mr. Fried

230. Comparative Development Administration.

An analysis of the administration of development programs and the development of administrative institutions, with special attention to ecology. Comparisons are made both between countries and within countries.

Mr. Engelbert, Mr. Fried, Mr. Sisson

231A-231D. Studies in International Relations.

231A. Contemporary Problems in United States Foreign Policy.

An intensive analysis of the policy-formulation process and the substance of selected contemporary problems in foreign policy. Political and institutional factors affecting foreign policies will be stressed along

with the analysis of policy options. May be concurrently scheduled with Political Science 197B.

The Staff

231B. National and International Defense Problems.
This course analyzes various national security problems in both their military-technical and political dimensions. It seeks to develop in some depth issues likely to be raised in Political Science 138A, which, however, is not a prerequisite.

Mr. Brodie

231C. International Law and Organization.
This course emphasizes the role of law and organization in the conduct of contemporary international politics. International organization is considered as an integral process within the contemporary international legal system whose characteristics are explored in depth.

The Staff

231D. International Relations Theory.
An introduction to contemporary problems in international relations theory. May be concurrently scheduled with Political Science 197B.

Mr. Wilkinson

235. Selected Topics in Comparative Politics.

(Formerly numbered 225.) A critical examination of a major problem in comparative politics.

The Staff

238A-238D. Studies in Public Law.

238A. Evolution of Anglo-American Law Books.
Surviving early records. Case reporting, from the year books to the modern reports. Legal treatises from Glanvill to today. Statutes and how to find them. The language of the law. Although emphasis will be placed upon American materials the entire English speaking world will be covered. May be concurrently scheduled with Political Science 197E.

Mr. Gerstein

238B. Making of the Constitution.
An examination of the development of constitutional law during selected periods of American history, such as Founding, the Marshall and Taney eras, and the New Deal. The focus will be on both judicial and non-judicial materials.

Mr. Hobbs, Mr. Longaker

238C. The Bill of Rights and the States.
An examination of the problems surrounding the application to the states of Amendments 1-9.

Mr. Hobbs

238D. Current Problems in Public Law.
A discussion of selected contemporary problems in jurisprudence, the judicial process, judicial behavior, and legal controls on social conduct. May be concurrently scheduled with Political Science 197E.

Mr. Gerstein, Mr. Longaker

Graduate Seminars

Prerequisite for all graduate seminars: advance consent of instructors.

250A-250L. Seminars in Regional and Area Political Studies.

250A. Latin-American Studies.
Mr. Gonzalez, Ms. Purcell

250B. Russian and Slavic Studies.
Mr. Cattell, Mr. Kolkowicz, Mr. Korbonski

250C. Chinese and East Asian Studies.
Mr. Baum

250D. Japanese and Western Pacific Studies.
Mr. Baerwald

250E. African Studies.
Mr. Lofchie, Mr. Sklar

250F. Middle Eastern Studies.
Mr. Jabber, Mr. Kerr

250G. Commonwealth Studies.
The Staff

250H. Western European Studies.
Mr. Fried

250J. Southeast Asian Studies.
Mr. Wilson

250K. North African Studies.
Mr. Kerr

250L. South Asian Studies.
Mr. Sisson

252. Seminar in Public Law.

May be concurrently scheduled with Political Science 197E.

The Staff

253. Seminar in International Relations.

May be concurrently scheduled with Political Science 197B.

The Staff

254. Seminar in Public Administration.

May be concurrently scheduled with Political Science 197F.

The Staff

256A-256B. Seminar in Comparative Government.

Prerequisite: course 256A is prerequisite to 256B.

The Staff

257. Seminar in Political Theory.

The Staff

259. Seminar in Political and Electoral Problems.

Prerequisite: two graduate courses in Politics.

The Staff

262. Seminar in Municipal Government.

The Staff

271. Seminar in Political Change.

An interdisciplinary seminar directed toward the analysis of political change. To be offered by members of the Department of Political Science. May be concurrently scheduled with Political Science 197D.

The Staff

Professional Course

401. Internship in Public Service. (½ to 1 course)

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. Course may be taken for credit more than once with permission of M.P.A. Program Director or Associate Director; Political Science 401 is for four units credit each enrollment, but these units are not included in minimum graduation requirements for the Master of Public Administration program (currently 36 units).

The Staff

501. Cooperative Program. (½ to 2 courses)

Prerequisites: Approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 1 course

A letter grade (A, B, C, D, or F) will be assigned by the professor supervising the study or research. May apply toward the minimum course requirement for the master's degree, and it ordinarily may be used for this requirement only once.

597. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examinations for the Ph.D. (½ to 2 courses)

This course is ordinarily taken only during the quarter in which the student is being examined. A grade of Satisfactory (S) or Unsatisfactory (U) will be assigned by the Department on the basis of the student's performance in the examination(s).

598. Research for and Preparation of the Master's Thesis. (½ to 2 courses)

A grade of Satisfactory (S) or Unsatisfactory (U) will be assigned by the professor supervising the master's thesis. (This course will rarely be taken in the Department because students normally receive their master's degree under the Comprehensive Examination Plan.)

599. Research for and Preparation of the Doctoral Dissertation. (½ to 2 courses)

A grade of Satisfactory (S) or Unsatisfactory (U) will be assigned by the professor supervising the dissertation.

There is no restriction on the number of times an individual student may enroll in any of the 590 series courses.

■ PSYCHIATRY AND BIOBEHAVIORAL SCIENCES

(Department Educational Activities Office, B8-207NPI)

Ransom J. Arthur, M.D., *Professor of Psychiatry, Executive Vice-Chairman of the Department.*

George T. Bidder, M.D., *Professor of Psychiatry.*

Norman Q. Brill, M.D., *Professor of Psychiatry.*

*W. Jann Brown, M.D., *Professor of Pathology and Psychiatry.*

*Nathaniel A. Buchwald, Ph.D., *Professor of Anatomy and Psychiatry in Residence.*

Kenneth M. Colby, M.D., *Professor of Psychiatry.*

*Wilfrid J. Dixon, Ph.D., *Professor of Biomathematics, Biostatistics and Psychiatry.*

Robert B. Edgerton, Ph.D., *Professor of Anthropology and Psychiatry in Residence.*

Bernice T. Eiduson, Ph.D., *Professor of Medical Psychology in Residence.*

*Samuel Eiduson, Ph.D., *Professor of Biological Chemistry and Psychiatry in Residence.*

*Frank R. Ervin, M.D., *Professor of Psychiatry in Residence.*

Barbara Fish, M.D., *Professor of Psychiatry.*

Arvan L. Fluharty, Ph.D., *Adjunct Professor of Psychiatry.*

*Joaquin M. Fuster, M.D., *Professor of Psychiatry in Residence.*

John Garcia, Ph.D., *Professor of Psychology and Psychiatry.*

Harold Garfinkel, Ph.D., *Professor of Sociology and Psychiatry.*

*Member of the Brain Research Institute.

Walter R. Goldschmidt, Ph.D., *Professor of Anthropology and Psychiatry.*
Milton Greenblatt, M.D., *Professor of Psychiatry in Residence.*
Herbert J. Grossman, M.D., *Professor of Psychiatry in Residence.*
Donald Guthrie, Ph.D., *Adjunct Professor of Biostatistics and Psychiatry.*
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William H. Levy, M.D., *Assistant Clinical Professor of Psychiatry.*
Barry S. Lieberman, M.D., *Assistant Clinical Professor of Psychiatry.*
Henry Lihn, M.D., *Associate Clinical Professor of Psychiatry.*
Myron Lind, M.D., *Assistant Clinical Professor of Psychiatry.*
Barbara E. Linden, M.A., *Demonstration Teacher.*
John A. Lindon, M.D., *Associate Clinical Professor of Psychiatry.*
Walter Ling, M.D., *Assistant Clinical Professor of Psychiatry.*
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Ange J. Lobue, M.D., *Assistant Clinical Professor of Psychiatry.*
Harvey D. Lomas, M.D., *Assistant Clinical Professor of Psychiatry.*
Leonard M. Loren, M.D., *Assistant Clinical Professor of Psychiatry.*
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Maria T. Lymberis, M.D., *Assistant Clinical Professor of Psychiatry.*
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Michael Mandel, M.D., *Assistant Clinical Professor of Psychiatry.*
Eric H. Marcus, M.D., *Assistant Clinical Professor of Psychiatry.*
Judd Marmor, M.D., *Clinical Professor of Psychiatry.*
Carl E. Marusak, M.D., *Assistant Clinical Professor of Psychiatry.*
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King M. Mendelsohn, M.D., *Assistant Clinical Professor of Psychiatry.*
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Richard W. Merel, M.D., *Assistant Clinical Professor of Psychiatry.*
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Richard Migel, M.D., *Assistant Clinical Professor of Psychiatry.*
Curtis R. Miller, M.A., *Specialist.*
Nancy Brown Miller, M.S.W., *Associate in Social Work.*
Ronald S. Mintz, M.D., *Associate Clinical Professor of Psychiatry.*
Thomas Mintz, M.D., *Assistant Clinical Professor of Psychiatry.*
Henry G. Moeller, M.D., *Assistant Clinical Professor of Psychiatry.*
J. Victor Monke, M.D., *Associate Clinical Professor of Psychiatry.*
Clinton Y. Montgomery, M.D., *Assistant Clinical Professor of Psychiatry.*
Helga M. Muller, M.A., *Specialist.*
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Natalie R. Newman, M.A., *Demonstration Teacher.*
Saul Niedorf, M.D., *Assistant Clinical Professor of Psychiatry.*
Ralph M. Obler, M.D., *Associate Clinical Professor of Psychiatry.*
Anita M. O'Connor, B.A., *Demonstration Teacher.*
Andrew Ollstein, M.D., *Assistant Clinical Professor of Psychiatry.*
Ronald H. Onkin, M.D., *Assistant Clinical Professor of Psychiatry.*
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Rachel Pape, M.D., *Assistant Clinical Professor of Psychiatry.*
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Michael I. Paul, M.D., *Assistant Clinical Professor of Psychiatry.*
Irene Paulson, M.S.W., *Lecturer in Social Work.*
Stephanie L. Pearlstein, M.S.S., *Associate in Social Work.*
Frederick R. Penrose, M.S.W., *Lecturer in Social Work.*
Francisco Perez, M.S.W., *Associate in Social Work.*

*Member of the Brain Research Institute.

R. James Perkins, M.D., *Assistant Clinical Professor of Psychiatry.*
Doris Perna, M.D., *Assistant Clinical Professor of Psychiatry.*
Earl P. Petrus, M.D., *Assistant Clinical Professor of Psychiatry.*
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Leo Rangell, M.D., *Clinical Professor of Psychiatry.*
Pearl Rapp, M.S.W., *Associate in Social Work.*
Beatrice Rasof, Ph.D., *Assistant Clinical Professor of Medical Psychology.*
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Theodore Rich, M.D., *Assistant Clinical Professor of Psychiatry.*
Howard M. Richer, Ph.D., *Demonstration Teacher.*
V. Ellen Richey, M.A., *Demonstration Teacher.*
Susan E. Richman, M.A., *Demonstration Teacher.*
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John J. Riddle, M.D., *Assistant Clinical Professor of Psychiatry.*
Jean K. Ritvo, M.D., *Assistant Clinical Professor of Psychiatry.*
Charlotte Robertson, M.D., *Assistant Clinical Professor of Psychiatry.*
Henry E. Robinson, M.D., *Assistant Clinical Professor of Psychiatry.*
F. Robert Rodman, M.D., *Assistant Clinical Professor of Psychiatry.*
Nancy J. Rodriguez, M.A., *Demonstration Teacher.*
Burton Roger, M.D., *Assistant Clinical Professor of Psychiatry.*
Rita R. Rogers, M.D., *Clinical Professor of Psychiatry.*
Hilda S. Rollman-Branch, M.D., *Clinical Professor of Psychiatry.*
James P. Rosenblum, M.D., *Assistant Clinical Professor of Psychiatry.*
Richard J. Rosenthal, M.D., *Assistant Clinical Professor of Psychiatry.*
Nancy L. Rosser, M.D., *Assistant Clinical Professor of Psychiatry.*

Jerome Rowitch, M.D., *Assistant Clinical Professor of Psychiatry.*
R. Ronald Roy, M.D., *Assistant Clinical Professor of Psychiatry.*
Gerald I. Rozansky, M.D., *Assistant Clinical Professor of Psychiatry.*
Alan S. Ruttenberg, M.D., *Assistant Clinical Professor of Psychiatry.*
Alice H. Sachs, Ph.D., *Assistant Clinical Professor of Medical Psychology.*
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David S. Sanders, M.D., *Associate Clinical Professor of Psychiatry.*
James H. Satterfield, M.D., *Associate Clinical Professor of Psychiatry.*
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Bella F. Schimmel, M.D., *Assistant Clinical Profesor of Psychiatry.*
C. Herbert Schiro, M.D., *Assistant Clinical Profesor of Psychiatry.*
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Ernest H. Schreiber, M.D., *Assistant Clinical Professor of Psychiatry.*
Irwin M. Schultz, M.D., *Assistant Clinical Professor of Psychiatry.*
Lois L. Schwartz, M.D., *Assistant Clinical Professor of Psychiatry.*
Ronald M. Schwartz, M.D., *Assistant Clinical Professor of Psychiatry.*
James T. Scott, M.D., *Assistant Clinical Professor of Psychiatry.*
John R. Sealy, M.D., *Assistant Clinical Professor of Psychiatry.*
Daniel R. Shackman, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert A. Shain, M.D., *Assistant Clinical Professor of Psychiatry.*
Morton Shane, M.D., *Assistant Clinical Professor of Psychiatry.*
Joseph A. E. Shannon, M.D., *Assistant Clinical Professor of Psychiatry.*
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Jerald I. Simon, M.D., *Assistant Clinical Professor of Psychiatry.*
Priscilla A. Slagle, M.D., *Assistant Clinical Professor of Psychiatry.*
Barbara H. Smith, Ph.D., *Assistant Clinical Professor of Medical Psychology.*
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Leon I. Sones, M.D., *Assistant Clinical Professor of Psychiatry.*
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Maryellen Sparkes, M.S., *Specialist.*
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Sherry Terzian, M.S., *Associate Specialist.*
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Oscar W. Thomsen, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert L. Thornton, M.A., *Demonstration Teacher.*
John T. Tokar, M.D., *Assistant Clinical Professor of Psychiatry.*
Samuel E. Trueblood, M.D., *Assistant Clinical Professor of Psychiatry.*
Arthur A. Unger, M.D., *Assistant Clinical Professor of Psychiatry.*
Bertha B. Unger, M.A., *Lecturer in Nursing.*
Max Unger, M.D., *Associate Clinical Professor of Psychiatry.*
Albert Urmer, Ph.D., *Associate Clinical Professor of Medical Psychology.*
Carl Utsinger, M.D., *Assistant Clinical Professor of Psychiatry.*
Heiman Van Dam, M.D., *Assistant Clinical Professor of Psychiatry.*
Kato Van Leeuwen, M.D., *Assistant Clinical Professor of Psychiatry.*
Frederick Vaquer, M.D., *Assistant Clinical Professor of Psychiatry.*
Sheila T. Vaughn, Ed.D., *Demonstration Teacher.*
Charles W. Wahl, M.D., *Clinical Professor of Psychiatry.*
Patricia G. Waldron, M.D., *Assistant Clinical Professor of Psychiatry.*
Ruth Waldron, M.S.S., *Associate in Social Work.*
Leon Wallace, M.D., *Assistant Clinical Professor of Psychiatry.*
Howard F. Wallach, M.D., *Assistant Clinical Professor of Psychiatry.*
Donald E. Wallens, M.D., *Assistant Clinical Professor of Psychiatry.*
Lawrence H. Warick, M.D., *Assistant Clinical Professor of Psychiatry.*
George J. Wayne, M.D., *Clinical Professor of Psychiatry.*
I. Hyman Weiland, M.D., *Associate Clinical Professor of Psychiatry.*
Lillian L. Weitzner, M.S.W., *Associate in Social Work.*
Joel J. West, M.D., *Assistant Clinical Professor of Psychiatry.*
Joyce Will, M.S.W., *Associate in Social Work.*
Miriam Williams, M.D., *Assistant Clinical Professor of Psychiatry.*
Samuel L. Wilson, M.D., *Assistant Clinical Professor of Psychiatry.*
Stephen J. Wilson, M.D., *Assistant Clinical Professor of Psychiatry.*
Gerald Windler, M.D., *Assistant Clinical Professor of Psychiatry.*
Burton N. Wixen, M.D., *Associate Clinical Professor of Psychiatry.*
Martin E. Widzer, M.D., *Assistant Clinical Professor of Psychiatry.*
Loren D. Woodson, M.D., *Assistant Clinical Professor of Psychiatry.*
Bruce H. Woolley, M.S., *Lecturer in Hospital Administration.*
Roy Worthen, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert Zaitlin, M.D., *Assistant Clinical Professor of Psychiatry.*
Isidore Ziferstein, M.D., *Associate Clinical Professor of Psychiatry.*
Justine Zirgulis, M.D., *Assistant Clinical Profesor of Psychiatry.*

Program

The Department of Psychiatry and Biobehavioral Sciences offers interdisciplinary courses related to the mental health professions and the biobehavioral sciences in addition to its programs for psychiatry interns and residents and for medical students (courses for medical students are listed in the School of Medicine Announcement and the School of Medicine Handbook of Clinical Courses). Information on clinical practicums which are offered in conjunction with other educational institutions and UCLA departments may be obtained from the department. The following courses are open to qualified students.

Upper Division Courses

M105. The Social Sciences in Psychiatry.
(Same as Anthropology M101.) Prerequisite: consent of the instructor. An introduction to the fields of social psychology, sociology, cultural anthropology, and ethology.
Mr. Kennedy

M112. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.
(Same as Anthropology M176, and Psychology M155.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings will be taught, emphasizing field training and practice in observing behavior. Group and individual projects will be included. Some of the uses of observations and their implications for research in the social sciences will also be discussed.
Mr. Gallimore, Mr. Weisner

199. Special Studies in Psychiatry. (½ to 1 course)
Prerequisite: consent of the instructor and Department Chairman. Consent is based on a written proposal outlining the course of study. The proposal is to be structured by instructor and student at time of initial enrollment. Additional information and course proposal forms are available in the Educational Activities Office, B8-207 NPI.
The Staff

Graduate Courses

M222. Transcultural Psychiatry.
(Same as Anthropology M201.) Prerequisites: Anthropology M101 or Psychiatry M105 or consent of the instructor. Consideration of all aspects of psychiatry which have been or can be investigated in cross-cultural perspective. This includes epidemiological studies of drug use, deviance, suicide, homicide and behavioral disorders of all kinds, reviews of the evidence regarding "culture specific" syndromes, and investigation of non-Western psychiatries. Problems of classification and methodology will be discussed.
Mr. Kennedy

231. Mental Health of the Mexican American. (½ course)
Prerequisite: consent of instructor. Course will highlight mental health needs of Mexican Americans through seminars dealing with: historical comparison of psychiatry in Mexico and United States, an analysis of the various theoretical perspectives regarding bio-psycho-social behavior; distinguishing psychodynamic from cultural factors in the treatment of Mexican-American patients; mental health impact of the criminal justice system and urban disorder.
Mr. Morales

M235. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.
(Same as Anthropology M213.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings will be taught, emphasizing field training and practice in observing behavior. Some of the uses of observations and their implications for research in the social sciences will also be discussed. Students will be expected to integrate observational work into their current research interests.
Mr. Gallimore, Mr. Weisner

M239. Psychopharmacology.
(Same as Pharmacology M239.) Prerequisite: consent of the instructor. A presentation of the effects of drugs upon behavior with special attention to drugs used in psychiatry and drug seeking behavior. Physiological and biochemical mechanisms underlying such actions will be analyzed. Reports on relevant current research will be made.
Mr. Jarvik

240A-240B-240C. Socio-Cultural Factors in the Diagnosis and Treatment of Black Families. (¾ course)
Prerequisite: graduate standing and consent of instructor. Course aids mental health trainees in evaluating and treating clients in terms of their cultural milieu, describes the black family in historical and cultural terms, and exposes trainees to the black community and its resources through lectures and field experience.
Mr. Anderson, Ms. Bass, Mr. Mumford

250A. Introduction to the Principles and Techniques of Mammalian-Cell Culture. (½ course)
Prerequisites: graduate or medical student status and consent of the instructor. This course provides a background in the physiology and biochemistry of mammalian cells in culture through lectures and selected readings in the classical field. Designed to be taken concurrently with 250B. Graded S/U.
Mr. Haggerty

250B. Laboratory Exercises in the Techniques of Mammalian-Cell Culture.

Prerequisites: graduate or medical student status and consent of instructor. This course provides a working knowledge of the physiology and biochemistry of mammalian cells in culture through laboratory exercises involving the propagation and manipulation of differentiated and undifferentiated continuous mammalian-cell lines. Designed to be taken concurrently with 250A. Graded S/U.

Mr. Haggerty

M255. Comparative Psychopathology.

(Same as Psychology M285.) Prerequisites: some background in psychopathology, comparative psychology, zoology or comparative genetics and consent of the instructor. This course will explore those animal models of psychopathology most relevant to human clinical problems (i.e., schizophrenia, depression, phobias, anxiety states, drug abuse, aggression, sexual dysfunction, etc.). The interaction or convergence of social, biological, and environmental processes in determining these states will be emphasized. The relevance of the model to the understanding of homologous human conditions will be analyzed.

Mr. Ervin, Mr. Garcia, Ms. Jamison

260. Community Mental Health Seminar. (¾ course)

Prerequisite: permission of the instructor. The three-month seminar will be didactic and will include information in the following areas: consultation, direct service, primary prevention, program evaluation, as related to theories and models of community mental health. Graded S/U.

Ms. Reardon, Ms. Wyatt

M265. Mind and Brain in Evolution. (½ course)

(Same as Psychology M211.) Prerequisite: consent of instructor. This course reviews the fossil evidence on the organic evolution of the brain and the implications of the evidence for the evolution of mind and intelligence. Quantitative approaches are emphasized. Although some implications for cognitive psychology and individual differences are considered, the evolutionary analysis is "above the species level."

Mr. Jerison

270. Experimental Primatology.

Prerequisite; consent of instructor. Examination of methodological and conceptual issues in the study of primate social behavior. Hypothesis formulation, data collecting techniques and ways of analyzing data are examined. Attention is focused on aggresion, communication and psychosexual development.

Mr. Ervin

310A-310B-310C. Mental Retardation Interdisciplinary Core Curriculum.

Prerequisite: UAF trainees. Survey series on major topic areas of mental retardation covering epidemiology, nosology, assessment, health care delivery systems, basic genetics, nutrition, direct care, and special deficits presented in an interdisciplinary framework as generic information independent of discipline. Graded S/U.

Mr. Cantwell and the Staff

311. An Overview of Computer Systems.

Prerequisite: by permission of instructor. An introduction to the basic nature of digital computer systems, with emphasis on their impact on society. The course is directed toward providing the student with a broad general understanding of applications and limitations of computers. Specific examples are drawn from clinical, research, and administrative applications within the Mental Retardation and Child Psychiatry Program. Graded S/U.

Mr. Guthrie, Mr. Hull

313. Clinical Genetics Rounds.

Prerequisite: medical graduate and permission of instructor. This is a weekly clinical rounds on patients seen on the wards during the preceding week. House staff and others involved in clinical work may attend. Usually an indepth discussion of the medical and genetic aspects of one or more disorders are presented. Graded S/U.

Ms. Crandall and the Genetics Staff

314. Genetics Clinic Presentation.

Prerequisite: permission of the instructor. A weekly clinical teaching session on the patients seen in the preceding Genetics Clinic. An indepth discussion on the genetics of each disorder follows.

Mr. Cederbaum and the Genetics Staff

315. Medical Genetics Seminars.

Prerequisite: basic genetics and permission of instructor. This weekly lecture series is intended for those interested in genetics or in the specific topic to be presented. Speakers are invited for their expertise or research in some special area related to genetics and may be from UCLA or elsewhere. Discussion and questions from the audience are encouraged. Graded S/U.

Ms. Crandall

316. Analysis of Human Chromosome Studies.

Prerequisite: premedical or basic genetics and permission of instructor. Chromosome karyotypes prepared in the cytogenetics laboratory during the preceding week are presented and discussed with reference to the clinical findings. Teaching includes the interpretation of abnormal karyotypes and the technical aspects of routine and special chromosome stains. A short review of a recently published paper is included. Graded S/U.

Mr. Sparkes

317. Chromatogrophy Review.

Prerequisite: premedical course or biochemistry. A weekly session in which amino acid chromatography carried out during the previous week is presented. Teaching concerns the integretation of abnormal chromatograms together with the technical aspects of the tests used. Graded S/U.

Mr. Cederbaum

318. Psychological Aspects of Mental Retardation.

Prerequisite: offered to pre- and postdoctoral trainees in mental retardation and developmental disabilities. Discussion of the psychological aspects of mental retardation to include: classification, description, etiology, theory, prevention, treatment, assessment, modern and future developments, and input from other disciplines (ethics, law, religion, welfare systems). Will be offered during summer, fall, winter and spring quarters. Graded S/U.

Mr. Tymchuk

319. Mental Retardation Interdisciplinary Case Seminar.

Prerequisite: consent of instuctor. Presentation of problem cases, usually with combined physical and intellectual defects, for interdisciplinary problem solving. Graded S/U.

Mr. Simmons and the Child Psychiatry Staff

320A-320B. Neurophysiological and Neuropsychological Bases of Mental Retardation and Human Development.

Prerequisite: graduate standing and consent of instructor. This course involves discussion of advances in neurophysiology and neuropsychology with particular reference to modern developmental studies. Faculty members or advanced students present results of their research work in context of available literature; intense discussion occurs during and after presentations. Graded S/U.

Mr. Soltysik, Mr. Villablanca

321. Research Rounds in Mental Retardation and Developmental Disabilities.

Prerequisite: open. Monthly session will consist of presentation of a patient and discussion of research approaches relevent to that patient. Staff members from various disciplines and invited speakers will participate. Meets second Tuesday of the month. Graded S/U.

Mr. de Vellis

322. Language Disorders of Childhood.

Prerequisite: Pre- and Post-doctoral trainees and consent of the instructor. Course reviews language disabilities in children, their relationship to normal maturational patterns and to other aspects of behavior, the critical period hypothesis, universals of language development, environmental factors affecting language acquisition, neural mechanisms underlying speech and language, diagnostic methods, and approaches to remedial language training. Graded S/U.

Ms. Baltaxe

324. Seminar: Clinical Child Psychiatry.

Prerequisite: consent of the instructor. Weekly seminars covering the basic clinical aspects of child psychiatry. Assigned readings are presented by students and used as a basis for discussion of a particular topic. Topics covered include interviewing of parents and children, diagnosis in child psychiatry, and the clinical child psychiatric syndrome. Graded S/U.

Mr. Cantwell

325. Seminar: Child Development.

Prerequisite: consent of the instructor. The seminar is divided into three sections: theories of development, systems of child development, and chronological aspects of child development. Presentation of assigned readings by the students plays a major role in each of the seminar sessions. Graded S/U.

Mr. Cantwell and the Staff

326. Mental Retardation and Child Psychiatry Special Problems Conference.

Prerequisite: consent of the instructor. Each month one clinical subdivision of the Mental Retardation and Child Psychiatry Program presents a major clinical problem. Senior faculty discussants preside. The presenting trainees are expected to cover the pertinent literature and to assemble the critical elements of information on the case or problem at hand. Graded S/U.

Mr. Cantwell, Mr. Simmons, and the Staff

328. Management of Families with Retarded Children.

Prerequisite: consent of instructor. Includes videotapes, roleplaying, review of literature and discussion of sociological description of mental retardation, the parents' response to mental retardation, the professional's response to mental retardation and techniques for professionals working with parents. Graded S/U.

Ms. Miller

329. Student/Faculty Case Conference.

UAF team, all trainees and UAF faculty. Provides the trainees a forum for the interdisciplinary approach to diagnosis, treatment and follow-up of the retarded and developmentally disabled. The course follows a planned format involving presentations by the trainees of cases exemplifying a significant problem. The problems are then discussed by the UAF faculty and trainees; and the pertinent literature is surveyed. Graded S/U.

Mr. Simmons

330. Individual Case Supervision.

Case material involves retarded and disabled children and adolescents from NPI wards and Outpatient Clinic. Includes analyses of patient data, supervision of ongoing treatment, informal didactic sessions of learning, theory and applications to patient management. Graded S/U.

UAF Faculty

331A-331B-331C. Nursing Care of the Developmentally Disabled.

Prerequisite: enrollment in the Master's Program of the School of Nursing. Study of the handicapping conditions of childhood and their effects upon the child and his/her family. This course combines didactic material

and supervised clinical experience. Focus is on prevention, systematic assessment, planning, implementation and evaluation of nursing care. During the final quarter the student participates in the assessment, planning and delivery care to the developmentally disabled in the community. Graded S/U.

Ms. Savino

332. Multidisciplinary Clinic.

Prerequisite: consent of the instructor. Follow up clinic for children affected with known chromosomal abnormalities. Services and teaching involve genetic counseling, educational and behavioral assessment, school consultation and family child guidance. Graded S/U.

Mr. Funderburk and the Staff

334A-334B-334C. Diagnostics and Therapeutics of Language Disabilities.

Prerequisite: consent of the instructor. This course is directed toward the language specialist seeking training in the developmental disabilities of language. The course includes training in diagnostic techniques and therapy approaches. Linguistic disabilities are placed within the framework of total behavior. The clinical practicum includes individual case supervision, a review of the pertinent literature, and a discussion of research topics. Students are required to complete a clinical research project in psycho- and neurolinguistics. Graded S/U.

Ms. Baltaxe

Professional Courses

400A-400B. Introduction to Human Behavior. (¾ course each)

Prerequisites: graduate student in a behavioral science program and consent of instructor. Applications of theories and findings of the behavioral sciences to the health professions.

Ms. Jarvik, Mr. Mensh

462A-462B. Advanced Mental Health Consultation Field Work.

(Formerly numbered 462A-462B-462C.) Prerequisite: course 456A-456B, 453A-453C concurrent with 462A-462B respectively. Consent of instructor. Advanced analysis of theoretical and practical issues in mental health consultation based upon assigned, ongoing field consultations of the participants and on the study of advanced theory of consultation and organization.

Mr. Newman

Individual Study and Research

596P. Individual Studies in Psychiatry. (½ to 2 courses)

Prerequisite: consent of instructor and Department Chairman. Consent is based on a written proposal outlining the course of study. The proposal is to be structured by instructor and student at time of initial enrollment. Directed individual research and study in psychiatry at the graduate level. Additional information and course proposal forms are available in the Educational Activities Office, B8-207 NPI.

The Staff

■ PSYCHOLOGY

(Department Office, 1283 Franz Hall)

Peter M. Bentler, Ph.D., *Professor of Psychology.*

Robert A. Bjork, Ph.D., *Professor of Psychology.*

William E. Broen, Jr., Ph.D., *Professor of Psychology.*

**Edward C. Carterette, Ph.D., *Professor of Psychology.*

Richard Centers, Ph.D., *Professor of Psychology.*

James C. Coleman, Ph.D., *Professor of Psychology and Education (Vice Chairman of Undergraduate Affairs).*

Barry E. Collins, Ph.D., *Professor of Psychology.*

Andrew L. Comrey, Ph.D., *Professor of Psychology.*

**Gaylord D. Ellison, Ph.D., *Professor of Psychology.*

Seymour Feshbach, Ph.D., *Professor of Psychology.*

Morton P. Friedman, Ph.D., *Professor of Psychology.*

John Garcia, Ph.D., *Professor of Psychology and Psychiatry.*

Harold B. Gerard, Ph.D., *Professor of Psychology.*

Michael J. Goldstein, Ph.D., *Professor of Psychology.*

Wendell E. Jeffrey, Ph.D., *Professor of Psychology.*

F. Nowell Jones, Ph.D., *Professor of Psychology.*

Harold H. Kelley, Ph.D., *Professor of Psychology.*

O. Ivar Lovaas, Ph.D., Litt.D., *Professor of Psychology.*

Leonore Rice Love, Ph.D., *Professor of Psychology in Residence.*

Irving Maltzman, Ph.D., *Professor of Psychology (Chairman of the Department).*

Charles Y. Nakamura, Ph.D., *Professor of Psychology (Vice Chairman of Graduate Affairs).*

**Donald Novin, Ph.D., *Professor of Psychology.*

Allen Parducci, Ph.D., *Professor of Psychology.*

Bertram H. Raven, Ph.D., *Professor of Psychology.*

Eliot H. Rodnick, Ph.D., *Professor of Psychology.*

David O. Sears, Ph.D., *Professor of Psychology and Political Science.*

Joseph G. Sheehan, Ph.D., *Professor of Psychology.*

Gerald H. Shure, Ph.D., *Professor of Psychology and Sociology.*

James P. Thomas, Ph.D., *Professor of Psychology.*

Bernard Weiner, Ph.D., *Professor of Psychology.*

Harry W. Case, Ph.D., *Emeritus Professor of Engineering and Applied Science and Psychology.*

S. Carolyn Fisher, Ph.D., *Emeritus Professor of Psychology.*

Joseph A. Gengerelli, Ph.D., *Emeritus Professor of Psychology.*

Milton E. Hahn, Ph.D., *Emeritus Professor of Psychology.*

George F. J. Lehner, Ph.D., *Emeritus Professor of Psychology.*

Donald B. Lindsley, Ph.D., Sc.D., *Emeritus Professor of Psychology and Physiology Recalled.*

Laurence A. Petran, Ph.D., F.A.G.O., *Emeritus Professor of Music and Psychology.*

Jessie L. Rhulman, Ed.D., *Emeritus Professor of Psychology.*

John P. Seward, Ph.D., *Emeritus Professor of Psychology.*

Marion A. Wenger, Ph.D., *Emeritus Professor of Psychology.*

Howard S. Adelman, Ph.D., *Associate Professor of Psychology and Lecturer in Education.*

Bruce L. Baker, Ph.D., *Associate Professor of Psychology.*

Richard P. Barthol, Ph.D., *Associate Professor of Psychology.*

**Jackson Beatty, Ph.D., *Associate Professor of Psychology.*

**Larry L. Butcher, Ph.D., *Associate Professor of Psychology.*

Jacqueline D. Goodchilds, Ph.D., *Adjunct Associate Professor of Psychology and Associate Research Psychologist.*

Gerald M. Goodman, Ph.D., *Associate Professor of Psychology.*

Patricia M. Greenfield, Ph.D., *Associate Professor of Psychology.*

Barbara A. Henker, Ph.D., *Associate Professor of Psychology.*

Eric W. Holman, Ph.D., *Associate Professor of Psychology.*

John P. Houston, Ph.D., *Associate Professor of Psychology.*

**Franklin B. Krasne, Ph.D., *Associate Professor of Psychology.*

**John C. Liebeskind, Ph.D., *Associate Professor of Psychology.*

Donald G. MacKay, Ph.D., *Associate Professor of Psychology.*

Millard C. Madsen, Ph.D., *Associate Professor of Psychology.*

Albert Mehrabian, Ph.D., *Associate Professor of Psychology.*

George E. Mount, Ph.D., *Associate Professor of Psychology.*

Amado M. Padilla, Ph.D., *Associate Professor of Psychology.*

Paul R. Abramson, Ph.D., *Assistant Professor of Psychology.*

Ted W. Allen, Ph.D., *Assistant Professor of Psychology.*

Anne S. Anzel, Ph.D., *Adjunct Assistant Professor of Psychology.*

Elizabeth L. Bjork, Ph.D., *Assistant Professor of Psychology.*

Edward G. Carr, Ph.D., *Adjunct Assistant Professor of Psychology.*

Patrice L. French, Ph.D., *Assistant Professor of Psychology.*

Barbara A. Gutek, Ph.D., *Assistant Professor of Psychology.*

Constance L. Hammen, Ph.D., *Assistant Professor of Psychology.*

Morris K. Holland, Ph.D., *Assistant Professor of Psychology.*

Pamela R. Jackson, Ph.D., *Assistant Professor of Psychology.*

David E. Kanouse, Ph.D., *Assistant Professor of Psychology.*

Dennis K. Kinney, Ph.D., *Assistant Professor of Psychology.*

**Member of the Brain Research Institute.

Adam T. Kohler, Ph.D., *Adjunct Assistant Professor of Psychology.*
Manuel Leon, Ph.D., *Assistant Professor of Psychology.*
Dennis J. McGinty, Ph.D., *Adjunct Assistant Professor of Psychology.*
Sigrid R. McPherson, Ph.D., *Adjunct Assistant Professor of Psychology and Medical Psychology and Assistant Research Psychologist in Medical Psychology.*
Hector F. Myers, Ph.D., *Assistant Professor of Psychology.*
L. Anne Peplau, Ph.D., *Assistant Professor of Psychology.*
Frank T. Price, Ph.D., *Assistant Professor of Psychology.*
Nancy L. Rader, Ph.D., *Assistant Professor of Psychology.*
George A. Rekers, Ph.D., *Adjunct Assistant Professor of Psychology.*
Kelyn H. Roberts, Ph.D., *Assistant Professor of Psychology.*
Karl Syndulko, Ph.D., *Adjunct Assistant Professor of Psychology.*
Linda L. Taylor, Ph.D., *Adjunct Assistant Professor of Psychology.*
Perry W. Thorndyke, Ph.D., *Adjunct Assistant Professor of Psychology.*
Thomas D. Wickens, Ph.D., *Assistant Professor of Psychology.*
J. Arthur Woodward, Ph.D., *Assistant Professor of Psychology.*

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Armand A. Alkire, Ph.D., *Associate Clinical Professor of Psychology.*
Dorothy V. Anderson, Ph.D., *Assistant Clinical Professor of Psychology.*
Joseph A. Angelo, Ph.D., *Associate Clinical Professor of Psychology.*
Alan Barnebey, Ph.D., *Assistant Research Psychologist.*
Charles M. Bowdlear, Ph.D., *Associate Clinical Professor of Psychology.*
David E. Bresler, Ph.D., *Adjunct Assistant Professor of Psychology and Anesthesiology.*
James E. Bruno, Ph.D., *Associate Professor of Education and Associate Research Psychologist.*
Marcelline M. Burns, Ph.D., *Assistant Research Psychologist in Psychology and Engineering.*
Matthew W. Buttiglieri, Ph.D., *Clinical Professor of Psychology.*
Philip M. Carman, Ph.D., *Clinical Professor of Psychology.*
Linda L. Damon, Ph.D., *Lecturer in Psychology.*
Terry S. Davis, Ph.D., *Assistant Research Psychologist.*
Darrell C. Dearmore, M.A., *Lecturer in Psychology.*
Charles D. Dooley, Ph.D., *Assistant Professor of Social Ecology and Assistant Research Psychologist.*
Allan E. Edwards, Ph.D., *Lecturer in Psychology.*
Jerome R. Evans, Ph.D., *Assistant Research Psychologist.*
Ruth K. Forer, Ph.D., *Assistant Research Psychologist.*
Gilbert Freitag, Ph.D., *Lecturer in Psychology.*
Louis Friedman, Ph.D., *Lecturer in Psychology.*
Rosslyn Gaines, Ph.D., *Associate Professor of Medical Psychology and Psychology in Residence.*
Desy S. Gerard, Ph.D., *Assistant Research Psychologist.*
Beverly Golden, Ph.D., *Associate Clinical Professor of Psychology.*
Rex S. Green, Ph.D., *Assistant Research Psychologist.*
Thomas C. Greening, Ph.D., *Lecturer in Psychology.*
Frank L. Greitzer, Ph.D., *Lecturer in Psychology.*
Henriette Groot, Ph.D., *Associate Clinical Professor of Psychology.*
Robert L. Gunn, Ph.D., *Associate Clinical Professor of Psychology.*
Walter G. Hankins, Ph.D., *Assistant Research Psychologist.*
Anna G. Heinrich, Ph.D., *Lecturer in Psychology.*
Charlyne T. Herbert, Ph.D., *Associate Clinical Professor of Psychology.*
Noriaki Hirasuna, Ph.D., *Assistant Research Psychologist.*
Elaine D. Holmes, Ph.D., *Assistant Clinical Professor of Psychology.*
Harrington V. Ingham, M.D., *Senior Physician Diplomate in Student Health Service and Associate Clinical Professor of Psychiatry and Psychology.*
Harry J. Jerison, Ph.D., *Professor of Medical Psychology and Psychology in Residence.*
James E. Jones, Ph.D., *Assistant Research Psychologist.*
Margaret Hubbard Jones, Ph.D., *Research Psychologist.*
George G. Katz, Ph.D., *Associate Clinical Professor of Psychology.*
Robert L. Koegel, Ph.D., *Assistant Professor of Speech and Assistant Research Psychologist.*
John R. Levee, Ph.D., *Associate Clinical Professor of Psychology.*
Michael S. Levine, Ph.D., *Assistant Research Anatomist and Lecturer in Psychology.*
John H. Lyman, Ph.D, *Professor of Engineering and Psychology.*
Neil M. Malamuth, Ph.D., *Lecturer in Psychology.*
Charles D. McCarthy, Ph.D., *Associate Clinical Professor of Psychology.*
John H. McCormack, Ph.D., *Associate Clinical Professor of Psychology.*
William H. McGlothlin, Ph.D., *Professor of Psychology in Residence and Research Psychologist in Psychiatry.*
John W. McKelligott, Ph.D., *Associate Clinical Professor of Psychology.*
Mike A. Miller, Ph.D., *Assistant Research Psychologist.*
Wilbur E. Morley, Ph.D., *Lecturer in Psychology.*
Herbert A. Moskowitz, Ph.D., *Associate Research Psychologist.*
Louis R. Mutalipassi, Ph.D., *Assistant Clinical Professor of Psychology.*
Robert J. Norman, Ph.D., *Assistant Research Physiologist and Lecturer in Psychology.*
Philip Oderberg, Ph.D., *Lecturer in Psychology.*
Kent M. Perryman, Ph.D., *Assistant Research Psychologist.*
Kenneth R. Pfeiffer, Ph.D., *Lecturer in Psychology and Engineering.*
Lyle J. Rausch, Ph.D., *Assistant Research Physiologist and Lecturer in Psychology.*
Frank Risch, Ph.D., *Clinical Professor of Psychology.*
Alexander C. Rosen, Ph.D., *Associate Professor of Medical Psychology and Psychology in Residence.*
Bruce D. Rubenstein, Ph.D., *Associate Clinical Professor of Psychology.*
Julia A. Saslow, Ph.D., *Assistant Clinical Professor of Psychology.*
George F. Seacat, Ph.D., *Clinical Professor of Psychology.*
Harold J. Segel, Ph.D., *Associate Clinical Professor of Psychology.*
David Shapiro, Ph.D., *Professor of Medical Psychology and Psychology.*
Satanand Sharma, Ph.D., *Assistant Research Psychologist in Psychology and Engineering.*
Edwin S. Shneidman, Ph.D., *Professor of Psychology, Sociology, and Thanatology in Residence.*
Ronald K. Siegel, Ph.D., *Adjunct Associate Professor of Psychology and Associate Research Psychologist in Medical Psychology.*
Margaret T. Singer, Ph.D., *Lecturer in Psychology.*
Manuel J. Smith, Ph.D., *Assistant Clinical Professor of Psychology.*
Zanwill Sperber, Ph.D., *Lecturer in Psychology.*
Alexander J. Tymchuk, Ph.D., *Assistant Professor of Medical Psychology and Psychology in Residence.*
Kathryn L. West, Ph.D., *Assistant Research Psychologist.*
Carol K. Whalen, Ph.D., *Associate Professor of Social Ecology and Associate Research Psychologist.*
Charles L. Wilson, Ph.D., *Assistant Research Psychologist.*
Tamar Zelniker, Ph.D., *Assistant Research Psychologist.*
Kenneth Ziedman, Ph.D., *Assistant Research Psychologist in Psychology and Engineering.*
Eugene Ziskind, M.D., *Visiting Professor of Psychology.*

The Major in Psychology

Training in Psychology at UCLA emphasizes the idea of Psychology as a biosocial laboratory science. To meet the diverse needs of students, there are three different major curricula: (A) The Psychology Major, (B) The Quantitative Psychology Major, (C) The Psychobiology Major.

Students should note that all courses required for these majors (which include lower division courses and major courses, must be taken for a letter grade. A 2.0 grade-point average is required in all upper division major courses.

In order to meet the residency requirement, at least four upper division major courses must be taken in residence.

The Prepsychology Major

While students are completing the lower division preparation courses for one of the majors listed above, they should be enrolled as *Prepsychology Majors.* Students may enroll in this premajor at the Psychology Undergraduate Advising Office, Franz Hall 1531. Students must complete the preparation courses listed below for the different majors with a 2.0 grade-point average before they can enroll in the various Psychology majors. When students have completed the preparation courses for the major, they should petition to enter that major at the Psychology Undergraduate Advising Office.

The Psychology Major

The Psychology Major program is intended to give students broad training in the biosocial science of Psychology.

Required Lower Division Courses for the Psychology Major. Broad training in general science is required for the major in Psychology. The required lower division courses are as follows: Anthropology 11; Biology 2 or Biology 1A; Chemistry 2 or 1A; Engineering 10; Mathematics 2 and 4A or 3A-3B or 31A-31B; Physics 10 or 3A or 6A or 8A; Psychology 10; Psychology 41 or Mathematics 50A.

It should be noted that the above are the minimum requirements in preparing for the major. More advanced courses in science would provide stronger preparation for the major.

Required Upper Division Major Courses. (Admission to the major and to certain of the courses listed below is limited to students who have completed *all* of the above preparation courses with a 2.0 grade-point average. See the section above entitled "The Prepsychology Major" for the procedures to follow to enroll in the Psychology Major.) (1) All of the following content core courses: Psychology 110, 115*, 120, 125, 135; (2) One of the following laboratory courses: Psychology 111, 116, 121, 143; (3) One of the following laboratory or field research courses: Psychology 126, 132B, 136, 137C, 170B, 174, 176; (4) An additional three upper division elective courses (or 12 units) in Psychology.

These requirements became effective for all UCLA entering Freshmen in Fall, 1971, and students transferring to UCLA in Fall, 1972, and for all current UCLA students who wish to be admitted to the Psychology Major.

Students enrolled as Psychology majors under previous catalog requirements should consult the Psychology Undergraduate Advising Office.

The Quantitative Psychology Major

This major is an alternative to the Psychology Major. It provides students with basic training in both quantitative skills and in Psychology. Quantitative and computer skills are important in all fields of Psychology and are a very positive aspect in the student's preparation for a career in Psychology or related fields.

Required Lower Division Courses for the Quantitative Psychology Major. Biology 2 or Biology 1A; Chemistry 2 or 1A; Engineering 10; Mathematics 31A-31B-31C, 32A-32B-32C; Physics 10, or 3A or 6A or 8A; Psychology 10.

It should be noted that the above are minimum requirements in preparing for the major. More advanced courses in science would provide stronger preparation for the major.

Required Upper Division Quantitative Psychology Major Courses. (Admission to the Quantitative Psychology Major is limited to students who have completed the above preparation courses with a 2.0 grade-point average. See the section above entitled "The Prepsychology Major" for the procedures to follow to enroll in the Quantitative Psychology Major.) (1) One of the following sets of courses: Public Health 160A-160B or Mathematics 150A-150B or Mathematics 152A-152B or Engineering 193A-193B; (2) All of the following courses: Psychology 110, 115,* 120, 125, 135; (3) Seven additional upper division courses in Quantitative Psychology, Mathematics, Biostatistics, Computer Science, and Systems Science. Two of these courses must emphasize research methodology in Psychology.

Particular courses for the last requirement will depend on a student's needs and interests. Students will consult their adviser for prior approval of courses to meet these requirements.

The Psychobiology Major

This major is an alternative to the Psychology Major and is designed for students who plan to go on to postgraduate work in psychobiology or the health sciences.

Required Lower Division Courses for the Psychobiology Major. Biology 1A-1B; Chemistry 1A-1B-1C, 21, 22, and 24; Engineering 10; Mathematics 3A-3B-3C or 31A-31B-31C; Physics 6A-6B-6C or 3A-3B-3C; Psychology 10; Psychology 41 or Mathematics 50A.

Required Upper Division Psychobiology Major Courses. (Admission to the Psychobiology Major is limited to students who have completed the above preparation courses with a 2.0 grade-point average. See the section above entitled "The Prepsychology Major" for the procedures to follow to enroll in the Psychobiology Major.) (1) All of the following courses: Biology 129 or Psychology 118A; Psychology 110, 111, 115*, 116, 120; (2) One of the following courses: Psychology 125, 127, 130, 135; (3) Four of the following courses: Psychology 117, 118B, 118C; Biology 111, 115, 119, 120, 122, M132, 134, 137, 138, 144, 153, 158, 161, 166, 169, 171, 173, 177; Kinesiology 140; Chemistry 153. Particular courses for the last requirement will depend on a student's needs and interests. Students will consult their adviser for prior approval of courses to meet these requirements.

*Students wishing to substitute course 15 and course 117, 118A, 118B, or an appropriate 195 should consult the Psychology Undergraduate Advising Office.

Preparation for Graduate Work in Psychology

Although requirements for admission to graduate programs in Psychology in most universities will be satisfied by the above major requirements, students should realize that both admission to graduate work and progress toward the degree will be impeded in certain areas of Psychology if additional preparation is not obtained at the undergraduate level. For this reason, students who plan to do graduate work in psychology are advised to take additional work in methodology and statistics, and to take advantage of the many advanced undergraduate courses in specific fields offered both by the Psychology Department and related departments.

Students should plan to give some time to the acquisition of a reading knowledge of one or two foreign languages which might be required for the Ph.D. The Department no longer requires a foreign language except in the area of Measurement/Psychometrics; but at some other universities one or two foreign languages are required.

Consult the Psychology Undergraduate Advising Office, Franz Hall 1531, for information concerning graduate programs at other institutions; consult the Graduate Admissions Assistant, Franz Hall 1283, for information concerning the graduate program at UCLA.

Honors Program in Psychology

The Psychology Honors Program is intended to provide exceptional students with an opportunity in the junior or senior year for advanced research and study under the tutorial guidance of a member of the faculty. (For information on College Honors, see *Honors Program,* College of Letters and Science.) Honors students participate in an Honors Seminar and work toward the completion of a formal bachelor's thesis. Students whose theses are judged acceptable by the Honors Committee are awarded the degree with Honors or Highest Honors in Psychology. Interested students should consult the Psychology Undergraduate Advising Office for further information and application forms.

Graduate Program

The Department offers the Ph.D. degree, and the student may obtain the M.A. degree en route to the Ph.D. The Department does not admit candidates for the M.A. degree only. (See Requirements for the M.A. and Ph.D. Degrees below.) For the Ph.D. degree, all students are required to obtain thorough grounding in research methodology and psychological theory. Major specialized training is available in such areas of psychology as child development, clinical, cognitive (human perception, memory, verbal learning, language, and thought), learning and behavior, measurement and psychometrics, personality, physiological and social psychology. Further training is available in community psychology, drug abuse, industrial, engineering psychology, psychopathology, and psychopharmacology.

Admission to the Graduate Program

In addition to meeting the general graduate requirements (for information on University requirements for admission to graduate status, see In Graduate Status), students must be admitted to the Department by a selection committee

within the Department. Graduate enrollment is limited and candidates will be chosen on the following bases: (1) prior scholastic performance; (2) ratings and recommendations by professors and other individuals; (3) autobiographical material; (4) scores on the Graduate Record Examination (verbal, quantitative, and advanced test in Psychology) and on the Miller Analogies Test. Application materials may be obtained by writing to the Department of Psychology, Admissions Committee, University of California, Los Angeles, California 90024. The completed departmental forms and transcripts must be received by December 30 for consideration for the following fall quarter. Graduate students are admitted only once a year in the fall. Normally, all applicants will have had an undergraduate major in psychology, but outstanding students who have majored in other areas will be fully considered. Late applications are rarely considered. Preference must be given to those who meet the December 30 deadline.

Requirements for the M.A. and Ph.D. Degrees

At the beginning of the school year, an informal orientation is held in Franz Hall at which new graduate students become acquainted with current graduate students, faculty, and staff.

All students should obtain from the departmental office a statement of the graduate requirements in psychology.

All entering graduate students must during their first year take certain core courses and otherwise prepare themselves for comprehensive examinations in a number of specified areas. Evaluation of the students' total performance during the first year or first four quarters will determine whether they will be permitted to continue their studies toward the Ph.D. degree. A student entering graduate work with an M.A. degree or advanced graduate standing from another university will not automatically be exempted from any part of the graduate program. The student may petition to substitute prior course work for departmental requirements or to demonstrate equivalent knowledge through examinations.

M.A. Degree. The Department does not admit candidates for the M.A. degree only, and the M.A. degree is not required of candidates for the Ph.D. degree; however, graduate students preparing for the Ph.D. normally qualify and apply for the M.A. degree after satisfactory completion of the core courses and area examinations. The Department follows the Comprehensive Examination plan. (See Thesis or Comprehensive Examination.) A thesis is not required for the M.A. degree.

Ph.D. Degree. Eligibility for an oral qualifying examination and advancement to candidacy requires prior qualification in the departmental core courses; qualification in comprehensive examinations in areas of the candidate's specialization; and, for students in Measurement/Psychometrics, the passing of a reading comprehensive examination in one approved foreign language or a substitute program of courses in research methods. The oral qualifying examination is administered by a committee of not less than five persons, three from the Department and two from other departments. Each student must complete a satisfactory doctoral dissertation approved by an adviser and other members of the doctoral committee, after which the student must pass a final oral examination on the dissertation and its implications.

Fellowships, Scholarships, Assistantships, and Stipends

The Department of Psychology has a variety of stipends available. These include teaching and research assistantships, departmental traineeships, and several University fellowships. Financial aids and work-study awards are also available through the Financial Aids Office.

Lower Division Courses

10. Introductory Psychology.
A general introduction including the topics of learning, perception, thinking, intelligence and personality.
Mr. Friedman, Mr. Houston, Mr. Padilla

15. Introductory Psychobiology.
A survey of genetic, evolutionary, physiological, pharmacological and experiential factors affecting behavior. Using the comparative approach where appropriate, the relevance of biological mechanisms to an understanding of man and his interaction with his environment will be emphasized.
The Physiological Staff

41. Psychological Statistics.
Prerequisites: Mathematics 2A-2B, or 3A, or 11A. Basic statistical procedures and their application to research and practice in various areas of psychology.
Mr. Allen, Mr. Comrey, Mr. Mount

***50. Introduction to Psychological Research.**
Prerequisites: course 10, 41. The philosophy, orientation, and methodology of the science of psychology; an examination of current faculty research in the various content areas of psychology. This course is intended to give potential majors a realistic picture of the nature of the field and a preview of the emphasis of the upper division major coursework.
Mr. Holland

***70. Psychology of Human Relations.**
An introduction to the theory and principles of personal growth and interpersonal effectiveness. Both intra- and interpersonal dynamics are reviewed.

95. Lower Division Seminars.
Prerequisite: course 10. Open only to Freshmen and Sophomores. Intensive analysis in seminar situations of selected topics of current psychological interest. See the Schedule of Classes for current topics and instructors. May be repeated more than once for credit.
The Staff

Upper Division Courses

The following courses have only Psychology 10 as the prerequisite plus the prerequisites listed with each course: 127, 130, 132A, 132B, 134, 135, 137A, 137B, 137C, 138, 139, 148, 149, 170A, 184A-184B. For special topics courses such as 195, prerequisites will depend upon the nature of the course. The prerequisites to other upper division courses are all courses listed under the *Prepsychology Major.*

102. History and Systems of Psychology.
Prerequisite: senior standing or consent of the instructor. An historical and systematic analysis of psychological thought and points of view.
Mr. Jones

110. Fundamentals of Learning.
Prerequisite: course 41. Experimental findings on animal and human conditioning; retention and transfer of training; the relation of learning and motivation. The course is intended to provide an empirical basis for theory and research in this area.
Mr. Garcia, Mr. Holman, Mr. Houston

111. Learning Laboratory.
Prerequisite: course 41. Prerequisite or concurrent: course 110. Laboratory experience with techniques in the study of learning especially with animals.
Mr. Allen, Mr. Holman

***112A. Human Learning.**
Prerequisite: course 110. Acquisition, retention, and transfer of verbal and nonverbal human learning.
Mr. Houston

***112B. Theories of Learning.**
Prerequisite: course 110. Critical discussion of the major theories in the light of experimental evidence.

***112C. Thinking.**
Prerequisite: course 110. An analysis of experimental studies of problem solving, reasoning, insight, concept formation, and related topics.

***112D. Motivation.**
Prerequisite: course 110. Theories and experimentally determined facts concerning drives, needs, preferences, and desires.

***112E. Current Topics in Learning.**
Prerequisite: course 110. A study of related issues in the psychology of learning. Topics will vary with the interests of the instructor and the class. May be repeated for credit with permission of the instructor.
The Learning Staff

115. Physiological Psychology.
Prerequisite: Biology 2 and Psychology 41. For non-psychology majors, Biology 1A, 1B and consent of the instructor. Integrative activities, receptor and effector processes in relation to neuromuscular structure and function. Facts, problems and methods.
The Physiological Staff

116. Physiological Psychology Laboratory.
Prerequisite: course 41. Prerequisite or concurrent: course 115. Laboratory experience with various topics in physiological psychology.
Mr. Dearmore

117. Seminar in Psychobiology.
Prerequisite: course 115. Advanced topics in brain and behavior. May be repeated for credit with permission of instructor.
Mr. Liebeskind

118A. Comparative Psychobiology.
Prerequisite: course 115. A survey of the determinants of species-specific behavior including genetic influences and learning.
Mr. Krasne

***118B. Behavioral Pharmacology.**
Prerequisite: course 115. Experimental and theoretical treatment of drug-behavior relationships. Particular emphasis on behavior and pharmacological mechanisms of drug action and drug interaction with neuronal function; drugs as tools to investigate various behavior processes such as mood, aggression, learning and motivation; experimental studies of addiction.
Mr. Butcher, Mr. Ellison

***118C. Psychophysiology of Motivation.**
Prerequisite: course 115. The basic psychophysiology, including brain and endocrine mechanism, involved in the control of motivation. Discussion of homeostatic drives such as hunger and thirst and nonhomeostatic drives such as reproductive behavior will be emphasized.
Mr. Novin

*Not to be given 1976-1977.

***118D. Feeling and Emotion.**
Prerequisite: course 15 or equivalent. Studies of emotional behavior with particular emphasis on the critical evaluation of theories of emotion.
Mr. Ellison

120. Perception.
Prerequisite: course 41. Methods and approaches to the study of perception. Experimental results, theoretical interpretations, and demonstrations.
Mr. Jones, Ms. Rader, Mr. Thomas

121. Perception Laboratory.
Prerequisite: course 41. Prerequisite or concurrent: course 120. Laboratory experience with various topics in perception.
Ms. Bjork

***122. Language and Communication.**
Prerequisite: course 41 or consent of the instructor. A survey of language behavior, communication and speech perception, including acquisition, sequential structure, and semantic aspects. Recent developments in linguistics, theory of information transfer, analysis and synthesis of speech. Social communication. Aphasia and speech pathology. Animal communication.
Mr. Carterette

123. Psycholinguistics.
A survey of current theory and research in psycholinguistics: the description of language in generative grammars; the acquisition of language by children; experiments on speech recognition, production and comprehension; errors in speech perception and production; speech physiology and pathology.
Mr. MacKay

***124. Current Topics in Perception.**
Prerequisite: course 120. Advanced consideration of special topics in perception. May be repeated for credit with consent of the instructor.
Mr. Parducci

125. Personality.
Prerequisite: course 41. A survey of the major topics in the field of personality, including personality theory, personality assessment, and the physiological, behavioral and cultural role of perception, learning and motivation in personality.
Mr. Abramson, Mr. Mehrabian

***126. Personality Laboratory.**
Prerequisite: course 41. Prerequisite or concurrently with special permission: course 125. Laboratory experience with various topics in personality.
Mr. Mehrabian, Mr. Weiner

127. Abnormal Psychology.
Study of the dynamics and prevention of abnormal behavior, including neuroses, psychoses, character disorders, psychosomatic reactions and other abnormal personality patterns.
Mr. Baker, Ms. Hammen, Mr. Goldstein

***128. Structure of Individual Differences.**
Prerequisite: course 41. Research approaches to the study of individual differences in abilities, personality, interests, attitudes, and values. Measurement of these individual differences. Utilization of individual differences for selection and guidance.
Mr. Comrey

***129A. Personality Measurement.**
Prerequisite: course 125. The rationale, methods and content of studies dealing with the problems of describing persons in terms of a limited set of dimensions. Detailed consideration of research literature dealing with a few representative personality dimensions.
Mr. Mehrabian

***129B. Personality Dynamics.**
Prerequisite: course 125. Detailed conceptual examination of one or two areas of personality in which the main and interactive effects of personality and situational variables have been investigated. Personality as related to the study of psychological processes, particularly motivation. Includes an examination of current research literature.
Mr. Weiner

***129C. Personality and Cognition.**
Prerequisite: course 125. Theoretical and experimental analyses of cognitive processes such as imagery, attention, language and memory and their implication for theories of personality.

***129D. Special Topics in Personality.**
Prerequisite: course 125. Study of selected topics in the psychology of personality. Topics will vary with the interests of instructor and class. May be repeated for credit by consent of instructor.
Personality Staff

130. Developmental Psychology.
An elaboration of the developmental aspects of physical, mental, social, and emotional growth from birth to adolescence.
Ms. Greenfield, Mr. Leon, Mr. Madsen

131A-131B. Fieldwork in Child Psychopathology.
Prerequisites: course 133B or equivalent; course 170A or equivalent; experience with problem children, or consent of instructor. This course is designed to give undergraduate psychology students an opportunity to apply their knowledge in working with problem children including autistic, retarded, and school or behavior problem children. Experiences given in LA County Schools, Dubnoff School, Fairview State Hospital or the NPI. There will be two four-hour sessions per week.
Mr. Tymchuk

132A. Learning Disabilities. (1 to 1¼ courses)
Prerequisite: upper division standing. Exploration of different orientations to persons with learning problems, emphasizing assessment and intervention approaches and the psychological impact of such approaches. Topics include the interaction of learner and environment, the socio-political nature of the classroom, the psychological impact of schooling, grades, and evaluations, process vs. goal focus in learning. The course may be taken for 4 or 5 units. The 5th unit is devoted to practicum experiences involving the Fernald School. All students planning to enroll subsequently in Psychology 132B must take the 5th unit option. Where possible, it is recommended that the course be taken on a passed/not passed basis.
Mr. Adelman, Ms. Taylor

132B. Learning Disabilities Laboratory.
Prerequisites: 5 units of course 132A and consent of instructor. Participation in special activities at the Fernald School is made available to University students to further explore by means of a laboratory experience the topics and issues discussed in 132A. The emphasis is on experiencing and evaluating the psychological and educational impact of research, training and service programs on learners, teachers, etc. Since a limited number of students can be accommodated, clarification of available alternatives and agreements regarding participations will be worked out during the fifth unit experience in Psychology 132A. A commitment of eight and a half hours per week is expected (1½ hour meeting plus 7 hours of activity). Where possible it is recommended that the course be taken on a passed/not passed basis.
Fernald Staff

132C. Learning Disabilities Advanced Laboratory.
Prerequisites: courses 132A and 132B plus consent of instructor. A personalized laboratory participation experience designed to allow the advanced student to explore relevant topics in depth.
Fernald Staff

***133A. Adolescence.**
Prerequisite: course 130 and upper division standing. The physical, psychological and social development of the adolescent.

133B. Exceptional Children.
Prerequisite: course 130. Study of the issues and research problems in the areas of mental retardation, giftedness, learning disorders, emotional disorders and childhood psychosis.
Mr. Tymchuk

133C. Psychological Development in the Adult Years.
Prerequisite: course 130 or consent of the instructor. Theory and research on changes in motivation, aptitudes and abilities as related to genetics, age, sex and socio-cultural variables.
Mr. Jones

133D. Psychological Development of the Minority Child.
Prerequisites: courses 127, 130, upper division Psychology standing and consent of the instructor. An examination of the theoretical issues and research problems relating to the development of minority children. Topics will include intelligence, identity, survival skills, family structure and community development.
Mr. Price

***133E. Current Issues in Developmental Psychology.**
Prerequisite: course 130 and upper division Psychology standing. A critical examination of current issues in developmental psychology. The specific issues of concern will vary depending on the interests of the class and instructor. May be repeated with permission of the instructor.
The Developmental Staff

134. Psychology and Education.
Prerequisites: course 130. Application of principles of cognitive develoment, learning and perception to educational problems; topics will include general instructional issues, psychology of reading and mathematics, exceptional children, early childhood education, and education of the disadvantaged.
Mr. Friedman

135. Social Psychology.
Prerequisite: course 41. The interrelationships between the individual and his social environment. Social influences upon motivation, perception and behavior. The development and change of attitudes and opinions. Psychological analysis of small groups, social stratification and mass phenomena.
Mr. Collins, Ms. Peplau, Mr. Raven

136. Social Psychology Laboratory.
Prerequisite: course 41. Prerequisite or concurrent: course 135. Laboratory experience with such topics as small group behavior, attitude measurement, and interpersonal influence.
Mr. Kelly, Mr. Shure

137A. Group Behavior.
Prerequisite: course 135. Psychology of interdependence, group membership, leadership, and social influence.
Mr. Kelley

***137B. Attitude Formation and Change.**
Prerequisite: course 135. Effects of propaganda, personal influence, socialization and social structure on private attitudes and public opinion.

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*Not to be given, 1976-1977.

137C. Survey Methods in Psychology.
Prerequisite: course 135. The nature of attitudes and opinions, and their measurement by means of attitude scales and public opinion surveys. Class projects and field work.
Mr. Centers

137D. Special Topics in Social Psychology.
Prerequisite: course 135. Study of selected topics in social psychology. May be repeated for credit with permission of the instructor.
The Social Staff

M138. Political Psychology.
(Same as Political Science M140.) Prerequisite: course 10. Examination of political behavior, political socialization, personality and politics, racial conflict, and the psychological analysis of public opinion on these issues.
Mr. Sears

***139. Psychology of Social Issues.**
Prerequisite: course 10. An analysis of the contribution of current psychological theory and research to the understanding of selected historical, social and political problems.
Mr. Sears

142. Advanced Statistical Methods in Psychology.
Prerequisite: course 41. Chi square, special correlation methods, multiple regression, non-parametric methods, analysis of variance, reliability and validity.
Mr. Nihira

143. Foundations of Psychological Investigation.
Prerequisite: course 41. Outline and examination of concepts associated with psychological investigation and the interpretation of results. Readings, discussions and reports, individual and class projects.
Mr. Mount

144. Psychological Tests and Evaluation.
Prerequisite: course 41. Further study of the principles of measurement, stressing basic concepts. Application to problems of test construction, administration and interpretation.
Mr. Broen

***148. Personnel and Industrial Psychology.**
Introduction to the applications of psychology in industry and business.

149. Problems in Human Relations.
Understanding human relations problems and developing skills in interpersonal relations. Topics include the effective use of human resources; group management and leadership skills; interviewing, counseling, and conference techniques.
Mr. Barthol

150. Mathematical Models in Psychology.
Prerequisites: Mathematics 3C or 31C, Engineering 10, or consent of the instructor. Review of theoretical models and the experimental evidence for these models in various areas of Psychology. Topics will include: mathematical computer models of learning, perception, cognition and personality. Recommended for Quantitative Psychology Majors.
Mr. Holman, Mr. Wickens

151. Computer Applications in Psychology.
Prerequisite: Engineering 10 and consent of the instructor. Topics will include hardware and software computer problems in the design, control, and analysis of experiments; programming problems arising in the evaluation of models of psychological processes of the various content areas such as learning, perception, social, personality, and clinical. Recommended for Quantitative Psychology Majors.
Mr. Carterette

M155. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.
(Same as Anthropology M176 and Psychiatry M112.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings will be taught, emphasizing field training and practice in observing behavior. Group and individual projects will be included. Some of the uses of observations and their implications for research in the social sciences will also be discussed.
Mr. Gallimore, Mr. Turner, Mr. Weisner

***160. Problems in Humanistic Psychology.**
Prerequisite: course 125 and consent of instructor. Foundations of humanistic psychology, its relation to other views of man and science, its contribution to general psychology. Consideration of humanistic-existential concepts and topics. Review of major contributors.
Mr. Goodman, Ms. Hammen

162. The Psychological Approaches of Henry Murray: The Study of Biography.
Prerequisite: consent of the instructor. The study of lives and the personality theory of Henry Murray, touching upon autobiographical writings and biographical materials; and personality as a dynamic system of growth and change. Creative, proactive, normal and supernormal aspects of personality; the roles of values in the study of personality, society and culture.
Mr. Shneidman

***M163. Death and Suicide: Psychological and Sociological Aspects.**
(Same as Sociology M158.) The definition and taxonomy of death; the new permissiveness and taboos relating to death; the romanticization of death; the role of the individual in his own demise; the modes of death; development of ideas of death through the life span; ways in which ideas of death influence the conduct of lives; the impact of dying on the social structure surrounding the individual; preventive, interventive and postventive practices in relation to death and suicide; partial death; megadeath; lethality; the psychological autopsy; the death of institutions and cultures. Junior standing required. This course is offered on both a passed/not passed and letter grade basis. However, the instructor prefers that students select the passed/not passed option.
Mr. Shneidman

165. The Psychology of Sex Differences.
This course considers psychological literature relevant to understanding contemporary sex differences. Some topics included are sex-role development and role conflict, physiological and personality differences between men and women, sex differences in intellectual abilities and achievement, and the impact of gender on social interaction.
Ms. Peplau

168. Environmental Psychology.
Prerequisites: course 41 and 125. A research-oriented course which surveys theoretical and methodological issues which comprise the area of environmental psychology. Discussion of basic dimensions of emotional response to physical and social environments, measurement of information of rate of situations, and personality variables that are relevant to environmental theory. Residential, therapeutic, work and recreational environments will be considered within a unified framework.
Mr. Mehrabian

170A. Behavior Modification.
Prerequisite: upper division standing. Applied behavior theory; a study of the application of principles derived from learning theory, especially modelling and reinforcement, to behavior problems of retarded and autistic children, adult psychotic disorders, reading disorders, etc. Lectures, discussions and demonstrations.
Mr. Lovaas

170B. Fieldwork in Behavior Modification.
Prerequisites: course 170A. Psychology Junior or Senior Major standing and permission of instructor. Advanced discussion and fieldwork in Applied Behavior Theory; especially to problems of retarded and autistic children, adult psychotic disorders, etc. Two hours discussion and eight hours fieldwork per week. May be repeated once for credit.
Mr. Lovaas

174. Interpersonal Process Analysis.
Prerequisites: course 41, 127, and Junior and Senior Psychology Major standing. An introduction to the conceptual tools for analyzing interpersonal structures and functions in goal-oriented human interaction such as psychotherapy, persuasion, courtship, etc. Class sessions will integrate small group exercises with lecture and discussion. Additional laboratory work to be arranged.
Mr. Goodman

***175. Community Psychology.**
Prerequisites: Junior or Senior Psychology Major standing and consent of the instructor. The application of psychological principles to the understanding and solution of community problems. Topics will include community development, community mental health problems, drugs, racism, and rehabilitation of prisoners.
Mr. Price, Mr. Rodnick

176. Experimental Community Psychology.
Prerequisites: course 127 and consent of the instructor. Examination and experimental application of concepts drawn from interpersonal and community psychology for understanding the behavior of individuals in structured social systems (communities, schools, mental hospitals, prisons, etc.).
Mr. Price

177. Counseling Relationships.
Prerequisite: Junior or Senior Psychology major standing or consent of the instructor with the following prerequisites: courses 10, 41, 127, and junior or senior standing. The course examines conceptual and empirical foundations of psychological counseling and compares alternative models of counseling processes. Emphasis is on counseling approaches in community mental health areas such as drug abuse, suicide prevention, and crisis intervention.
Ms. Henker and the Staff

178. Human Motivation.
Prerequisite: upper division standing required. Examination of current theories of human motivation, the experimental findings supporting the theories, and their applied value. Motivation in the classroom will be emphasized, particularly the effects of success and failure on performance. Other topics include stress, conflict, frustration, and perceptions of control.
Mr. Weiner

***184A. Communication Disorders.**
Prerequisite: junior or senior standing. A clinical approach to speech problems with emphasis on stuttering and neurological disorders and their treatment.
Mr. Sheehan

***184B. Laboratory in Communication Disorders.**
Prerequisite: consent of the instructor. Discussion, observation, and supervised small group experience with stuttering and related problems in Psychology Speech Clinic.
Mr. Sheehan

190A-190B-190C. Honors Course.
Prerequisite: acceptance by departmental Honors Committee. Opportunity for the development and analysis of creative ideas through conceptual or experimental research and their implementation by experimental research. Information and applications may be obtained from the Psychology Undergraduate Advis-

*Not to be given, 1976-1977.

ing Office. (For further information, see Honors Program in Psychology.)

Mr. Mount

195. Current Issues in Psychology.

Prerequisite: Junior or Senior Psychology Major standing. Some sections may require permission of instructor. A study of selected current topics of psychological interest. See Schedule of Classes for topics and instructors to be offered each quarter. This course may be repeated for credit, and may apply as elective units on the major.

The Staff

199. Directed Individual Research and Study. (½ to 1 course)

Prerequisite: Junior or Senior Psychology Major standing, consent of the instructor and the Vice Chairman for Undergraduate Affairs. To be arranged with individual faculty members. Consent is based on a written proposal outlining the proposed course of study. Students should consult the Psychology Undergraduate Advising Office, Franz Hall 1531A, for further information and approval forms. Note the following regulations concerning 199 courses: A student may take only one 4-unit 199 course in Psychology per quarter. Only 4 units of 199 may be applied toward the Psychology Major elective course requirement. Only one Psychology 199 course may be taken for a letter grade; additional Psychology 199 courses may be taken only on a passed/not passed basis.

The Staff

Graduate Courses

200A. Animal Learning and Behavior.

This course will focus on basic principles and characteristics of learning and behavior, including Pavlovian conditioning, instrumental learning and species specific behavior.

The Learning and Behavior Staff

200B. Human Learning and Behavior.

Topics to be covered include human learning and conditioning and the application of learning principles in the etiology and treatment of a variety of socially significant problems. Special emphasis will be placed on systematic desensitization of anxiety states, behavior modification programs for schizophrenic children and adults, behavioral pharmacology, control of autonomic behavior, among others.

The Learning and Behavior Staff

204A-204C. Seminar in Critical Problems in Learning.

May be taken independently and in any order. Critical problems will be drawn from such as the following:

***204A. Conditioning.**

Consideration of selected empirical topics relevant to operant and respondent conditioning paradigms.

***204B. Analysis of Learning.**

(Formerly numbered 204H.) Discussion of current experimental and field studies in orientation, habituation, classical conditioning and operant conditioning with emphasis upon evolutionary specialization and anatomical structure of the coping organism.

Mr. Garcia

***204C. Psychophysiology of Attention and Learning.**

The study of research and theories concerned with the psychophysiology of attention and learning primarily in humans. Concepts and areas covered include the orienting reflex, dominant focus, classical conditioning, and their implications for the psychophysiology of sychopathology and psychotherapy.

Mr. Maltzman

205. Physiological Correlates of Behavior.

Prerequisite: course 115 or equivalent and consent of the instructor. The physiological substrate of behavior and the neural and endocrine mechanisms which underlie psychological phenomena and behavior. New concepts of structural and functional organization in the nervous system and the ways these relate to behavioral and neurological dysfunction.

The Physiological Staff

206. Psychophysiology of Brain Function.

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.

Mr. Lindsley

207A-207B-207C. Seminar in Physiological Psychology.

Prerequisite: course 115 or the equivalent.

Mr. Beatty, Mr. Liebeskind, Mr. Novin

208. Seminar in Comparative Psychobiology.

Mr. Krasne

***209. Laboratory Methods in Physiological Psychology.**

Prerequisite: consent of the instructor. Surgical skills, bioelectric instrumentation and experimental techniques, data analysis and interpretation.

Mr. Krasne

210. Comparative Psychobiology.

Prerequisite: course 115 or equivalent or consent of instructor. A survey of the determinants of species-specific behavior including genetic influences and learning.

Mr. Krasne

***M211. Mind and Brain in Evolution. (½ course)**

(Formerly numbered M265. Same as Psychiatry M265.) Prerequisite: consent of the instructor. This course reviews the fossil evidence on the organic evolution of the brain and the implications of that evidence for the evolution of mind and intelligence. Quantitative approaches are emphasized. Although some implications for cognitive psychology and individual differences are considered, the evolutionary analysis is "above the species level".

Mr. Jerison

218A-218B-218C. Advanced Industrial Psychology.

(Formerly numbered 261ABC.) Selection and training of employees, factors influencing efficiency of work.

Mr. Barthol

219. Special Problems in Industrial Psychology.

(Formerly numbered 262.)

Mr. Barthol

220. Social Psychology.

An intensive consideration of the concepts, theories, and major problems in social psychology.

The Social Staff

221. Seminar in Attitude Formation and Change.

Prerequisite: courses 220, 227, or consent of the instructor. Social psychological research and theories on opinions and attitudes. Effects of mass communication, social factors in assimilation of information and influence.

Mr. Sears

222A-222B. Seminar in Group Behavior.

Prerequisite: courses 220, 227, or consent of the instructor. Special topics in interpersonal relations and group dynamics. Power control, structure and organization, group functioning.

Mr. Kelley, Mr. Raven

223. Survey Research in Psychology.

A critical review of the theory and practice of large-scale sampling, measurement, and analysis of beliefs, attitudes, and other psychological variables.

Mr. Centers

224. Experimental Methods in Social Psychology.

Prerequisite: courses 220, 227, or consent of the instructor. A critical review of laboratory techniques and problems of experimental control and measurement encountered in research on social psychological phenomena.

Mr. Collins

225. Seminar: Critical Problems in Social Psychology.

Prerequisite: courses 220, 227, or consent of the instructor. May be repeated for credit with consent of the instructor.

Ms. Gutek, Mr. Kelly, Ms. Peplau

***227. Advanced Issues in Social Psychology.**

An intensive analysis of three advanced issues in social psychology drawn from such topics as small groups, attitude change, social psychology of urban affairs, social psychology of education, race relations, methodology. Recommended for students selecting Social Psychology as a minor or cognate area.

The Social Staff

M228. Seminar in Political Psychology.

(Same as Political Science M224G.) Prerequisite: course 220 or consent of the instructor. Examination of political behavior, political socialization, personality and politics, racial conflict, and the analysis of public opinion on these issues.

Mr. Sears

***229A-*229B. Issues in the Social Development of the Minority Child.**

Prerequisite: consent of instructor and graduate status. A critical evaluation and integration of existing research on the social psychological development of the minority child. The two-quarter seminar will focus on the socialization of cognitive and personality style, with the goal of empirically clarifying the issues raised in this area of developmental study.

Mr. Myers, Mr. Price

233. Seminar in Environmental Psychology.

Prerequisite: courses 250A, 250B and 235. Critical review of work in environmental psychology designed to identify basic dimensions for the analysis of man-environment relationships. The framework of analysis uses human emotional responses to environments as intervening variables linking specific stimulus qualities to a variety of approach-avoidance behaviors. Individual differences and drug induced states as these relate to the emotional response dimensions are employed to explain within-individual differences in response to the same environment over time or between-individual differences to the same situation. Review of literature relating information rate from environments to arousal and preferences for those environments.

Mr. Mehrabian

***234. Personality and Cognition.**

A critical analysis of unified cognitive theories of personality combined with a consideration of relevant empirical literature. The work of such theorists as Kelly, Piaget, and Bruner will be considered along with experimental work in the areas of category theory, imagery, and meaning.

Mr. Mehrabian

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*Not to be given 1976-1977.

235. Personality.
A survey of cognitive, analytic, and learning theory approaches to the study of personality. Emphasis will be on the intensive exploration of selected concepts and related research.
The Personality Staff

***236. Personality Theories.**
A survey of the theoretical views of Freud, Jung, Adler, Rank, and various modern writers, including Allport, Lewin, Murray and Murphy.

237. Survey of Projective Methods in Personality Assessment.
Survey of theories and fields of application of projective methods, and supervised practice in techniques. For nonclinical psychology students.
Mr. Sheehan

238. Seminar in Mental Measurements.
Mr. Bentler

239. Experimental Research in Personality.
A detailed analysis of some of the current research in personality. The relation of personality to the process areas will be stressed. Students will conduct independent research projects.
Mr. Weiner

240. Developmental Psychology.
A consideration of the special problems of the control and measurement of the behavior of children as well as the young of other organisms with emphasis on providing basic research relevant to both clinical and research work with children.
Ms. Greenfield, Mr. Jeffrey

242A-242F. Seminar in Developmental Psychology.
Prerequisite: course 240 or equivalent and consent of the instructor. These seminars may be taken in any order or they may be repeated for credit.
242A. Perceptual Development.
Ms. Rader
242B. Cognitive Development.
Mr. Madsen
242C. Socialization.
Mr. Leon
242D. Mental Retardation.
Mr. Tymchuk
***242E. Behavior Genetics.**
Mr. Kinney
242F. Cognitive Factors in Learning Disorders.
Mr. Adelman

***243A-*243B. Seminar in Practical and Societal Issues in Developmental Psychology.**
Prerequisites: course 240 or equivalent and consent of instructor. Concerns socialization processes in human development and implications for social-political, educational, research issues, values and societal change. Credit and grade to be given only upon completion of 243B.
Mr. Nakamura

244. Critical Problems in Developmental Psychology.
Prerequisites: course 240 or equivalent, and consent of the instructor. The course will be concerned with current problems and will vary from time to time depending upon the interest of the class and instructor. May be repeated for credit with consent of the instructor.
Ms. Greenfield, Ms. Henker, Mr. Kinney

247A-247B. Theory and Methods of Computing in the Behavioral Sciences.
247A. Acquisition and analysis of data, on-line analysis of behavior and control of experiments in the diverse content areas of psychology, e.g., perception, social, clinical, personality, and physiological.
Mr. Carterette
247B. Prerequisite: course 247A or consent of instructor. Topics in human problem solving, information processing, automata, language cognition, and problems arising in computer simulation of behavior. Each student will undertake a substantial project of his own.
Mr. Carterette

250A. Advanced Psychological Statistics.
Review of fundamental concepts. Basic statistical techniques as applied to the design and interpretation of experimental and observational research.
Mr. Wickens

250B. Advanced Psychological Statistics.
Advanced experimental design and planning of investigations.
Mr. Wickens

251A-251B-251C. Research Methods.
Students will design and conduct original research projects under the supervision of the instructor in charge. It is anticipated that many students will complete their project in two quarters. Normally three quarters willl be allowed.
The Staff

***252. Quantitative and Laboratory Methods in Psychology.**
Fundamentals of measurement, laboratory techniques and instruments, sources and types of error, treatment and presentation of data, problems in the design and interpretation of experiments in representative areas of laboratory investigation.
Mr. Mount

253. Factor Analysis.
Theory and practice of factor analysis in psychological research. Methods of factor exaction and rotation. Applications of computers to computations in factor analysis.
Mr. Comrey

***254. Seminar in Psychological Scaling.**
Theory of measurement, law of comparative judgment, methods of unidimensional scaling, multidimensional scaling and related topics of current interest.
Mr. Holman

255. Quantitative Aspects of Assessment.
Fundamental assumptions and equations of test theory. Current problems in assessment.
Mr. Bentler

256. Seminar in Critical Problems in Psychological Measurement.
Critical examination of issues in the major approaches to psychological measurement; relation of psychological methods and data to a general theory of measurement.
Mr. Mount

257. Advanced Psychometric Methods.
Prerequisite: consent of instructor. Analysis of selected multivariate psychometric models, such as advanced factor analysis (e.g., rank-free or scale-free methods, confirmatory methods, procrustean transformations, factor score theory), image analysis, multivariate reliability theory, monotonicity analysis. Emphasis is on mathematical properties of the models rather than statistical inference.
Mr. Bentler

***258. Special Problems in Psychological Statistics.**
Prerequisites: course 250A and 250B or consent of instructor. Special problems in psychological statistics and data analysis will be examined.
Mr. Wickens

259. Quantitative Methods in Cognitive Psychology.
Prerequisites: course 250A and 250B or consent of instructor. This course will consider a number of nonstatistical mathematical methods and techniques commonly used in cognitive psychology. Topics to be covered include Markov chains, other stochastic processes, queueing theory, information theory, frequency analysis, etc.
Mr. Wickens

260A-260B. Proseminar in Cognitive Psychology.
A survey of current theories and research in cognitive psychology. Topics include sensory processes, perception, human learning and memory, psycholinguistics, judgment decision processes, thinking, and problem solving. Credit and grade to be given only upon completion of 260B.
The Cognitive Staff

261. Perception.
(Formerly numbered 211.) Concepts, theories, and research in the study of perception. Considers the questions: Why do things look, sound, smell, taste, or feel as they do? What is the nature of perceptual systems? How do these systems process information?
Mr. Jones, Ms. Rader

262 Human Learning and Memory.
(Formerly numbered 200B.) Contemporary theory and research in human verbal learning and memory: verbal and non-verbal learning and memory processes, the structure and organization of short- and long-term memory.
Mr. Bjork

263. Psycholinguistics.
(Formerly numbered 260A.) Contemporary theory and research in psycholinguistics: coding and decoding, psycholinguistic parameters of language learning, speech recognition and perception.
Ms. French

***264. Judgment and Decision Processes.**
Contemporary theory and research in judgment and decision processes: psychophysical scaling, contextual effects on rating scales, models for the analysis of value decisions.
Mr. Parducci

265. Thinking and Artificial Intelligence.
Contemporary theory and research in thinking and artificial intelligence: cognitive models of knowledge representation, comprehension of linguistic information, memory. Theory and data from psychology, artificial intelligence, and linguistics will be considered.
Mr. Thorndyke

268A-268E. Seminar in Human Information Processing.
Prerequisites: course 260A and 260B or consent of instructor. Topics will vary with the interests of the instructor. May be taken in any order and may be repeated for credit.
268A. Perception.
Mr. Carterette, Mr. Thomas
268B. Human Learning and Memory.
Mr. Bjork
268C. Judgment and Decision Processes.
Mr. Parducci
268D. Language and Thought.
Mr. MacKay
268E. Human Performance.
Mr. Beatty

269. Seminar in Cognitive Psychology.
Prerequisites: course 260A and 260B or consent of instructor. A discussion of problems in Cognitive Psychology that encompass more than a single subfield of the area. May be repeated for credit.
The Cognitive Staff

*Not to be given 1976-1977.

270. Issues and Concepts of Clinical Psychology.

Mr. Broen, Ms. Henker

271A-271B-271C. Clinical Psychological Methods.

Prerequisites: concurrent enrollment in Psychology 271L and consent of instructor. Methods, procedures, and principles of psychological interviewing, assessment, intervention and evaluation in clinical and community settings. Open only to graduate students in clinical psychology and those with approved minors in clinical psychopathology.

The Clinical Staff

271L. Practicum in Clinical Psychological Methods.

Prerequisite: consent of instructor. Supervised laboratory and practicum experience. Includes course-related assignments for 12 hours per week in field placements. Open only to graduate students in clinical psychology and those with approved minors in clinical psychopathology. Enrollment will be concurrent with Psychology 271A-271B-271C.

The Clinical Staff

272A-272E. Advanced Clinical Psychological Methods.

Concurrent or previous enrollment in course 401 or 451, except with consent of instructor. May be taken independently and in any order.

***272A. Innovations in Psychotherapy.**

Mr. Sheehan

272B. Psychotherapy with Adults.

Mr. Ingham

272C. Clinical Interventions for Psychological Problems of Children.

Mrs. Love

272D. Family Therapy and Family Dynamics.

Mrs. McPherson

272E. Special Problems.

Clinical Staff

273. Interpersonal Communication Seminar.

Prerequisite: course 282 or consent of the instructor. Each student will be supported in developing a design for studying help-oriented interchange in community and clinical settings. Initial focus will be measuring interpersonal deficit, response styles and training effects.

Mr. Goodman

274A-274B. Group Therapy Dynamics.

Mr. Sheehan

M276A-*276B. Seminar: Children with Learning Disorders.

(Same as Education M280D-280E.) Prerequisite: 225 or 226A or 227A and admission to a doctoral program.

Mr. Adelman

277. Advanced Clinical Assessment.

The course will cover projective techniques, clinical interpretation, case studies, the psychological test battery, psychopathology, and application of assessment to problems in psychotherapy.

Mr. Sheehan

278. Seminar in Motivation, Conflict and Neurosis.

Mr. Feshbach

279. Seminar in Research in Psychopathology.

Mr. Rodnick

280. Seminar in Experimental Psychodynamics.

Mr. Broen

***281. Seminar in Behavior Therapy.**

Mr. Carr, Mr. Lovaas

282. Interpersonal Forms Analysis of Human Interaction Structures.

Conceptual and experimental study of six response modalities common to psychotherapy and everyday interaction; questions, silences, advisement, interpretation, self-disclosure, and reflection. Lab work will be performed in conjunction with lecture and seminar sessions.

Mr. Goodman

283. Psychopathology.

A survey of the dominant psychological attributes of particular forms of psychopathology, including an analysis of the status of various theories concerned with the etiology and mediating mechanisms of personality, neurotic, schizophrenic spectrum, and affective disturbances.

Mr. Rodnick

***284. Seminar in Clinical Psychology and Communication.**

(Formerly numbered 277.)

Mr. Sheehan

M285. Comparative Psychopathology.

(Same as Psychiatry M255.) Prerequisites: Some background in psychopathology, comparative psychology, zoology or comparative genetics and consent of the instructor. This course will explore those animal models of psychopathology most relevant to human clinical problems (i.e., schizophrenia, depression, phobias, anxiety states, drug abuse, aggression, sexual dysfunction, etc.). The interaction or convergence of social, biological, and environmental processes in determining these states will be emphasized. The relevance of the model to the understanding of homologous human conditions will be analyzed.

Mr. Ervin, Mr. Garcia, Ms. Jamison

290. History of Psychology.

Philosophical and historical context of contemporary psychology. Major trends from the 19th century to contemporary issues will be considered.

Mr. Maltzman

291. Principles of Behavioral Pharmacology.

Prerequisite: consent of the instructor. Intensive analysis of drug, brain, and behavior relationships. Discussion of the nature and source of drugs, general aspects of pharmacology, neurotransmitters and basic neuropharmacology, principles of behavioral pharmacology, categories of psychopharmacological agents, and pharmacological approaches to the study of drug addiction, schizophrenia, and other behavioral processes, both normal and pathological.

Mr. Butcher

***292A-*292B. The Psychology of Drug Abuse.**

Prerequisite: consent of the instructor. The course will concentrate on the problem of drug abuse as it can be approached by behavioral scientists. In addition to narcotic addiction, other substance abuse problems will be discussed such as alcoholism, barbiturate addiction, amphetamine dependence and the use of LSD, marihuana and other "recreational drugs."

Mr. McGlothlin

298. Special Problems in Psychology.

The content will depend upon the interests of the particular instructor. May be repeated for credit.

The Staff

Professional Courses

300. Practicum in the Teaching of Psychology.

Prerequisites: upper division Psychology major and consent of instructor. Training and supervised practicum for advanced undergraduates in the teaching of Psychology. Students will serve as junior teaching assistants, assist in the preparation of materials and the development of innovative programs. This course may be repeated once for credit, and is offered on both a passed/not passed and letter grade basis.

401. Field Work in Clinical Psychology. (1 or 2 courses)

Prerequisite: courses 271A-271B-271C. Students on practicum assignments are required to register for this course each quarter. Exception with consent of Clinical Program Committee.

The Clinical Staff

***402. Field Work in Speech Pathology. (1 or 2 courses)**

Prerequisite: consent of the instructor. Practical work in hospitals and clinics in diagnostic testing and psychotherapy with speech disorders.

Mr. Sheehan

***406A-*406B-*406C. Practicum in Drug Abuse Treatment.**

Prerequisite: consent of the instructor. The practicum is designed to give students exposure to a variety of patients, problems, and treatment approaches in the drug abuse field. Students will work in from two to four programs. In addition to treatment experience, the students will gain familiarity with problems of program administration and program evaluation.

451. Internship in Clinical Psychology. (1 or 2 courses)

Prerequisite: course 401. Open only to students who have passed departmental qualifying examination. May be repeated for credit.

The Clinical Staff

454. Internship in Industrial Psychology. (½ to 1 course)

The Staff

495. Presentation of Psychological Materials.

Supervised practicum in undergraduate teaching. Students will serve as discussion section leaders in selected undergraduate courses.

501. Cooperative Program. (½ to 2 courses)

Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

Individual Study and Research

596. Directed Individual Research and Study in Psychology. (½ to 3 courses)

One course required during second year of graduate study. One course in 596 or 599 required during each succeeding year of graduate study. (Terminal M.A. candidates are excused from these requirements.)

The Staff

597. Individual Studies. (½ to 3 courses)

Intended primarily for preparation for Ph.D. qualifying examinations. May be required by some area committees as prerequisite for taking qualifying examinations.

The Staff

599. Research on Dissertation. (½ to 3 courses)

Prerequisite: Satisfactory performance in qualifying examinations. One course required during each year following passing of qualifying examinations.

The Staff

Psychology Clinic

The Psychology Clinic was established in 1949 in Franz Hall by the Department of Psychology as a training and research center in clinical psychology. It has specialized facilities for the investigation, assessment and treatment of a variety of psychological disabilities and adjustment problems of children, adolescents and adults of the greater Los Angeles community.

The Clinic provides a broad range of psychological services to clients including individual, group and family therapy, behavior modification procedures and consultation to agencies in the community. The concern of the clinic with systematic investigation leading to new knowledge and the improvement of clinical psychological procedures is in keeping with a primary function of a University-based clinic. The number and types of clients served are consonant with this goal. Apart from those investigations related directly to professional services to clients there are a number of research programs in the clinic which reflect the current interests of the staff, such as 1) communication patterns in the family constellation relevant to both the development and the amelioration of behavioral disturbance, 2) the development of innovative techniques of therapy and behavior modification which are effective in treating various psychological problems and, 3) exploration of new modes of delivering psychological services to currently unserved segments of the population.

Such service and research functions are basic to the professional education and training of clinical psychologists as an integral part of their graduate study in the Department of Psychology. The Clinic also provides training experiences to students of other mental health professions.

Fernald School

The Fernald School (formerly the Psychology Clinic School), a facility of the Department of Psychology, was established in 1921 as a research and training center focusing on learning problems.

The uniqueness of the facility lies in its lively experimental atmosphere, in its varied population, in the scope of its training, demonstration and research programs and in its interdisciplinary approaches in which the talents of teachers, clinical psychologists, and school counselors are integrated and brought to bear upon the student's learning difficulties. The School's current focus is on those children with average or better intelligence who are functioning significantly below grade level in basic school skills and school achievement.

The Fernald School offers observation, classroom participation and intervention, research and other training opportunities to graduates and undergraduates in many fields, notably psychology and education. Fellowships are available for graduate students in psychology and education. Three courses focusing on learning disorders, Psychology 132A, lecture, 132B and 132C, laboratory, are specifically associated with the Fernald School programs. Psychology 132A provides an overview of the field of learning problems. Psychology 132B affords the University student the unique opportunity to observe and to participate under supervision in selected activities of the Fernald School. Psychology 132C allows further and more independent participation in working with learning problems.

The Fernald School population includes approximately 85 students, enrolled in classroom programs, and an average of 100 children, adolescents and adults who are seen in individual and small group tutoring programs. In addition, a substantial number of individuals are seen for an initial assessment and consultation process. This process is designed to help them formulate an appropriate course of action in dealing with socio-emotional and academic concerns. The research activities, based on these populations, are directed toward an analysis of the processes mediating learning difficulties and toward an evaluation of the effectiveness of various psychological and educational programs.

■ PUBLIC HEALTH

(Department Office, 16-035 School of Public Health)

Abdelmonen A. Afifi, Ph.D., *Professor of Biostatistics and Biomathematics.*

Roslyn B. Alfin-Slater, Ph.D., *Professor of Nutrition and Biological Chemistry.*

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A. Ralph Barr, Sc.D., *Professor of Public Health.*

Lester Breslow, M.D., M.P.H., *Professor of Public Health.*

Virginia A. Clark, Ph.D., *Professor of Biostatistics and Biomathematics (Chairman of the Department).*

Roger Detels, M.D., M.S., *Professor of Epidemiology.*

Olive Jean Dunn, Ph.D., *Professor of Biostatistics and Biomathematics.*

Carl E. Hopkins, Ph.D., M.P.H., *Professor of Public Health.*

Derrick B. Jelliffe, M.D., D.T.M.&H., D.C.H., F.R.C.P., *Professor of Public Health and Pediatrics.*

Alfred H. Katz, M.A., D.S.W., *Professor of Public Health and Social Welfare.*

Arnold I. Kisch, M.D., M.P.H., *Professor of Public Health.*

Robert A. Mah, Ph.D., *Professor of Public Health.*

Frank J. Massey, Jr., Ph.D., *Professor of Biostatistics and Biomathematics.*

Edward L. Rada, Ph.D., *Professor of Economics in Public Health.*

Leo G. Reeder, Ph.D., *Professor of Public Health and Sociology.*

Milton I. Roemer, M.D., M.P.H., *Professor of Public Health.*

John F. Schacher, Ph.D., *Professor of Public Health in Residence.*

Elizabeth Stern, M.D., *Professor of Public Health in Residence.*

Marian E. Swendseid, Ph.D., *Professor of Nutrition and Biological Chemistry.*

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Daniel M. Wilner, Ph.D., *Professor of Public Health.*

Telford H. Work, M.D., M.P.H., D.T.M.&.H., *Professor of Infectious and Tropical Diseases and Microbiology and Immunology.*

Ruth Boak, Ph.D., M.D., *Emeritus Professor of Microbiology and Immunology, Pediatrics and Public Health.*

John M. Chapman, M.D., M.P.H., *Emeritus Professor of Epidemiology.*

Gladys A. Emerson, Ph.D., *Emeritus Professor of Nutrition.*

Edward B. Johns, Ed.D., *Emeritus Professor of Health Education.*

John F. Kessell, Ph.D., *Emeritus Professor of Infectious Diseases.*

John W. Knutson, D.D.S. Dr.P.H., *Emeritus Professor of Preventive Dentistry and Public Health.*

Florence C. McGucken, M.S., *Lecturer in Nutrition Retired.*

Frank R. Tallman, M.D., *Emeritus Professor of Psychiatry and Public Health.*

Potter C. Chang, Ph.D., *Associate Professor of Biostatistics.*

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Alfred K. Neumann, M.A., M.D., M.P.H., F.A.B.P.M., *Associate Professor of Public Health.*

Dennis D. Pointer, Ph.D., *Associate Professor of Health Services Management and Academic Assistant to the Director of Hospitals and Clinics.*

William Shonick, Ph.D., *Associate Professor of Health Services Administration and Biostatistics.*

Emil Berkanovic, Ph.D., *Assistant Professor of Public Health.*

Linda B. Bourque, Ph.D., *Assistant Professor of Public Health.*

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Lilla Aftergood, Ph.D., *Associate Research Biochemist.*
Lawrence A. Agran, J.D., *Researcher in Public Health and Lecturer in Law.*
Stephen Axelrad, B.A., J.D., *Lecturer in Public Health.*
Arnold R. Beisser, M.D., *Lecturer in Public Health and Associate Clinical Professor of Psychiatry.*
Donald W. Belcher, M.D., *Lecturer in Public Health.*
Stewart N. Blumenfeld, Dr.P.H., *Lecturer in Public Health.*
Michael L. Bobrow, B.Arch., *Lecturer in Architecture and Urban Design and Public Health.*
Devra M. Breslow, M.A., *Specialist in Public Health.*
Robert H. Brook, M.D., Sc.D., *Assistant Professor of Medicine and Public Health in Residence.*
Harold V. Brown, M.P.H., Dr.P.H., *Lecturer in Public Health.*
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Carl F. Coffelt, M.D., M.P.H., *Lecturer in Public Health.*
Anne H. Coulson, *Lecturer in Public Health.*
Ann M. Coulston, M.N.S., *Lecturer in Public Health.*
Anne A. Dachs. M.P.H., *Academic Administrator.*
G. A. Dhopeshwarkar, Ph.D., *Adjunct Associate Research Biochemist of Nuclear Medicine and Radiation Biology and Adjunct Associate Professor of Public Health.*
Wilfrid J. Dixon, Ph.D., *Professor of Biomathematics and Public Health.*
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Jean S. Felton, M.D., *Lecturer in Public Health.*
William D. Finkle, Ph.D., *Lecturer in Public Health.*
Jay W. Friedman, D.D.S., M.P.H., *Lecturer in Public Health.*
Robert D. Girard, L.L.B., *Lecturer in Health Services Management.*
Ralph Goldman, M.D., *Professor of Medicine and Public Health in Residence.*
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M. Alfred Haynes, M.D., M.P.H., *Professor of Public Health in Residence.*
Arthur C. Hollister, Jr., M.D., M.P.H., *Lecturer in Public Health.*
Patrice Jelliffe, R.N., M.P.H., *Associate Researcher in Public Health.*
Robert I. Jennrich, Ph.D., *Professor of Mathematics, Biomathematics and Biostatistics.*
Raymond J. Jessen, Ph.D., *Professor of Management and Public Health.*
Olive G. Johnson, B.A., *Lecturer and Specialist in Health Records Systems.*
Joel D. Kopple, M.D., *Assistant Professor of Medicine and Public Health in Residence.*
Joel W. Kovner, Dr.P.H., *Lecturer in Public Health.*
Jane R. Kurtzman, M.A., M.P.H., *Associate in Public Health.*
Raymond B.Lake, Jr., B.A., *Lecturer in Public Health.*
Kenneth Lee, M.S., *Lecturer in Public Health.*
Eileen Nebel Levine, M.P.H., *Lecturer in Public Health.*
Charles E. Lewis, M.D., Sc.D., *Professor of Medicine and Public Health.*
Lonis Liverman, M.S.W., *Lecturer in Public Health.*
Irvin M. Lourie, M.D., M.P.H., M.S., *Lecturer in Public Health.*
Richard R. Lussier, M.S.P.H., Dr.P.H., *Lecturer in Health Education.*
Leo Lutwak, Ph.D., M.D., *Professor of Medicine and Public Health in Residence.*
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Harold Mazur, M.D., M.P.H., *Lecturer in Public Health.*
Ralph W. McKee, Ph.D., *Professor of Biological Chemistry and Public Health.*
James F. Mead, Ph.D., *Professor of Biological Chemistry and Public Health.*
Jean L. Mickey, Ph.D., *Lecturer in Biostatistics.*
Mohammad G. Mustafa, PhD., *Adjunct Assistant Professor of Medicine and Public Health.*
Charlotte Neumann, M.D., M.P.H., *Lecturer in Public Health and Pediatrics and Associate Researcher in Public Health.*
David D. Nicholas, M.D., M.P.H., *Lecturer in Public Health.*
Edward J. O'Neill, M.D., M.P.H., *Adjunct Assistant Professor of Public Health.*
Maurice M. Osborne, Jr., M.D., M.P.H., *Associate Clinical Professor of Pediatrics and Lecturer in Public Health.*
Bertha L. Paegel, M.D., M.P.H., *Lecturer in Public Health.*
Stanton Price, B.A., L.L.B., *Lecturer in Public Health.*
George W. Prichard, J.D., M.D., M.P.H., *Lecturer in Public Health.*
Ruth F. Richards, B.S., M.A., M.P.H., *Associate Field Program Supervisor.*
Ruth J. Roemer, J.D., *Researcher and Lecturer in Public Health.*
Martin B. Ross, Dr.P.H., *Lecturer in Health Services Management.*
Ralph R. Sachs, M.D., M.P.H., *Lecturer in Public Health.*
Frederick T. Sai, M.B.B.S., D.T.M.&H., M.R.C.P., M.P.H., *Lecturer in Public Health.*
David S. Sanders, M.D., M.P.H., *Lecturer in Public Health and Associate Clinical Professor of Psychiatry.*
Simon A. Sayre, M.D., M.S.P.H., *Lecturer in Public Health and Assistant Clinical Professor of Obstetrics and Gynecology.*
Charles L. Senn, M.S., *Lecturer in Public Health.*
Lowell E. Sever, Ph.D., *Assistant Professor of Anthropology and Epidemiology.*
Irwin J. Shorr, B.S., M.P.H., *Assistant Researcher in Public Health.*
Melvin J. Silverstein, M.D., *Researcher in Public Health.*
Amar J. Singh, Ph.D., *Lecturer in Health Services Management.*
Grant G. Slater, Ph.D., *Associate Research Biological Chemist.*
Forest Tennant, M.D., M.P.H., Dr.P.H., *Adjunct Assistant Professor of Epidemiology.*
Leo Tepper, M.D., M.P.H., *Lecturer in Public Health.*
J. Albert Torribio, M.S.S.W., M.S.W., *Lecturer in Health Education.*
Lawrence G. Wayne, Ph.D., *Lecturer in Public Health.*
Paul F. Wehrle, M.D., *Lecturer in Epidemiology.*
Penelope A. Wells, M.S., Dr.P.H., *Assistant Research Nutritionist.*
Girma Wolde-Tsadik, Ph.D., *Adjunct Assistant Professor of Public Health.*
Alfred J. Zerfas, M.B.B.S., M.R.C.P., M.P.H., *Associate Researcher in Public Health.*

Lower Division Course

44. Principles of Healthful Living.
Lecture, four hours. Fundamentals of healthful living; designed to provide scientific health information and promote desirable attitudes and practices.
The Staff

Upper Division Courses

100. Introduction to Principles of Public Health.
Lecture, three hours. Prerequisite: twelve units of biology, zoology, and bacteriology, or consent of the instructor. The identification and discussion of the philosophy, concepts and principles of public health and the relationship of these to the ecological framework of community organization to meet health service needs.
Mr. Wilner

101. Introduction to Medical Science.
Lecture, four hours. This course will present an introduction to disease processes. It is intended primarily for students in public health and is not open to premedical students. One year sequence in biology, physiology or other biological science is recommended.
Mr. Goldman

102A-102B. Health Record Science.
Lecture, two hours; laboratory, three hours. Prerequisite: enrollment as a major in public health. Nosology. Principles and theories of systems and techniques used for organization, analysis, and maintenance of records and reports are studied and evaluated according to their use in varied situations.
Ms. Johnson

103. Human Bio-social Ecology and Health.
Lecture, four hours; discussion four hours. Prerequisite: consent of the instructor. An introduction to the historical, social and biological properties of the human organism as these relate to health in populations.
Mr. Katz, Mr. Schacher

104. Human Disease and Public Health. (1½ course)
Lecture, four hours; discussion, four hours; laboratory, two hours. Prerequisite: consent of the instructor. An introduction to the study of human diseases, disorders and defects including genetic, mental, social, environmental, nutritional, degenerative and infectious diseases and the response modes and mechanisms of man as these relate to Public Health.
Mr. Schacher and the Staff

M105A. Medical Care in Modern Society. (A)
(Same as Creative Problem Solving Program M185A.) Lecture, four hours; seminar, two hours. Prerequisite: consent of the instructor. An analysis of the functions of our personal health service systems and the assumptions which underlie and dominate traditional patterns of medical care organization.
Mr. Torrens

106. Health and Consumer Economics.
Lecture, three hours. Prerequisite: Economics 1 and 2, or 100. A study of the impact of health problems and costs on individual and family incomes and expenditures, including productivity and dependency.
Mr. Rada

108. Introduction to Food Analysis. (½ course)
Lecture, two hours; laboratory, three hours. Prerequisite: Chemistry 1A, 1B, 1C. The application of quantitative methods to the chemical and microbiological assay of foods.
Ms. Alfin-Slater

109. A History of Public Health and Social Medicine. (½ course)
Lecture, two hours. Prerequisite: consent of the instructor. A world history of the ideas, attitudes and institutions of public health and social medicine, with some considerations of changing social, economic and cultural relationships.
The Staff

110. Environmental Health.
Lecture, four hours. Prerequisite: consent of the instructor. A broad coverage of the field of environmental health and ecological control.
The Staff

111. Principles of Food and Nutrition. (½ course)
Lecture, two hours. 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.
Ms. Alfin-Slater

112. Public Health Engineering.
Lecture, four hours. Prerequisites: Chemistry 1A, Mathematics 3A, Physics 3A or 6A, or consent of the instructor. Planning, design, and survey of factors related to the physical aspects of environmental health with particular reference to water, wastes, pollution control, drainage and building design and equipment and environmental health planning.
The Staff

113. Nutrition.
Lecture, three hours. Prerequisite: organic chemistry, Biology 1A-1B. The chemistry and biochemistry of carbohydrates, fats, proteins, minerals, and vitamins in relation to human nutrition.
Ms. Hunt

114A-114B-114C. Biologic Processes.
Lecture, three hours. Prerequisite: organic chemistry, one year; Biology 1A-1B. The metabolism of lipids, carbohydrates, and proteins; the role of hormones and enzymes in metabolism; physiologic processes occurring in various organs.
The Staff

114D-114E. Biologic Processes Laboratory. (½ course each)
Laboratory, six hours. Prerequisites: course 108 or equivalent, organic chemistry, one year; Biology 1A-1B. Analytical procedures for the various constituents of blood and urine and other physiologic measurements.
The Staff

115. Nutritional Requirements. (½ course)
Lecture, two hours. Prerequisite: consent of instructor. The experimental basis for the establishment of recommended dietary allowances and a critical study of the methods used to assess the nutritional adequacy of various foods and the nutritional status of individuals.
Ms. Alfin-Slater

117. Biotechnology of Air Pollution. (½ course)
Lecture, two hours. Prerequisite: upper division standing and consent of the instructor. Biological and physical effects of air contaminants, technology of combustion processes, planning, economics, and sociology of air pollution considered in relation to environmental quality with emphasis on the urban setting.
The Staff

118. Nutrition in the Life Cycle. (½ to 1 course)
Lecture, two hours; laboratory, three hours. Prerequisite: course 114A. A summary of the principles of nutrition and their application in normal conditions of growth, development and aging. Food habits in relation to nutritive requirements and health. Laboratory experience in obtaining and evaluating food histories. Students may enroll in the lecture for two units or in lecture and laboratory for four units of credit.
Ms. Hunt

119A-119B. Food Service Systems Management.
Lecture, two hours; laboratory, five hours. Prerequisite: Chemistry 21. Introduction to the organization and administration of institutional food service facilities.
Ms. Coulston

120A-120D. Principles of Diet in the Treatment of Diseases. (½ or 1 course each)
Lecture, two hours; laboratory, six hours. Prerequisite: courses 114A, 114C (may be taken concurrently). A study of recent findings in the field of diet and disease and modifications made in the normal diet for pathological conditions. For each of the four courses A-B-C-D, students may enroll in the lecture for two units or in the lecture and laboratory for four units of credit.
Ms. Carlisle and the Staff

121A-121B-121C. Community Nutrition.
Lecture, two hours; laboratory, eight hours. Prerequisite: courses 114A, 114C (may be taken concurrently). A study of groups in society that are vulnerable to malnutrition. Evaluation of nutrition programs in health agencies.
Ms. Hunt

122. Food Science and Technology (½ course)
Lecture, two hours. Prerequisite: Organic Chemistry and Microbiology. Principles of food processing and preservation, nutritional evaluation of food processing, microbial and other hazards in food processing, food safety and laws.
The Staff

130A-130B. Health Science in Schools and Colleges.
Lecture, four hours. Prerequisite: course 44 or consent of the instructor. Theories and principles of health science in schools and colleges; legal aspects, instruction, services, environment, and interrelationships with community resources.
Mr. Lussier

131. Principles of School-Child Health.
Lecture, four hours. Contemporary health education in elementary and secondary schools; emphasizes drug use and abuse, human sexuality, community and human ecology (meets state credential requirement for health education).
Mr. Lussier

142. The World's Population and Food.
Lecture, three hours. Prerequisite: consent of the instructor. The world's food sources; major food groups, human food requirements and consumption; food in developing economies; the international movement of foods; interrelations of foods; population and economic progress.
Mr. Rada

147. Principles of Epidemiology.
Lecture, three hours; laboratory, three hours. Prerequisite: course 101 or equivalent in biological sciences, and 160A (may be taken concurrently). Introduction to epidemiology including study of factors governing the occurrence of diseases in populations. Laboratory problems illustrative of basic epidemiologic methods.
Ms. Visscher and the Staff

148. Human Sexuality.
Lecture, three hours. Prerequisite: consent of the instructor. Lectures, discussions and case presentations considering human sexuality. An interdisciplinary approach receiving anatomic, physiologic, psychologic and social aspects of topics as heterosexual and homosexual relationships, intercourse, pregnancy, abortion, sterilization, and venereal disease.
The Staff

149. Behavioral Sciences and Health.
Lecture, three hours. Prerequisite: consent of the instructor. Relationship of basic concepts in the behavioral sciences pertinent to health and medical care; cultural and social class variations in health status; health team and community relations; community decision-making in public health.
Mr. Berkanovic, Mr. Goldstein, Mr. Reeder

150. Infectious Diseases and Public Health.
Lecture, three hours; demonstration, one hour. Prerequisite: consent of the instructor. Introduction to infectious diseases of man emphasizing modes of transmission and control of etiologic agents of Public Health importance.
Mr. Schacher and the Staff

153. Public Health Microbiology.
Lecture, two hours; laboratory, six hours. Prerequisite: Chemistry 1A, 1B, 1C, 21, 22, 24; Biology 1A, 1B, or equivalents and consent of the instructor. Basic principles and laboratory procedures employed in the

provision of sanitary elements to the community, including food and milk, water supply and waste disposal, soil, and environmental effluents.

Mr. Mah

154. Economics of Health and Medical Care.

Lecture, four hours. Prerequisite: Economics 1, 2, or equivalent, or consent of the instructor. A study of demand, supply, and price determinants in the private and public sectors of the health and medical care fields.

Mr. Rada

160A. Introduction to Biostatistics.

Lecture, three hours; laboratory, three hours. Prerequisite: upper division standing; courses in the biological or physical sciences. Students who have completed courses in statistics may enroll only with the consent of the instructor. Introduction to methods and concepts of statistical analysis. Sampling situations with special attention to those occurring in the biological sciences. Topics will include: distributions, tests of hypotheses, estimation, types of error, significance and confidence levels, sample size.

The Staff

160B. Introduction to Biostatistics.

Lecture, three hours; laboratory, three hours. Prerequisite: course 160A, or consent of the instructor. Introduction to analysis of variance, linear regression, and correlation analysis.

The Staff

160C. Introduction to Biostatistics.

Lecture, three hours; laboratory, three hours. Prerequisite: courses 160B or 163B, or consent of the instructor. Design of experiments, analysis of variance, multiple and polynomial regression analysis, covariance analysis with biomedical applications.

The Staff

160D. Introduction to Biostatistics.

Lecture, three hours; laboratory, three hours. Prerequisite: course 160B or consent of the instructor. Introduction to concepts of probability used in medical science, enumeration statistics, nonparametric methods, and sequential analysis in medical trials.

The Staff

161. Demography.

Lecture, three hours; laboratory, three hours. Prerequisite: course 160A or consent of the instructor. Sources and evaluation of demographic information. Demographic description of human populations and analysis of changes over time; interrelationships among changes in structure, migration and vital rates. Various uses of the life table in demographic analyses.

Ms. Mickey

163A. Basic Biostatistics.

Lecture, three hours; quiz, two hours. Prerequisite: Mathamatics 31A-31B-31C or equivalent. Basic concepts of statistical analysis applied to the biological sciences. Topics include random variables, sampling distributions, parameter estimator, statistical inference. Required for MS in Biostatistics.

The Staff

163B. Basic Biostatistics.

Lecture, three hours; quiz, two hours. Prerequisite: course 163A. Topics will include elementary analysis of variance, simple linear regression and correlation, nonparametric methods, elements of sequential analysis. Required for MS in Biostatistics.

The Staff

193. Nutrition and Health. (½ course)

Lecture, two hours. Prerequisites: course 101 or 104 or equivalent and consent of instructor. A course in basic and clinical nutrition theory and practice for students in health science curricula.

Ms. Alfin-Slater, Mr. Jelliffe

199. Special Studies. (½ or 1 course)

Prerequisite: senior standing; consent of the instructor and Department Chairman. Consent is based on a written proposal outlining the course of study. Individual guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Undergraduate or graduate students may enroll in only four units each academic period. Only four units may be counted toward the minimum course requirements for a master's degree. Offered on a letter graded basis.

The Staff

Graduate Courses

201A. The Structure and Organization of the Contemporary Hospital.

Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Introduction to structure and organization of contemporary hospital including but not limited to its historical evolution; responsibility and authority relationships and duties of governing body, medical staff and hospital administrators; duties and relationships of professional and operational departments; and the patient.

Mr. Pointer, Mr. Ross

201B. The Administrative Process in the Contemporary Hospital.

Lecture, two hours; discussion, two hours. Prerequisite: course 201A. Examination and application of management and organization theory to contemporary hospital. Relevant theory derived from classical management theorist, behaviorist, and systems theorist identified and used to enhance understanding of operational process of hospital and to develop and improve administrative skills.

Mr. Pointer, Mr. Ross

202A. Governmental Health Services and Trends.

Lecture, four hours. Prerequisite: course 450A and consent of the instructor. Systematic analysis of organized programs of personal health services, preventive or therapeutic, under various governmental agencies at all jurisdictional levels. Study of trends toward integration of traditional public health with newer medical care and quality-control functions.

Mr. Shonick

202B-202C. Problems of Medical Care Administration. (½ course each)

Lecture, three hours. Prerequisites: course 202A and 450A or consent of the instructor. Problems of administration of special elements of medical care, methods of quality evaluations and legislative issues. Credit and grades will be assigned upon completion of 202C.

Mr. Torrens

203A. Family Health and Biosocial Development.

Lecture, two hours; discussion, two hours. Basic principles of health of mothers and children in context of family. Subjects include scope, concepts, biological and social development, health problems, services available and desirable, influence of socio-economic, cultural and political factors.

Mr. Ktaz, Mr. Lieberman

203B. Family Health Services.

Lecture, two hours; laboratory, two hours. Study in depth of the more important areas of Family Health Services including established and innovative programs in U.S. and overseas. Visits to selected programs combined with lectures and seminars.

Mr. Cushner, Mr. Lieberman

204. Health and Economic Development. (½ course)

Lecture, two hours. Prerequisite: consent of instructor. Reciprocal relationships between health and economic development in less developed countries explored and analyzed, leading to discussion of techniques of health planning to support economic development projects and programs.

The Staff

205. Cardiovascular Disease Epidemiology. (½ course)

Lecture, discussion, two hours. Prerequisites: courses 147, 160A, 246A, or consent of instructor. Study of the epidemiologic characteristics of specific cardiovascular diseases, methods of study, and implications for prevention.

Mr. Chapman

206. Medical Care Systems in International Perspective. (½ course)

Lecture, two hours. Prerequisite: consent of the instructor. Analysis of systems of medical care organization in countries of different stages of economic development and diverse political settings. Comparative approaches to ambulatory, institutional, and preventive services in the private, insurance, and governmental sectors.

The Staff

207. Information: Sources, Analysis and Use in Health Planning.

Lecture, four hours. Prerequisite: course 160A or equivalent, Economics 101A-101B or equivalent or consent of instructor. Analysis and use of data as information for comprehensive health planning decision making. Range and characteristics of desired data, methods of generation, existing data as surrogates, health and non-health sources.

Mr. Kisch and the Staff

208. Law, Social Change and Health Service Policy.

Lecture, four hours. Prerequisite: course 450A and consent of the instructor. Critical legal issues affecting policy formulation for environmental, preventive and curative health service programs in light of changing social conditions. Emphasis will be given to political power, constitutional change, legislative policy and specific critical issues in health services, such as professional licensure and prepaid medical care.

The Staff

209A. Management of Epidemiologic Data. (½ course)

Lecture, two hours. Prerequisites: courses 147 and 160A (may be taken concurrently). Introduction to concepts, collection and management of data with particular emphasis on large scale bases. The course includes introduction to the computer and the appropriate selection and use of packaged programs.

Ms. Coulson

209B. Management of Epidemiologic Data. (½ course)

Lecture, two hours. Prerequisite: course 209A or consent of the instructor. Continuation of course 209A, including introduction to FORTRAN and other compiler languages and the development of special purpose programming for epidemiologic problems. Special problems of data management in large scale studies in infectious and chronic diseases will be emphasized.

Ms. Coulson

210. Advanced Environmental Health.

Lecture, four hours. Prerequisite: course 110, or equivalent. Theoretical considerations and supporting data requisite for scientific establishment and justification of environmental health standards and requirements, with particular reference to related health factors.

The Staff

211A-211D. Advanced Nutrition. (½ course each)

Lecture, two hours. Prerequisite: Biological Chemistry 101A-101B-101C or equivalent and consent of the instructor. Biochemical aspects of nutrition; metabolic and nutrient interrelationships.

The Staff

212A-212D. Laboratory Techniques in Environmental and Nutritional Sciences.

Lecture, two hours; laboratory, four hours. Prerequisite: consent of instructor. Instrumentation and methodology including animal techniques.

The Staff

†214. Infectious and Tropical Disease Epidemiology.

Lecture, three hours; discussion, three hours. Prerequisites: course 147 plus one advanced course in epidemiology and consent of the instructor. For students with prior courses in microbiology, parasitology, entomology or pathology. A course for advanced students on the epidemiology of major infectious diseases in developing countries, including both those with a direct or contact mode of spread and those that are vector-borne. Not offered every year.

Mr. Schacher, Mr. Work

216A. Introduction to the Ecology of Exotic Diseases.

Lecture, two hours, discussion, six hours; field trips. Prerequisites: course 147 or other course in epidemiology; Bacteriology 101, 103 or equivalent in microbiology. Introduction to literature on exotic diseases; basic principles of the infectious process and the processes of infection, geographic pathology, and behavioral cause of disease. Attention also directed to climatological, ecological and biological determinants of the distribution, exposure to and occurrence of exotic diseases.

Mr. Work

216B. Viral Diseases of Man.

Lecture four hours; discussion, six hours. Prerequisite: course 216A or equivalent. Lectures, demonstrations and laboratory exercises on viral and rickettsial diseases of man, dealing with the natural history, epidemiology, diagnosis, control and prevention with special reference to these diseases as they occur in tropical situations.

Mr. Work

218A. Protozoal Diseases of Man. (½ course)

Lecture, two hours. Prerequisite: biology background, consent of the instructor. The course presents basic information on the practical recognition, biology, host-parasite relationships, and public health problems presented by the protozoa parasitic in man and other animals. May be taken concurrently with course 218B.

Mr. Ash, Mr. Schacher

218B. Protozoal Diseases of Man. (½ course)

Laboratory, six hours. Prerequisite: biology background, consent of the instructor. The course presents basic information on the practical recognition, biology, host-parasite relationships, and public health problems presented by the protozoa parasitic in man and other animals. Must be taken concurrently with course 218A.

Mr. Ash, Mr. Schacher

219. Arthropods of Medical Importance.

Lecture, two hours; laboratory, six hours. Prerequisite: consent of the instructor. The biology and identification of mites and insects of public health importance involved in the transmission and causation of human diseases.

Mr. Barr

220A. Helminthic Diseases of Man. (½ course)

Lecture, two hours. Prerequisite: biology background, consent of the instructor. Course presents basic information on practical recognition, biology, host-parasite relationships, and public health problems presented by the helminths parasitic in man and other animals. May be taken concurrently with course 220B.

Mr. Ash, Mr. Schacher

†Offered on request by four or more students.

220B. Helminthic Diseases of Man. (½ course)

Laboratory, six hours. Prerequisite: biology background, consent of the instructor. Course presents basic information on practical recognition, biology, host-parasite relationships, and public health problems presented by the helminths parasitic in man and other animals. Must be taken concurrently with course 220A.

Mr. Ash, Mr. Schacher

221. Behavior of Viruses in Human Populations.

Discussion, four hours. Prerequisite: course 147, background in microbiology or biology, or consent of the instructor. Lectures, readings and discussion of the epidemiology of viral agents in human populations including viruses associated with acute and delayed onset diseases, slow and latent viruses, and viruses suspected of causing neoplastic disease. Outside readings will be drawn from a number of current texts and primarily from the current literature. Outside readings will require from 6-10 hours per week in addition to class hours.

Mr. Detels

224A-224B. Environmental and Clinical Toxicology.

Lecture, three hours; discussion, one hour. Prerequisites: One year biological chemistry or advanced biological science and one year calculus, or consent of instructor. Essentials of toxicology, stressing selective toxicity, mechanism of action, statistics of dose response, stochastic models of metabolic processes, clinical symptoms, chemical tests, and physical, chemical, or biological agents that adversely affect man and environmental quality.

The Staff

225. Cross-Cultural Communication in Family Health.

Discussion, two hours; laboratory, two hours. Prerequisite: consent of the instructor. The origins, methodology, limitations and applications of Medical Anthropology to the solution of problems in delivery of family health, including family planning services in cross cultural situations are explored in seminar.

Mr. Lieberman, Ms. Scrimshaw

226. Environmental Health Planning.

Lecture, four hours. Prerequisite: graduate standing, consent of instructor. Program planning process, environmental manipulation, human and urban development, eco-system concepts, energy, toxicology (air, water, food), environmental health standards, solid wastes, resources, and economics are discussed with emphasis on regional environmental management.

The Staff

227. Advanced Demography.

Lecture, three hours. Prerequisite: course 161 or the equivalent. Calculation of estimates of stable population parameters. Application of stable population concepts to the estimation of fertility rates in the absence of vital registration data. Consequences of changes in vital rates. Implications for policy.

Ms. Mickey

228. Legislative Process in Health Care. (½ course)

Lecture, one hour; discussion, one hour. Prerequisite: consent of the instructor. Covered are national health insurance, health maintenance organizations, health care practitioners, other alterations in traditional arrangements for health care. Will examine legislative proposals against history and analysis of health care problems and current governmental efforts to improve health care.

Mr. Breslow

230. School Health Program Development and Evaluation.

Lecture, four hours. Prerequisite: courses 130A-130B, 250. Program components, process, implementation, and evaluation.

The Staff

M232. Disease Problems of Socio-Economic and Political Impact in Latin America.

(Same as Latin American Studies M232). Lecture, six hours; discussion, six hours. Prerequisite: consent of the instructor. A graduate course for students with knowledge of the geography and social and political systems for the diverse nationalities which constitute Latin America. The focus will be on important disease problems in respect to their social, economic and political impact on Latin American countries with only a minimum of medical and technical details necessary to understand the nature of the disease as it afflicts individuals and populations.

Mr. Work

233. Change Determinants in Health-Related Behavior.

Lecture, four hours. Prerequisite: minimum of four courses of behavioral science (one of which must be upper division), concurrent enrollment in course 149, or consent of the instructor. A unified behavioral science approach to the natural determinants of change in health-related behavior at the community, group and individual levels, as a foundation for planned change.

Mr. Hoffman

234. Advanced Community Health Education.

Lecture, four hours. 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.

Mr. Hoffman, Mr. Torribio

236. Assessment in Planned Behavior Change.

Lecture, three hours; laboratory, three hours. Prerequisites: courses 160A, M245A, 234 and/or consent of the instructor. Analysis of the theoretical foundations of evaluation, with special reference to the design and implementation of the evaluation component in planned behavior change.

Mr. Berkanovic

238. Ecology of Mental Health.

Lecture, four hours. Prerequisite: consent of the instructor. The effects of physical, social, political and economic environment on the mental health of the members of a society.

Mr. Goldstein

239A. Statistical Methods in Clinical Trials and Medical Surveys. (½ course)

Lecture, two hours. Prerequisite: courses 160A, 160B, 160C, graduate standing in public health or related field. Design of experiments and statistical analysis appropriate to clinical trials and medical surveys.

Ms. Clark

239B. Statistical Methods in Clinical Trials and Medical Surveys. (½ course)

Lecture, two hours. Prerequisites: Mathematics 31C, 32A, 152A, 152B, and equivalent of six units of statistical methods; course 239A is recommended but not required. Review and development of statistical methodology applicable to clinical trials and medical surveys.

Ms. Clark

240A-240B-240C. Biostatistics.

Lecture, four hours. Prerequisites: courses 160A, 160B, 160C; Mathematics 152A-152B, 31C or the equivalent. With the consent of the instructor, certain of the prerequisites may be taken concurrently. Quantitative methods in public health, medicine, and the biological sciences, statistical theory and application to problems in the design and analysis of experiments and surveys.

Mr. Afifi, Ms. Clark, Mr. Dixon

M241-241B-241C. Linear Statistical Models.

(Same as Mathematics M279A-279B-279C.) Lecture, three hours. Prerequisite: Mathematics 152B or 150C

and course 160C or equivalent. Topics include linear algebra applied to linear statistical models, distribution of quadratic forms, the Gauss-Markov theorem, fixed and random component models, balances and unbalanced designs.

Mr. Afifi, Mr. Chang

242A-242B-242C. Multivariate Biostatistics.

Lecture, four hours. Prerequisite: course M241A or equivalent. Multivariate analysis as it is used in biological and medical situations. Topics from component analysis, factor analysis, discriminant analysis, analysis of dispersion, canonical analysis.

Mr. Afifi, Ms. Dunn, Mr. Massey

243A. Advanced Topics: Stochastic Processes.

Lecture, four hours. Prerequisite: courses in upper division mathematics including statistics and probability. Stochastic processes applicable to medical and biological research.

Mr. Afifi, Ms. Dunn, Mr. Massey

243B. Advanced Topics: Mathematical Epidemiology.

Lecture, four hours. Prerequisite: course 243A or equivalent and courses in upper division mathematics including statistics and probability. Mathematical theory of epidemiology with deterministic and stochastic models, and problems involved in applying the theory.

Mr. Massey

243C. Advanced Topics: Statistical Genetics.

Lecture, four hours. Prerequisite: courses in upper division mathematics including statistics and probability. Introduction to statistical genetics.

Ms. Dunn

244A. Introduction to Statistical Methods for Biological Assays.

Lecture, four hours. Prerequisites: course 160C and Mathematics 150A, 150B, 150C or 152A, 152B. Topics include standard statistical procedures for the estimation of relative potency, density of micro-organisms and density of radioactivity, models used for these procedures and statistical considerations for designing such assays.

Mr. Chang

244B. Statistical Methods for Research Biological Assays.

Lecture, four hours. Prerequisite: course 244A. Topics include statistical methods developed for research assays for which the standard procedures do not apply.

Mr. Chang

M244C. Computational Statistics. (¾ course)

(Same as Biomathematics M280 and Mathematics M280.) Lecture, three hours. Prerequisites: Mathematics 150A-150B-150C and 115 or the equivalent. An introduction to the theory and design of statistical programs; pivoting and other technologies used in stepwise regression, nonlinear regression algorithms, algorithms for balanced and unbalanced analysis of variance including the mixed model, iterative rescaling and other methods for log-linear models.

Mr. Jennrich

M245A. Research Methods in Community Health.

(Same as Anthropology M292.) Lecture, three hours. Prerequisite: course 160A, or consent of the instructor. Preparation for planning and conducting research projects; methods and techniques of community health research; basic skills in research methodology.

Ms. Bourque

245B. Analysis and Interpretation of Health Survey Data.

Lecture, two hours; laboratory, one hour; 10-12 hours per week on class assignments. Prerequisites: course M245A, 160A, 160B or consent of the instructor. Introduction to computer analysis of health survey data using various available statistical procedures. Emphasis is on the actual analysis of existent data and includes introduction to computers as an analytical tool, development of skills for determining appropriate analytical techniques and procedures by which resultant data can be interpreted and presented.

Ms. Bourque

245C-245D. Evaluative Research in Health and Mental Health Settings.

Lecture, three hours. Prerequisites: courses 160A, 160B, M245A, 245B or equivalent. Principles, philosophy, and behavioral sciences methodology appropriate in evaluating programs aimed at reducing morbidity and mortality; disease detection programs; and rehabilitation programs in health and mental health fields.

Mr. Berkanovic, Mr. Wilner

246A. Problems of Measurement in Epidemiology.

Lecture, two hours; discussion, two hours. Prerequisites: courses 147 and 160A. The study of problems of measurements used in the application of epidemiologic methods to infectious and chronic diseases.

Mr. Detels, Mr. Spivey and the Staff

246B. Research Methods in Epidemiology.

Lecture, two hours; discussion, two hours. Prerequisite: course 246A. A study of the selection of the appropriate research design and problems of conducting epidemiologic research in chronic and infectious diseases, health planning and evaluation, and intervention programs.

Mr. Detels, Mr. Spivey and the Staff

247A. Epidemiology of Cancer. (½ course)

Lecture, two hours. Prerequisites: courses 147, 160A or consent of the instructor. Course considers use of epidemiologic methods and principles in studies on cancer for the derivation of causal factors in chronic disease of unknown etiology. Interrelationships and biologic relevance of host and environmental factors. Classification of neoplastic diseases.

Ms. Stern

247B. Epidemiology of Cancer. (½ course)

Lecture, two hours. Prerequisite: course 247A recommended but not required. Course provides background on natural history of cancer. The concept of a precursor state, preinvasive and preclinical stages of cancer presented in relation to possible prevention and control. Cancer detection and screening programs. Experimental models.

Ms. Stern

248. Descriptive Epidemiology in Community Diagnosis. (½ course)

Lecture, two hours. Prerequisite: course 147. Time, place and person patterns of health and disease in population groups. Problems of acquisition and utilization of descriptive epidemiologic information for research in disease etiology, in health resource distribution and in evaluation. Particularly recommended to supplement Principles of Epidemiology for non-majors.

The Staff

M249A. Sociocultural Aspects of Health and Illness.

(Same as Sociology M249A.) Lecture, two hours. Prerequisites: course 149 or graduate standing in sociology, anthropology or psychology and consent of the instructor. The relationship between the sociological, cultural, and psychosocial factors in the etiology, occurrence, and distribution of morbidity and mortality. Emphasis is on life styles and other socioenvironmental factors associated with disease and mortality.

Mr. Reeder

M249B. Sociocultural Aspects of Health and Illness.

(Same as Sociology M249B.) Lecture, two hours. Prerequisite: graduate standing and consent of instructor. A sociological examination of the concepts "health" and "illness" and role of various health professionals, especially physicians. Attention given to meaning of professionalization and professional-client relationships within a range of organizational settings.

Mr. Goldstein

M249C. Sociocultural Aspects of Health and Illness.

(Same as Sociology M249C). Lecture, two hours. Prerequisite: graduate standing and consent of instructor. Sociocultural factors in illness behavior. Emphasis on the processes affecting differential patterns of use of health services.

Mr. Berkanovic

250. Current Problems in Health Education.

Lecture, four hours. Prerequisite: courses 130A-130B or consent of the instructor. A study of new findings in the health education content areas (such as nutrition, mental health, family health, consumer health, safety, communicable and chronic diseases).

The Staff

251. Administrative Relationships in Health Education.

Lecture, one hour; discussion, three hours. Prerequisite: courses 230 and 250 or consent of the instructor. Responsibility and authority for health education in educational institutions and relationships with other agencies and groups.

The Staff

252. Community Problems in Mental Disorders.

Lecture, three hours. Prerequisite: consent of instructor. Mental disorders, mental retardation and delinquency; and the responsive social agencies, including concern with suicide prevention and psychological problems of aging.

Mr. Goldstein

254. Benefit-Cost Evaluation of Health Programs.

Lecture, two hours; discussion, two hours. Prerequisite: consent of the instructor. A study of cost-benefit and cost effectiveness principles and techniques employed to evaluate public health programs and projects.

Mr. Rada

†255. Current Problems with Arthropod-borne Viruses.

Lecture, two hours; laboratory, six hours. Prerequisites: course 216B; Microbiology and Immunology 201A, 201B, or equivalent, consent of the instructor. For the specialist or advanced student. Presentation of specific aspects in the etiology, epidemiology, epizootiology, ecology, pathogenesis, clinical manifestations, diagnosis and control of arthropod-borne virus diseases through lectures and laboratory exercises. Not given every year.

Mr. Work and the Staff

259. Handicapped Children: The Public Health Concern. (½ course)

Lecture, two hours. Prerequisite: consent of instructor. Etiology, prevalence, social consequences and remedial programs for the chief handicapping conditions in children, both physical and mental. Emphasis on both biological and social factors, current research and program developments.

Mr. Katz

261. Seminar in Community Health Education. (½ course)

Lecture, two hours. Prerequisite: consent of the instructor.

The Staff

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†Offered on request by four or more students.

†262. Current Problems with Mosquito Vectors.

Lecture, two hours; laboratory, six hours. Prerequisite: course 219 and consent of the instructor. Current topics of significance on mosquito biology as related to colonization, disease transmission and control.

Mr. Barr and the Staff

263. Seminar on Current Issues in Maternal and Child Health. (½ course)

Discussion, two hours. Prerequisite: course 203A. New knowledge and approaches in selected health and social problems of families, women of childbearing age and children, including early development, day care and genetic counseling.

Mr. Jelliffe, Mr. Katz

†264. Advanced Helminthology. (1½ courses)

Lecture, six hours; laboratory, 18 hours. Prerequisites: course 220 or Biology 105, 181 or 182 and consent of instructor. Advanced study of the morphology, systematics, life cycles, and host-parasite relationships of the major groups of helminth parasites of man and animals. Not offered every year.

Mr. Schacher

265. Current Research in Epidemiology. (½ course)

Discussion: two hours. Prerequisites: courses 147, 246A and 160A, or consent of instructor. Review of current epidemiologic research contained in recent medical literature. May be repeated for credit.

The Staff

266. Seminar in Epidemiology. (½ course)

Discussion: two hours: Prerequisites: courses 147, or 246A and 160A, or consent of instructor. A discussion of methods and principles of epidemiology in use in current research on specific diseases of public health importance. Topics vary from year to year. May be repeated for credit.

The Staff

269A-269B-269C. Seminar in Biostatistics. (½ course each)

Prerequisite: consent of the instructor.

The Staff

270. Basic Processes and Medical Aspects of Aging. (½ course)

Lecture, two hours. Prerequisite: course 271A or consent of the instructor. Review of basic physiological, medical, and psychiatric aspects of human aging; review of factors in rehabilitation and re-education of persons in middle and later years.

Mr. Goldman

271A-271B. Behavioral Science Aspects of Human Aging.

Lecture, four hours. Prerequisite: three quarter courses or the equivalent of advanced study in anthropology, psychology or sociology; course 149 (may be concurrent); or consent of the instructor. Behavioral science aspects of the middle and later years, with emphasis upon sociocultural influences and individual differences.

Mr. Wilner

272. Child Health in Disadvantaged Areas. (½ course)

Lecture, one hour; discussion, one hour. Prerequisite: consent of the instructor. Student presentations on child health problems in disadvantaged areas in the U.S. and overseas based on personal experience or on directed library research. Emphasis on principles involved in developing ecologically adapted child health programs.

Mr. Jelliffe and the Staff

273. Maternal and Child Health and Nutrition.

Lecture, two hours; discussion, two hours. Seminars with student presentations on nutrition of mothers and infants and children at various stages of development, measures for prevention and treatment of protein-calorie malnutrition, relationship between nutrition and mental development, impact of ecological, socio-economic and cultural factors on nutrition, and nutrition education and services.

Mr. Jelliffe and the Staff

274. Seminar in Environmental Toxicology. (½ course)

Lecture, two hours. Prerequisite: consent of the instructor or courses 224A-224B. Review of current literature and research on toxic effects of environmental agents. May be repeated for credit.

The Staff

275. Seminar in Environmental Physiology. (½ course)

Lecture, two hours. Prerequisite: course 114A and/or consent of instructor. Topics in environmental biology and physiology: water, soil, air, and the impact of pollutants on living systems. Student presentations of published papers or own research progress. May be repeated for credit.

Mr. Mah

278. Environmental Policy Planning and Decision-Making.

Lecture, four hours; discussion, one hour. Prerequisites: graduate standing; courses 112, 210, 471, 472, or consent of the instructor. Establishment of a systematic analytic framework for environmental policy planning and decision-making. Topics will include: identification of policy interdependencies; evaluation of policy tradeoffs; assessment of optional technologies and futures; assessment of utilization of taxation, prices, incentives, penalties for achieving requisite environmental objectives; assessment of control and standards options.

Mr. Davos

279. Environmental Health Planning and Management.

Lecture, one hour; discussion, three hours; field projects. Covers by lecture, seminars, field study, and student reports, the basic principles of administration, management, planning and evaluation as applied to environmental health.

The Staff

281. Issues in Health Planning.

Discussion, three hours. Prerequisite: enrollment in CHP Program. In-depth presentation and analysis of current issues of importance to advanced students in the CHP program.

Mr. Kisch

283. Seminar in Behavioral Sciences and Health. (½ course)

Lecture, two hours. Prerequisite: courses M249A-249B or consent of the instructor. Recent significant contributions of the behavioral sciences to the understanding of health and illness, with selected and varying topics each quarter. May be repeated for credit.

Mr. Reeder, Mr. Wilner and the Staff

284. Seminar in Nutrition. (½ course)

Lecture, two hours. Prerequisite: consent of the instructor. Recent advances in the science of nutrition and in the dietetic treatment of diseases. May be repeated for credit.

The Staff

285. Seminar in Public Health Nutrition. (½ course)

Lecture, two hours. Prerequisite: consent of instructor. Nutrition in the maintenance of health and treatment of disease. Nutrition survey methods. May be repeated for credit.

The Staff

286. Nutritional Problems in Developing Areas. (½ course)

Lecture, two hours. Prerequisite: consent of instructor. Manifestations and dietary treatment of nutritional deficiencies.

The Staff

290. Special Group Studies. (½ or 1 course)

Prerequisite: consent of the instructor.

The Staff

290A. Community and Institutions.
290B. Environmental Health.
†290C. Epidemiology.
290D. Hospital Administration.
290E. Population, Family and International Health.
290F. Maternal and Child Health.
290G. Health Services Administration.
290H. Occupational Health.
290J. Community Mental Health.
290K. Community Health Education.
290L. Public Health Nutrition.
290M. Biostatistics.
290N. School and College Health Education.
290Q. Infectious and Tropical Diseases.
290R. Public Health Administration.
290S. Health Economics.
290T. Comprehensive Health Planning.

400. Field Studies in Public Health. (½ or 1 course)

Prerequisite: consent of the instructor. Field observations and studies in selected community organizations for health promotion or medical care. Not applicable to minimum course requirements for the M.S. degree.

The Staff

401A. Hospital Personnel Management. (½ course)

Lecture, two hours. Prerequisite: consent of instructor. A survey of personnel management from perspective of hospital administrator. Topics include personnel administration and supervision; wage and salary administration; labor, wage and occupational safety legislation and case law; labor relations; training programs.

Mr. Pointer

401B. Legal Aspects of Hospital Administration. (½ course)

Lecture, two hours. Prerequisite: consent of instructor. A survey of legal matters pertinent to the practicing hospital administrator. Emphasis is on derivation of legal authority for operations; hospital consent, medical record and negligence law; legislation; administration codes; and case law relating to hospital operations.

Mr. Girard

401C. Hospital Financial Management. (½ course)

Lecture, two hours. Prerequisite: consent of instructor. Preparation for decision making which affects preservation and proper utilization of contemporary hospital's resources. Financial statement and cost analysis stressed.

Mr. Lake

402A-402B. Health Records: Planning, Analysis and Research.

Lecture, two hours; laboratory, three hours. Prerequisite: consent of the instructor. Health and administrative research, using clinical records. Principles of planning for routine and special studies. Individual investigation in methods of obtaining and processing data to meet needs of programs in institution and agency. Introduction to principles of medical auditing; analysis of medical and health services.

Ms. Johnson

†Offered on request by four or more students.

403A-403B-403C. Field Studies in Comprehensive Health Planning.

Prerequisite: consent of the instructor. Preparation for and study of practical field work in all phases of comprehensive health planning such as areawide planning organizations, health agencies, and professional organizations. This course is offered on an In Progress basis which requires the student to complete the full three quarter sequence at the end of which time a grade is given for all quarters of work.

Mr. Kisch and the Staff

404A. Small Area Planning for Resources for Personal Health Service - Theory. (½ course)

Lecture, two hours. Prerequiste: course 450A and one additional course in health services and hospital administration, or consent of instructor. Health planning theory, methods and experience with planning for personal health care resources, for small geographic areas. Determining needs and estimating required utilization levels and health care resources. Survey of elements of different disciplines used in areawide health planning.

Mr. Shonick

404B. Small Area Planning for Resources for Personal Health Services - Theory and Laboratory.

Lecture, two hours; laboratory, two hours. Prerequisites: course 404A, 450A and one additional course in health services and hospital administration, or consent of instructor. Study of health planning theory and survey of methods as in course 404A. In addition, projects and exercises will be assigned to obtain some practice and further insights into problems and methods.

Mr. Shonick

405. Planning and Development of Family Health Programs.

Lecture, two hours; discussion, two hours. Practical guidelines for planning community family health/family planning projects for less affluent areas of U.S. and in developing countries. Phases of program development include: identification of community needs; funding; project proposals and budgets; data and cost analysis systems; and basis for evaluation.

Mr. Neumann

410. Organization of Ambulatory Health Services. (½ course)

Lecture, three hours. Prerequisite: consent of the instructor. An analysis of organizations providing health services to ambulatory patients, with special attention to group medical practice and to the problems of development of new patterns of ambulatory patient care in disadvantaged urban areas.

The Staff

413. Biomedical Research Methods.

Lecture, two hours; laboratory, six hours. Prerequisite: consent of the instructor. Techniques of biomedical research for students in biological and paramedical disciplines. Emphasis is on techniques of experimental study of infectious diseases in laboratory animals, field zoonotic/epidemiologic studies and thesis/publication techniques.

Mr. Schacher

420. Population, Ecology and Health.

Lecture, four hours. Prerequisite: background in biology and behavioral sciences and/or experience in family planning field programs, or consent of instructor. An overview of the population/family planning field. Theoretical concepts of demography, social and historical movements, and reproductive physiology combined with lectures and field work focusing on the administration and delivery of family planning services.

Mr. Cushner, Mr. Sayre

421. Population and Family Planning Program. (½ course)

Lecture, two hours. Prerequisite: course 420. An in-depth seminar devoted to the practical issues which confront the family planning health worker. Student participation in shaping the course encouraged.

Mr. Sayre, Ms. Scrimshaw

430. Practicum in Health Education. (1 or 2 courses)

Lecture, two hours; laboratory, six or eighteen hours. Prerequisite: consent of the instructor. The study of community- and group-felt health needs as reflected by behavioral responses. Analysis of the data with respect to understanding the needs; and planning, implementing, and evaluating need-directed health education and medical care programs.

Mr. Hoffman

434. Health Education in Clinical Settings.

Lecture, four hours. Prerequisite: 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.

The Staff

435. Mass Communjcations in Behavioral Change Processes.

Lecture, three hours; laboratory, three hours. Prerequisites: courses 236, 434, or consent of the instructor. Research, principles, and practices in health communication with special reference to the design and implementation of media and their role and effects in planned behavior change.

The Staff

444A-444B. Health Record Systems.

Lecture, three hours; laboratory, three hours. Prerequisite: graduate standing and experience in health record administration. Advanced study of principles and criteria involved in planning, installing and administering systems to record, process, and retrieve data for records and reports in health and medical institutions and agencies.

Ms. Johnson

445. Principles of Public Health Nutrition.

Lecture, two hours; field trips, three hours. Prerequisite: courses 114A-114B-114C (114C may be taken concurrently) or equivalent courses in nutrition. Methods used in public health nutrition to assess and improve nutritional status of population groups. A survey of problems and practices of health agencies dealing with community nutrition.

Ms. Hunt

450A. Health Services Organization.

Prerequisite: consent of the instructor. Organized social efforts to mobilize resources for promotion of health, prevention of disease, and provision of medical care. Analysis of the complexities of the pluralistic American health service system.

Mr. Torrens

450C. Environmental Health Sciences. (½ course)

Lecture, two hours. Prerequisite: graduate standing and consent of the instructor. Survey of environmental health principles and practice, considerations of the scientific basis of environmental quality standards, and the control of environmental hazards.

The Staff

451. Principles of Administration for Health.

Lecture, four hours. Prerequisite: course 450A. Exploration of basic principles of administration, with emphasis on their application to health service organizations. Integrated studies in organization theory and the changing nature of management, decision process, planning and budgeting, personnel administration, control and evaluation.

Mr. Pointer

452A-452B. Community Mental Health.

Lecture, four hours. Prerequisite: graduate status. Concepts of mental health, mental illness, prevention of mental disorders. Mental health in public health programs. Public health aspects of control of mental disorders. Epidemiology, program planning and legal aspects of mental disorders.

Mr. Sanders

453A. Health Insurance Principles and Programs.

Lecture, four hours. Prerequisite: course 202A and consent of the instructor. Social and actuarial principles of health insurance, with analysis of the diversity of voluntary medical care insurance plans under different sponsorships and with varied scopes of coverage and benefits. Relationships to public and private medical care developments.

Mr. Shonick

453B. Evaluative Research on Personal Health Services.

Lecture, three hours. Prerequisite: consent of the instructor. Analysis of methods and findings of new research on evaluation of personal health service programs in varying social contexts. Emphasis on measurement of outcomes of health service systems.

Mr. Hopkins

454. Issues and Problems of Local Health Administration. (½ course)

Lecture, two hours. Analysis of organizational issues currently faced by local health departments in increasing the scope and quality of services; exploration of administrative problems and inter-agency relationships.

Mr. Salenger

455. Financing Health Programs. (½ course)

Lecture, two hours. Prerequisite: Economics 100 or consent of the instructor. Sources and costs of financing, conditions for repayment of funds, program budgeting, and evaluating goal attainments.

Mr. Rada

456A. International Health Agencies and Programs. (½ course)

Lecture, two hours. Prerequisite: consent of the instructor. Historical development and functions of international organizations concerned with health, including United Nations units (WHO, UNICEF, etc.) as well as bilateral movements (U.S. AID, Colombo Plan), medico-religious missions, private foundations, and other channels for dissemination of ideas and practices.

Mr. Neumann

456B. Comparative Analysis of Health Service and Disease Patterns. (½ course)

Lecture, two hours. Prerequisite: consent of the instructor. Examination of selected countries, both developing and industrialized; comparative analyses of the nature of disease problems and the diverse patterns of health service organization in various cultural and political settings.

Mr. Neumann

456C. Issues in International Health Administration. (½ course)

Lecture, two hours. Prerequisite: consent of the instructor. Study of critical issues in health service administration (planning, social security, manpower, etc.) which have emerged in all countries (industralized or developing), and which have led to diverse organizational solutions.

Mr. Neumann

457. Issues and Trends in Health Manpower. (½ course)

Lecture, two hours. Prerequisite: consent of instructor. Background of problems in health manpower of different types, training programs, estimation of population needs, and methods of quality control. Recent developments in financing educational programs, recruitment of students and new functional definitions.

Mr. Lewis

468. Seminar in Health Record Systems. (½ course)

Lecture, two hours. Prerequisite: graduate standing. Advanced study of currently evolving health record systems with emphasis on issues, trends and methodology and their effect on services.

Ms. Johnson

470. Health Aspects of Housing.

Lecture, four hours. Prerequisite: consent of the instructor. Health principles of housing and residential environment, and relationships of housing to comprehensive health planning and to the environmental health aspects of total area planning.

The Staff

471. Environmental Health Control.

Lecture, four hours. Prerequisites: Chemistry 1A or equivalent, and one course from Biology 1A, Bacteriology 6, 10, 101 or consent of instructor. Scientific basis for developing and conducting environmental health programs concerning vector and rodent control, food and milk, housing and institutions, places of employment, including applicable program planning and performance budgeting techniques.

The Staff

472. Environmental Systems Analysis.

Lecture, four hours; discussion, one hour. Prerequisite: courses in calculus and linear algebra and consent of the instructor. Application of quantitative techniques and optimization models of Systems Analysis, and concepts of General System Theory on environmental planning, management and policy formation. Lectures will be supplemented by student's utilization of computer programs especially designed for environmental systems.

Mr. Davos

479A. The Use of Quantitative Methods in Health Services Management.

Lecture, four hours. Prerequisite: course 160A. Methods and tools for systematic application of quantitative methods in analyzing and solving management problems in complex health services organizations.

Mr. Singh

479B. The Use of Quantitative Methods in Health Services Management.

Lecture, four hours. Prerequisite: courses 160A and 479A. Methods and tools for systematic application of quantitative methods in analyzing and solving management problems in complex health services organizations.

Mr. Singh

480. The Contemporary Environment of Hospital Management.

Lecture, four hours. Prerequisite: course 450A. Role and functions of the hospital in the community. Not open to Hospital Administration majors or students who have credit for courses 201A and 201B.

Mr. Pointer and the Staff

495N. Teacher Preparation in Public Health.

Discussion, two hours; laboratory, two hours. Prerequisite: course 130B or consent of the instructor. Preparation for college and university teaching in the health education field.

The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses)

Prerequisites: graduate standing, consent of the instructor. Individual guided studies under direct faculty supervision. May be repeated for credit; only 1 course (4 units) will count toward the minimum course requirement for the M.P.H. and M.S. in Public Health degrees. Offered on a letter graded basis only.

The Staff

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examination. (½ to 2 courses)

Prerequisites: graduate standing, consent of the instructor. May be repeated for credit. May not be used to fulfill any course requirements for the master's or doctor's degrees. Offered on a Satisfactory (S)/Unsatisfactory (U) grade basis.

The Staff

598. Master's Thesis Research. (½ to 2 courses)

Prerequisite: consent of the instructor. May be repeated for credit. Only one course (4 units) will count toward the minimum total course requirement for the M.P.H. and M.S.P.H. degrees. No credit allowed toward the minimum five graduate course requirement. Offered on a Satisfactory (S)/Unsatisfactory (U) grade basis.

The Staff

599. Doctoral Dissertation Research. (½ to 2 courses)

Prerequisite: consent of the instructor. May be repeated for credit. May not be used to fulfill any course requirements for a degree. Offered on a Satisfactory (S)/Unsatisfactory (U) grade basis.

The Staff

■ RADIOLOGICAL SCIENCES

(Department Office, BL-428 Center for the Health Sciences)

Leslie R. Bennett, M.D., *Professor of Radiological Sciences.*

John A. Campbell, M.D., *Professor of Radiological Sciences in Residence.*

J. Michael Criley, M.D., *Professor of Radiological Sciences in Residence.*

Moses A. Greenfield, Ph.D., *Professor of Radiological Sciences.*

William N. Hanafee, M.D., *Professor of Radiological Sciences.*

Joseph Jorgens, M.D., *Professor of Radiological Sciences in Residence.*

Edward A. Langdon, M.D., *Professor of Radiological Sciences.*

Norman S. MacDonald, Ph.D., *Professor of Radiological Sciences.*

Ismael Mena, M.D., *Professor of Radiological Sciences in Residence.*

Frederick S. Mishkin, M.D., *Adjunct Professor of Radiological Sciences.*

Carol M. Newton, M.D., Ph.D., *Professor of Radiological Sciences and Biomathematics.*

Amos Norman, Ph.D., *Professor of Radiological Sciences.*

Robert L. Scanlan, M.D., *Adjunct Professor of Radiological Sciences.*

Joseph Tabrisky, M.D., *Professor of Radiological Sciences.*

George V. Taplin, M.D., *Professor of Radiological Sciences.*

Milo M. Webber, M.D., *Professor of Radiological Sciences.*

Gabriel H. Wilson, M.D., *Professor of Radiological Sciences (Chairman of the Department).*

Andrew H. Dowdy, M.D., *Emeritus Professor of Radiological Sciences.*

Raymond L. Libby, Ph.D., *Emeritus Professor of Radiological Sciences.*

Richard E. Ottoman, M.D., *Emeritus Professor of Radiological Sciences.*

Justin J. Stein, M.D., *Emeritus Professor of Radiological Sciences.*

John R. Bentson, M.D., *Associate Professor of Radiological Sciences.*

John E. Byfield, M.D., *Associate Professor of Radiological Sciences in Residence.*

James D. Collins, M.D., *Associate Professor of Radiological Sciences.*

J. Duncan Craven, M.D., *Associate Professor of Radiological Sciences.*

Jack I. Eisenman, M.D., *Adjunct Associate Professor of Radiological Sciences.*

Richard H. Gold, M.D., *Associate Professor of Radiological Sciences.*

Julius H. Grollman, M.D., *Associate Professor of Radiological Sciences.*

Michael T. Gyepes, M.D., *Associate Professor of Radiological Sciences and Pediatrics.*

Delores E. Johnson, M.D., *Associate Professor of Radiological Sciences and Medicine in Residence.*

Guy J. F. Juillard, M.D., *Associate Professor of Radiological Sciences.*

Milton Kunin, M.D., *Adjunct Associate Professor of Radiological Sciences.*

Ralph S. Lachman, M.D., *Associate Professor of Radiological Sciences and Pediatrics in Residence.*

Norman D. Levine, M.D., *Adjunct Associate Professor of Radiological Sciences.*

Norman D. Poe, M.D., *Associate Professor of Radiological Sciences in Residence.*

Richard F. Riley, Ph.D., *Associate Professor of Radiological Sciences.*

Richard J. Steckel, M.D., *Associate Professor of Radiological Sciences.*

Ronald W. Thompson, M.D., *Associate Professor of Radiological Sciences in Residence.*

Marvin Weiner, M.D., *Associate Professor of Radiological Sciences.*

Lawrence W. Bassett, M.D., *Adjunct Assistant Professor of Radiological Sciences.*

Pamela Boyer, Ph.D., *Adjunct Assistant Professor of Radiological Sciences.*

Cyrus Broumand, M.D., *Adjunct Assistant Professor of Radiological Sciences.*

Patrick Cahill, M.D., *Visiting Assistant Professor of Radiological Sciences.*

Terrence E. Donlon, Ph.D., *Adjunct Assistant Professor of Radiological Sciences.*

Harvey S. Frey, M.D., Ph.D., *Adjunct Assistant Professor of Radiological Sciences and Biomathematics.*

L. Stephen Graham, Ph.D., *Assistant Professor of Radiological Sciences in Residence.*

Robert K. Gray, M.D., *Assistant Professor of Radiological Sciences in Residence.*

Laurence G. Hanelin, M.D., *Assistant Professor of Radiological Sciences in Residence.*

Martin Herman, Ph.D., *Assistant Professor of Radiological Sciences in Residence.*

Grant Hieshima, M.D., *Assistant Professor of Radiological Sciences in Residence.*
F. Eugene Holly, Ph.D., *Adjunct Assistant Professor of Radiological Sciences.*
Barbara M. Kadell-Wootton, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Rabbe R. Lindstrom, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Paul T. Nicell, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Hartmut Peter, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Zbigniew Petrovich, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Ruthann Pick, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Isaac Reese, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Melvin Richkind, D.V.M., *Adjunct Assistant Professor of Radiological Sciences.*
Gerald D. Robinson, Jr., Ph.D., *Assistant Professor of Radiological Sciences in Residence.*
William Sample, M.D., *Assistant Professor of Radiological Sciences.*
Dennis Sarti, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Wilbur C. Sims, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Richard C. Small, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Lorraine E. Smith, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Harold D. Snow, D.V.M., *Adjunct Assistant Professor of Radiological Sciences.*
Peter Spiegler, Ph.D., *Assistant Professor of Radiological Sciences.*
J. Michael Uszler, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Ramesh C. Verma, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Thomas Weisenburger, M.D., *Assistant Professor of Radiological Sciences.*
James Winter, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Florian Zielinski, Ph.D., *Adjunct Assistant Professor of Radiological Sciences.*

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Marvin Abrams, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Louis Adler, M.D., *Assistant Clinical Professor of Radiological Sciences.*
William E. Adolph, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Michael O. Anderson, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Rolf-D. Arndt, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Sol R. Baker, M.D., *Associate Clinical Professor of Radiological Sciences.*
Edwin N. Barnum, M.D., *Clinical Instructor in Radiological Sciences.*
Donald de Forest Bauer, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Ronald L. Becker, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Gerald Berman, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Larry P. Bilodeau, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Harry A. Bishop, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Louis J. Bonann, M.D., *Assistant Clinical Professor of Radiological Sciences.*
John D. Buckley, M.D., *Clinical Instructor in Radiological Sciences.*
Earl Budin, M.D., *Associate Clinical Professor of Radiological Sciences.*
Paul Y. M. Chan, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Luke W. M. Chang, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Leroy S. Clark, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Marvin B. Cohen, M.D., *Assistant Clinical Professor of Radiological Sciences and Medicine.*
David E. Cohn, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Ian R. Coster, D.V.M., *Lecturer in Radiological Sciences.*
James G. Davis, M.D., *Associate Clinical Professor of Radiological Sciences.*
Arthur J. Day, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Donald T. Desilets, M.D., *Associate Clinical Professor of Radiological Sciences.*
Earl K. Dore, M.D., *Associate Clinical Professor of Radiological Sciences.*
Scott H. Driscoll, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Michael M. Edelstein, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Ben E. Eisenstein, M.D., *Clinical Instructor of Radiological Sciences.*
Harold L. Endlich, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Karl H. Falkenbach, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Vincent R. Fennell, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Ezekiel Freed, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Harvey A. Gilbert, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Lionel D. Ginsburg, M.D., *Assistant Clinical Professor of Radiological Sciences.*
David S. Goller, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Larry D. Greenfield, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Julia E. Halasz, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Darwood B. Hance, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Oscar Harvey, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Gerald Hassan, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Donald F. Hausknecht, Ph.D., *Lecturer in Radiological Sciences.*
Gail W. Haut, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Samuel B. Haveson, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Edward Helmer, M.D., *Assistant Clinical Professor of Radiological Sciences.*
James J. Hodge, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Richard B. Hoffman, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Neal Horn, M.D., *Assistant Clinical Professor of Radiological Sciences.*
John W. Horns, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Margaret A. Ingram, M.D., *Clinical Instructor in Radiological Sciences.*
Michael R. Kadin, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Arthur R. Kagan, M.D., *Associate Clinical Professor of Radiological Sciences.*
Mitchell S. Komaiko, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Robert A. Ledner, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Paul P. Lee, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Samuel T. Lim, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Joseph F. Linsman, M.D., *Associate Clinical Professor of Radiological Sciences.*
Arthur G. Litman, M.D., *Associate Clinical Professor of Radiological Sciences.*
James F. Mack, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Paul S. Mahoney, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Harvey S. Miller, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Jasper E. Morgan, Ph.D., *Clinical Professor of Radiological Sciences.*
Robert C. Murchison, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Lawrence S. Myers, Jr., Ph.D., *Lecturer in Radiological Sciences.*

Herman Nassbaum, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Ronald J. O'Reilly, M.D., *Associate Clinical Professor of Radiological Sciences.*
Michael W. Ormiston, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Theodore T. Ott, Lecturer (Retired) *in Radiological Sciences.*
Joseph Parks, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Joseph Patterson, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Hyman Peck, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Jonathan Po, M.D., *Assistant Clinical Professor of Radiological Sciences.*
William L. Pogue, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Saar A. Porrath, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Barry D. Pressman, M.D., *Assistant Clinical Professor of Radiological Sciences.*
David I. Rabinov, M.D., *Associate Clinical Professor of Radiological Sciences.*
Burton J. Rein, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Garry D. Roghair, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Michael J. Ryan, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Joseph R. Scalley, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Joseph E. Scallon, M.D., *Associate Clinical Professor of Radiological Sciences.*
Arthur F. Schanche, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Alfred L. Schmitz, M.D., *Associate Clinical Professor of Radiological Sciences.*
Paul K. Segrist, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Lois J. Smart, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Thomas F. Sneed, M.D., *Assistant Clinical Professor of Radiological Sciences.*
James L. Steffens, M.D., *Clinical Instructor of Radiological Sciences.*
Mark A. Stein, M.D., *Assistant Clinical Professor of Radiological Sciences.*
David Stern, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Jerome Stuhlbarg, M.D., *Assistant Clinical Professor of Radiological Sciences.*
H. Jerome Stulberg, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Edgar L. Surprenant, M.D., *Associate Clinical Professor of Radiological Sciences.*
Paddy Taber, M.D., *Assistant Clinical Professor of Radiological Sciences & Pediatrics.*
Dorina Tanasescu, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Herbert Toch, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Daniel J. Torrance, Jr., M.D., *Clinical Professor of Radiological Sciences.*
Harry T. Vanley, M.D., *Clinical Instructor in Radiological Sciences.*
Arnold Vinstein, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Michael S. Wagner, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Morton Wexler, M.D., *Assistant Professor of Radiological Sciences.*
David W. Wilder, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Henry S. Williams, M.D., *Associate Clinical Professor of Radiological Sciences.*
Gerald I. Winkler, M.D., *Clinical Instructor in Radiological Sciences.*
John H. Woodruff, Jr., M.D., *Associate Clinical Professor of Radiological Sciences.*
Duane A. Young, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Norman Zheutlin, M.D., *Clinical Professor of Radiological Sciences.*
Arthur S. Zimmerman, M.D., *Clinical Instructor in Radiological Sciences.*

Requirements for Admission to Graduate Status

Candidates for admission to graduate status in the Department of Radiological Sciences must meet the general requirements set by the Graduate Division for admission to such status.

Areas of Study. Study in the fields of radiation physics, radiation biology, and radiation chemistry with applications in nuclear medicine, radiation therapy, and diagnostic radiology will be open to qualified students.

Requirements for the Degree of Master of Science in Medical Physics

General University Requirements. Candidates for the Master of Science degree in Medical Physics must meet the general requirements set by the Graduate Division for this degree. The candidate must elect either the Thesis Plan or the Comprehensive Examination Plan as set forth in this bulletin.

Departmental Requirements. The student must complete radiology courses 200, 202, 204, 206, 207, 208, and Public Health 160A-160B (Biostatistics). He should have an appropriate background in physics, chemistry, biology, and mathematics.

Requirements for the Doctoral Degree in Medical Physics

General University Requirements. Candidates for the Doctoral Degree in Medical Physics must meet the general requirements set by the Graduate Division for this degree. A series of written and oral examinations are required before advancement to candidacy.

Departmental Requirements. (1) Advancement to Candidacy. Advancement to candidacy is granted only after the student has passed preliminary written screening examinations and a qualifying oral examination in the physical, biological, and chemical foundations of medical physics. (2) Normally, graduate students will be expected to take courses 200, 202, 204, 206, 207, 208, 260, and 266. Completion of additional courses may be recommended.

The Doctorate in Medical Physics is not granted merely upon completion of routine requirements as to examinations, courses, and dissertation; fulfillment of such requirements is a prerequisite. The Ph.D. will be granted only to students who have clearly demonstrated both an adequate grasp of a broad field of knowledge and an ability to contribute to that field of knowledge by original and independent research.

Graduate Courses

199. Directed Individual Study or Research in Medical Physics for Undergraduate Students. (½ to 1 course)
Prerequisite: consent of the Graduate Adviser of Medical Physics. Directed individual study in Medical Physics for undergraduate students. Student must submit written proposal outlining study or research to be undertaken. This should be worked out in consultation with the faculty member involved prior to the beginning of the quarter.
The Staff

200A. Physics of Nuclear Medicine.
Prerequisite: consent of instructor. Nuclear structure, statistics of radioactivity decay, nuclear radiations and their interactions with matter, nuclear decay processes, nuclear reactions, and dosimetry of radioactive nuclides.
Mr. Norman

200B. Radioactive Pharmaceuticals.
Prerequisite: course 200A or equivalent. Chemistry and physics of radioactive preparations employed in nuclear medicine. Topics include use of generator systems, kits, assay procedures and the characteristics of official and non-official preparations such as colloids, macroaggregates and chelates.
Mr. Riley

200C. Instrumentation in Nuclear Medicine.
Prerequisite: course 200A and 200B or equivalent. Introduction to nuclear medicine instrumentation including exterior probe systems, well scintillation detectors, liquid scintillation counters, scanners and cameras; dosimetry of internally administered radioisotopes.
Mr. Graham

201. Environmental Radiations.
The sources, physical properties, and biological hazards of ionizing radiations, ultraviolet and laser light, and microwave and acoustic radiations in the environment. Social benefit vs. technological risk will be evaluated.
Mr. Norman

202A-202D. Applications of Medical Physics to Clinical Problems.
Prerequisite: course 200C or consent of instructor. Selected studies in the clinical use of radiosotopes.
202A-202B. Nuclear Medicine.
Mr. Bennett, Mr. Graham, Mr. Webber
202C. Diagnostic Radiology.
Mr. Collins, Mr. Spiegler
202D. Radiation Therapy.
Mr. Langdon, Mr. Morgan

202E-202F. Application of Medical Physics to Clinical Problems: Radiation Therapy.
Prerequisite: course intended for physicians only. Lecture/seminar discussion of dosimetric calculations and measurements involving cases under treatment.

Written reports on representative problems selected from current literature and/or clinical experience.

Mr. Morgan

204. Introductory Radiation Biology.

Lecture. Effect of ionizing radiation on chemical and biological systems.

Mr. Riley

206A. Physics of Radiation Therapy.

Radiation quantities and units. Radiation doisimetry, clinical applications in treatment planning. Methods of measuring radiation quantities. The calibration of radiation therapy equipment.

Mr. Spiegler

206B. Physics of Diagnostic Radiology.

Production of x-rays, basic interactions between x-rays and matter, x-ray system components, physical principles of medical radiography, radiographic image quality, fluoroscopy, image intensifiers, special procedures, x-ray protection. Laboratory experiments will illustrate the basic theory.

Mr. Greenfield

207. Radiation Protection and Health Physics.

Concepts in radiation protection, the recommendation of the national council on radiation protection and measurements, the maximum permissible dose levels. Shield calculations. The layout and design of radiographic installation.

Mr. Spiegler

206A-208B. Medical Physics Laboratory.

Prerequisite: course 206A and 206B; or consent of instructor. Techniques for measuring ionizing and non-ionizing radiation, applications to problems in radiological sciences.

The Staff

M216. Computer and Biomathematical Applications in Radiological Sciences.

(Same as Biomathematics M216.) Prerequisite: Biomathematics 210 and elementary calculus are recommended. Computer and biomathematical methods will be presented that relate to dosimetry, treatment strategies, biological effects of radiation, and laboratory research in radiotherapy and radiobiology.

Mr. Frey, Ms. Newton

260A-260B. Seminar in Medical Physics. (½ course each)

Seminar. Joint critical study by students and instructors of the fields of knowledge pertaining to medical physics. Periodic contributions are made by visitng scientists. Research in progress is discussed.

Mr. Norman, Mr. Riley

266A-266B-266C. Seminar in Nuclear Medicine. (½ course each)

Seminar. Topics of current interest in nuclear medicine. Seminar intended for physicans, radiation physicists, and graduate students.

Mr. Webber

268. Seminar in Radiopharmaceuticals. (½ course)

Current concepts in radioactive pharmaceutical agents in clinical use, including promising investigational agents. Utilization of short-lived, cyclotron produced isotopes in radiopharmaceuticals. The rational design of new radiodiagnostic agents.

Mr. Robinson

481. Angiographic Techniques. (¼ course)

Prerequisite: consent of the instructor. Laboratory. Beginning Radiology residents will be taught basic techniques of angiographic procedures, utilizing animals.

Mr. Grollman, Mr. Snow

495. Special Studies in Medical Physics.

Teaching assistance in graduate laboratory courses under the supervision of a member of the faculty.

The Staff

596. Research in Medical Physics. (1 to 3 courses)

Directed individual study or research. May be taken any number of times for letter grades; only one course may be used for M.S. credit.

The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D.

May be taken for one quarter only, on a "Satisfactory" (S) or "Unsatisfactory" (U) basis, and is not creditable for the M.S. degree.

The Staff

598. Research for the Preparation of the Master's Thesis.

May be taken any number of times on a "Satisfactory" (S) or "Unsatisfactory" (U) basis. A maximum of two courses, or 598 and 596 combined, may be used for M.S. credit.

The Staff

599. Research for Dissertation. (1 to 3 courses)

Prerequisite: satisfactory performance on screening examinations. Research for and preparation of the doctoral dissertation. May be taken any number of times on a "Satisfactory" (S) or "Unsatisfactory" (U) basis.

The Staff

■ ROMANCE LINGUISTICS AND LITERATURE (INTERDEPARTMENTAL)

Marc Bensimon, Ph.D., *Professor of French.*

Giovanni Cecchetti, Ph.D., *Professor of Italian.*

Claude L. Hulet, Ph.D., *Professor of Spanish and Portuguese (Chairman).*

C. P. Otero, Ph.D., *Professor of Spanish and Romance Linguistics.*

Eric Gans, Ph.D., *Associate Professor of French.*

Carroll B. Johnson, Ph.D., *Associate Professor of Spanish.*

Edward F. Tuttle, Ph.D., *Assistant Professor of Italian.*

The integration of linguistic and literary knowledge is taken to be one of the highest aims of this interdepartmental program.

Requirements for the Master's Degree

General Requirements. See Master's Degrees. The Program favors the comprehensive examination plan, but will approve M.A. theses for exceptionally well-qualified students under special circumstances.

1. *Admission Requirements.* The B.A. in French, Italian, Portuguese, or Spanish, or their equivalent, with a GPA in upper division courses of 3.00 or better. Students admitted from elsewhere whose preparation is considered deficient in view of their intended specialization are required to make up their deficiencies by taking specified upper division courses. Such courses may be taken concurrently with graduate courses, but they do not count toward the course requirements for the M.A. Three letters of recommendation are required. During his first graduate year, the student who knows only the language of his major should prepare himself in at least one other Romance language so he can take courses in his minor no later than in his second year of graduate study.

2. *Course Requirements.* The M.A. program permits specialization in either Linguistics or Literature and will include a major and a minor. Twelve courses are the minimum requirement of which six courses (at least five of them graduate) must be in the student's major language, with specialization either in Linguistics or in Literature. One course in the history or development of the major language is highly recommended. At least three courses should be in the minor language, also with specialization in either Linguistics or Literature. The remaining three courses should be selected in consultation with the guidance committee so as to be logically supportive of the student's major field of study. Each individual program will be worked out in close consultation with appropriate advisers. Course 596 may be included twice. Linguistics 100 is required of all students majoring in the linguistics field.

3. *Guidance.* Each new graduate student must make an appointment with the Chairman during the week preceding the start of classes to discuss general requirements and to decide on a program of courses for the quarter. Following this initial interview, the student is required to see his adviser at least once a year for review of his progress towards the degree. He must have his study list approved by his adviser each quarter before it is signed by the Chairman of the program. A guidance committee will be constituted for each student upon declaration of his field of specialization and in no case later than the end of the first quarter in the program.

4. *Language Requirement.* In addition to the Romance language of major interest and the Romance language of minor interest, candidates are required to have either Latin 3 or the equivalent, or Italian 3 or the equivalent (provided Italian is not their major), whether they specialize in Linguistics or in Literature. The language requirement must be completed no later than the quarter before the quarter in which the student expects to receive his degree.

5. *Comprehensive Examination Plan.* The comprehensive examination is administered by three members of the student's guidance committee, appointed by the Chairman. Two of the three committee members will represent the languages and field of the student's major and first minor. The written comprehensive examination, consisting of one 4-hour examination in the major field, one 2-hour examination in the minor field, and one oral examination not to exceed one hour, will be given each quarter in the second week prior to final examinations. The examination is graded by the comprehensive examination committee, whose decision is final. If a student fails the examination or any part thereof, he may retake the failed portions once when the examination is next regularly offered.

6. *Thesis Plan.* A student may petition for authorization to write an M.A. thesis only after completion of six courses which count toward the degree. It is the responsibility of the student to choose an appropriate topic and find a professor willing to direct the thesis. He then petitions the program for authorization to proceed. The program Chairman first examines the petition and then presents it to the Interdepartmental Committee for approval or denial by a majority vote. If the petition is approved, a thesis committee is

appointed which consists of a chairman in the field of the thesis and two other members of the sponsoring departments. After completion of the thesis, the candidate must pass a two-hour oral examination testing his knowledge of the field of his thesis and his general competence. Only those students who attain a 3.5 grade point rating in the examination will be encouraged to proceed to candidacy for the Ph.D degree.

Requirements for the Ph.D. Degree

General Requirements. See Doctoral Degrees.
Departmental Requirements.

1. *Fields of Specialization and Course Requirements.* Romance Linguistics and Literature Program: Linguistics or Literature. In each case the Ph.D. program will consist of a major and two minors. These courses (a minimum program) will be distributed as follows: Major—5 courses, First Minor—3 courses, Second Minor—2 courses. At least one seminar is required in each of the three fields. In addition to those required for the master's degree, or equivalent, at least ten other graduate courses, of which no more than two 596 courses may apply, as well as such courses as his guidance committee may prescribe, are required. Linguistics 100 is required of all students majoring in the linguistics field.

2. *Linguistics.* A student specializing in Linguistics may take as his major field one of the following: (1) The present-day grammar of the Romance language of his major interest and its relation to the grammar of its sister languages and to language in general; (2) The development of the Romance language of his major interest in relation to its sister languages (and possibly other interrelated cultural aspects) from the perspective of historical linguistics; (3) The genetic and typological relationships of the Romance languages to other Indo-European languages and to language in general. The two minors may be other Romance languages, or one other Romance language plus a field of Romance literature.

3. *Literature.* The student specializing in Literature may take as his major field one of the following fields in the literatures of at least two Romance languages: (1) Early Romance Literature and Philology; (2) Renaissance and Baroque; (3) Modern Literature, preferably with emphasis in one century. The first minor may be one of the preceding fields not chosen for the major. The second minor may be the same field or a new field in another Romance language; or some other related field in the major language or in Romance Linguistics.

4. *Language Requirement.* In addition to the minimum of two Romance languages required in the student's program, Latin 3 or Italian 3, or the equivalent, is required of all students in the interdepartmental program. Students choosing options 2 or 3 in Linguistics or option 1 in Literature also require German, whereas those choosing option 1 in Linguistics or option 2 or 3 in Literature will require another foreign language to be determined by the guidance committee in accordance with the individual's program. A minimum level of acceptable accomplishment in non-Romance languages is passing the ETS test, where such test exists. In languages where there is no such test, passing an examination administered by the corresponding language department fulfills the requirements. This foreign language requirement may also be met by evidence of completion of two years of college level courses in the language with Grade B or better, or by evidence of fulfillment of the foreign language requirement in connection with an M.A. obtained elsewhere. The foreign language requirement must be satisfied no later than the quarter before the quarter in which the qualifying examinations are taken.

5. *Admission Requirements and Guidance.* Entering students whom the Chairman determines to have obtained the M.A. in French, Italian, Luso-Brazilian Language and Literature, Spanish or the equivalent with distinction are automatically eligible for admission to the Ph.D. program and may proceed to form their guidance committee; those whose M.A. program registers deficiencies in scope or quality will be required to make up those deficiencies and complete three graduate courses, after which their eligibility for admission to the Ph.D. program will be determined by the Interdepartmental Committee.

The guidance committee is composed of a chairman, who represents the student's major field of study and under whom the student proposes to write his dissertation, and two members representing the minor fields, all members belonging to the sponsoring departments. The chairman of the committee will normally be a tenured professor. It is the student's responsibility to constitute the committee and to secure the individual member's consent, which will be transmitted to the Chairman in writing. As soon as possible after advancement to candidacy, the student meets with his guidance committee for the purpose of working out his program of courses and setting a tentative date for the qualifying examinations. The guidance committee has final authority to prescribe the course of study in each individual case.

Students working toward the Ph.D. who have not yet been authorized to form their guidance committee are advised by the Chairman. Each new graduate student must make an appointment which will be scheduled during the week preceding the start of classes. During the interview the student and adviser discuss general requirements and decide on a program of courses for the quarter. Following this initial interview, the student is required to see his adviser at least once a year for a review of his program towards the degree. He must have his study list approved by his adviser every quarter.

Students who have formed their guidance committee are advised by the chairman of that committee, who, moreover, must approve their study list each quarter before it is signed by the Chairman of the program.

6. *Qualifying Examinations.* At least two months prior to the date of the qualifying examinations, the student proceeds to form his doctoral committee, consisting of the three members of the guidance committee, plus two additional members from outside the staffs of the sponsoring departments, which will also pass on the student's written and oral examinations. The qualifying examinations are given around the middle of the fall and spring quarters and consist of (a) a three-hour written examination in the major field; (b) a two-hour examination in the first minor; (c) a one-hour examination in the second minor; and (d) a two-hour oral examination in the three fields at which time the student's prospectus for the dissertation is also discussed and approved. Failed portions of the examination may be retaken once after such remedial preparation as the committee may specify.

7. *The Dissertation.* The dissertation may be on any subject within the general area of Romance Linguistics and Literature. If more than five calendar years elapse between advancement to candidacy and the presentation of the dissertation, the program may require the student to revalidate his qualifying examination.

In consultation with the appropriate adviser(s), courses should be selected with an eye to the organic relationship between them, preferably among those listed below and/or their prerequisites:

Introduction to Romanistics:
(Spanish M200)
(Italian 201)

Courses in Linguistics

Grammatical Theory:
(Linguistics 201A-201B, 206A-206B)
Historical Linguistics:
(Linguistics 202A-202B, 203)

Synchronic Linguistics

Advanced Grammar:
(French 201A-201D, 206)
(Spanish 204A-204B, 206)
(Italian 259B)
Studies in Linguistics and Dialectology:
(French 261, 262)
(Spanish 256A-256B)

Historical Linguistics

The Development of the Romance Languages:
Northern Gallo-Romance:
(French 204A-204B)
Southern Gallo-Romance:
(French 215E)
Hispano-Romance:
(Spanish M203A-203B)
Italo-Romance:
(Italian 259A)
Romance Dialectology:
(Spanish 209)
Indo-European Linguistics:
(Indo-European Studies 210, 280A-280B)
Romance Linguistics:
(Linguistics 225G)
Medieval Latin:
(Latin 231A-231B)
Vulgar Latin:
(Latin 232)
History of the Latin Language:
(Latin 240)
Italic Dialects and Latin Historical Grammar:
(Latin 242A-242B)
Later Medieval Latin Palaeography and Manuscripts, 1100-1500:
(History 224)
Studies in the History of the Romance Languages:
Gallo-Romance:
(French 215A)
Hispano-Romance:
(Spanish M251)
Italo-Romance:
(Italian 259A, 210A)

Courses in Literature

The Intellectual Background of Romance Literature:
(French 205A-205C)
Studies in Medieval Latin Literary History:
(History 222A-222B)
Literary Criticism:
(French 203A-203B-203C)
(Spanish M201)

(Italian 205A-205B)
Studies in the History of Ideas:
(French 260A-260B)
Studies in Literary Criticism:
(French 258A-258B)
Studies in Philosophy and Literature:
(French 259A-259B)

Early Romance Literature

Early Romance Literature:
(French 215B-215E)
(Spanish 222-223, Portuguese 242A)
(Italian 210B-210C, 214A-214G, 215A-215B-215C)
Petrarca:
(Italian 214D, 251)
Studies in Early Romance Literature:
(French 250A-250B)
(Spanish 262A-262B-262C)
(Italian 250A-250D, 252)

Renaissance and Baroque Literature

Renaissance and Baroque Literature:
(French 216A-216H, 217A-217I)
(Spanish 224-226, 237, Portuguese 242A and 243A)
(Italian 216A-E, 217A-217C)
Cervantes:
(Spanish 227)
Studies in Renaissance and Baroque Literature:
(French 251A-251B, 252A-252B, 253A-253B)
(Spanish 264A-264D)
(Italian 253A-253C, 255A-255B)

Modern Romance Literature

The XVIIIth Century:
(French 218A-218D)
(Spanish 230 and 239)
(Italian 218A-218E)
(Portuguese 242B, 243A)
Rousseau:
(French 218B-218C)
The XIXth Century:
(French 219A-219K)
(Spanish 231 and Portuguese 242B and 243B)
(Italian 219A-219F)
The XXth Century:
(French 220A-220P, 221A-221D)
(Spanish 232-235 and 240-245, and Portuguese 242C and 243C)
(Italian 220A-220C)
Studies in the XVIIIth Century:
(French 254A-254B)
(Spanish 277)
(Italian 256A-256B)
Studies in the XIXth Century:
(French 255A-255B)
(Spanish 270A-270B, 278)
(Italian 257A-257B)
Studies in the XXth Century:
(French 256A-256B, 257A-257B)
(Spanish 272A-272D, 280A-280D)
(Italian 258A-258B)
Genre Studies
Novel: Portuguese 252A, 253A
Poetry: Portuguese 252B, 253B
Theater: Portuguese 252C, 253C
Essay and Short Story: Portuguese 252D, 253D

■ SLAVIC LANGUAGES

(Department Office, 5288 Bunche Hall)

Henrik Birnbaum, Ph.D., *Professor of Slavic Languages.*
Thomas Eekman, Ph.D., *Professor of Slavic Languages.*
Marija Gimbutas, Ph.D., *Professor of European Archaeology.*
Kenneth E. Harper, Ph.D., *Professor of Slavic Languages.*
Alexander V. Issatschenko, Ph.D., *Professor of Slavic Languages.*
Vladimir Markov, Ph.D., *Professor of Slavic Languages.*
Michael Shapiro, Ph.D., *Professor of Slavic Languages.*
Dean S. Worth, Ph.D., *Professor of Slavic Languages (Chairman of the Department).*
Aleksander Albijanić, Ph.D., *Associate Professor of Slavic Languages.*
Michael S. Flier, Ph.D., *Associate Professor of Slavic Languages.*
Peter Hodgson, Jr., Ph.D., *Associate Professor of Slavic Languages.*
Michael Heim, Ph.D., *Assistant Professor of Slavic Languages.*
Rochelle Stone, Ph.D., *Assistant Professor of Slavic Languages.*
Alan H. Timberlake, Ph.D., *Assistant Professor of Slavic Languages.*

♦

Edward Denzler, M.A., *Lecturer in Slavic Languages.*

Preparation for the Major

Required courses: Russian 1, 2, 3, 4, 5, 6, Slavic 99A-99B. Note: courses Russian 119 and 120A-120B may be taken in the sophomore year.

The Major

Required courses: Russian 101A-101B-101C 119, 120A-120B, 121, 123; three courses choser from Russian 130A-130B-130C, 134, 140A-140D, 150; one course chosen from Russian 124A through 124F, or 126; and any three electives chosen from Russian 122, 124A-124F, 126 130A-130B-130C, 134, 140A-140D, 150, Polish 152A-152B, Czech 155A-155B, Serbocroatian 154A-154B.

Students intending to continue into graduate school should note that several graduate courses (numbered below 220) may be taken by qualified seniors with permission of the instructor and the graduate adviser.

Admission to Graduate Status

The completion of the undergraduate major or its equivalent is required. Students entering from other institutions will be asked to make up any deficiencies before being admitted to most graduate courses.

Requirements for the Master's Degree

1. For the general requirements, see Master's Degrees. The Department follows the Comprehensive Examination Plan. The M.A. is weighted towards either Linguistics or Literature, but all candidates are expected to have a sound general knowledge of both Russian linguistics and Russian literary history.

2. Application for advancement to candidacy may be made when the student has passed the reading examination in French or German and no later than the second week of the quarter in which the candidate expects to take his examinations. The French or German examination must be passed no later than the end of the quarter preceding the quarter in which the candidate expects to take his M.A. examination.

3. *Course Requirements.* Required of all M.A. candidates: Slavic 201; Russian 102A-102B-102C, 204, 212 and 213. In addition, candidates for the M.A. (Linguistics) must take Slavic 202, and candidates for the M.A. (Literature) must take Russian 211 and one other literature course in the Department. Note: most of the courses required for the M.A. are open to qualified seniors with the permission of the instructor and the graduate adviser.

4. A written examination, based on course work and the departmental reading list, will cover either (a) Linguistics, including a thorough knowledge of Russian phonology and grammar and an acquaintance with Comparative Slavic Linguistics, Old Church Slavic, and the history of the Russian literary language; or (b) Literature, including an acquaintance with the entire history of Russian literature from its origins to the present and a thorough knowledge of the major developments and figures of the nineteenth and early twentieth centuries.

5. A final oral examination will test the student in the fields of his major interest and on his general background. It may be conducted partly in Russian.

6. *Statute of limitations.* The Department does not encourage part-time or non-resident M.A. candidates. The M.A. examinations must be taken within two calendar years from the time of admission to the Graduate Division (time spent in removing deficiencies, to a maximum of one year, does not count toward this two-year period).

7. Students who fail either the written or the oral examination may retake it once, not later than one calendar year after the first attempt.

8. A grade of "High Pass" on the M.A. examinations is one of the conditions for admission to the Department's doctoral program (see below). M.A. candidates who intend to continue toward the Ph.D. should note that courses numbered 220-239, which are required for the Ph.D., may be taken before completion of the M.A.

Requirements for the Doctor's Degree

1. For the general requirements, see Graduate Division. The Department's program envisages specialization in either Linguistics or Literature, with Russian as the principal language and literature respectively. By special arrangement, students can specialize in a language or literature other than Russian.

2. *Admission to the doctoral program.* Students may make formal application to the Department for admission to the doctoral program when they have: (1) passed the UCLA M.A. examinations with a grade of "High Pass"; (2) passed the reading examinations in both German and French; (3) taken one year (or the equivalent) of a second Slavic language. Students who received a grade lower than "High Pass" on the UCLA M.A. examinations, and entering students with an M.A. from other institutions, must (re)take the M.A. examinations

within one year as a doctoral screening examination, success in which is required for admission to the doctoral program.

3. *Language examinations.* The Department utilizes the ETS examinations in French and German and accepts a passing score of 500. Candidates for the doctoral program have the option of taking a Departmental Examination to satisfy the requirement of reading proficiency in the second language (French or German). A student proposing to work toward the Ph.D. in Slavic linguistics may, upon Departmental approval, be permitted to substitute for the 500-point passing score in the second of his French and German examinations (i.e., in the examination in either French or German), a grade of 450 points, plus a reading knowledge of one other language important to the study of Slavic philology, namely: Finnish, Hungarian, Lithuanian, Latvian, Rumanian, or a Turkic language relevant to East or South Slavic historical linguistics, such reading knowledge to be tested in a manner prescribed by the Department Chairman. A reading knowledge of two such languages may, by the same procedure, be substituted for the entire French or (more rarely) German examination.

4. *Course requirements.* For candidates in Linguistics: Slavic 222, 223, 242, Russian 241, 242, 243A, 265, and one seminar. For candidates in Literature: two courses chosen from Slavic 230A-230B-230C, 251A, and three seminars. Recommended preparation: candidates specializing in Linguistics are advised to take or audit courses 100, 103, 110, 120A-120B, 150, in the Department of Linguistics; candidates specializing in Literature are advised to acquire a sound general knowledge of modern Western European literature.

5. *Qualifying examinations.* The nature and scope of a series of written qualifying examinations will be prescribed for each candidate. All candidates are expected to have a sound general knowledge of both Slavic philology and Russian literary history, at least equivalent to that required for the M.A. at UCLA. In addition, candidates specializing in Linguistics and Literature, respectively, will be expected to demonstrate a more detailed mastery of either: (a) Linguistics, including Old Church Slavic, Comparative Slavic Linguistics, and the structure and history of one major and two minor Slavic languages (one from each of the Eastern, Western and Southern groups), which presupposes knowledge equivalent to one year's study of a second and third Slavic language; or (b) Literature, including the entire body of Russian literature from its origins to the present, and a basic knowledge of comparative Slavic literary history, which presupposes a knowledge of the major figures and developments in the literature of at least one Slavic country other than Russia.

6. Students who fail either the written or the oral qualifying examination may retake it once, not later than one calendar year after the first attempt.

7. *Statute of limitations.* The qualifying examinations must be taken within two years of the date of admission to the doctoral program. The dissertation must be completed within three calendar years of the date when the qualifying examinations are passed.

Slavic

99A-99B. Slavic Peoples and Cultures.

A. Prehistoric period and migrations of the Slavs. Beginnings of Slavic literacy. Cultural history of the Western and Southern Slavs.

B. Cultural history of Russia, including the Ukraine and Belorussia.

The Staff

177. Baltic Languages and Cultures. (½ course)

Two hours weekly. A general survey of the peoples speaking Old Prussian, Lithuanian, and Latvian; their linguistic, historical and ethnic affiliations.

Mrs. Gimbutas

M179. Baltic and Slavic Folklore and Mythology.

(Same as Folklore M126). A general course for students interested in folklore and mythology and for those interested in Indo-European mythic antiquities.

Mrs. Gimbutas

199. Special Studies.

No scheduled hours. Prerequisite: senior standing and consent of instructor.

The Staff

Graduate Linguistic Courses

201. Introduction to Old Church Slavic.

Three hours weekly. Introduction to phonology and grammar; readings. Required for the M.A. (Linguistics) and Ph.D. (Linguistics, Literature).

The Staff

202. Introduction to Comparative Slavic Linguistics.

Three hours weekly. Introduction to the comparative phonology and grammar of the Slavic languages. Required for the M.A. (Linguistics) and Ph.D. (Linguistics).

The Staff

222. Introduction to Western Slavic Languages.

Three hours weekly. Prerequisite: course 202. Recommended preparation: Czech 102A-102B-102C or Polish 102A-102B-102C. Introduction to the structure and history of the Western Slavic languages. Required for the Ph.D. (Linguistics).

The Staff

223. Introduction to Southern Slavic Languages.

Three hours weekly. Prerequisite: course 202. Recommended preparation: Serbocroatian 103A-103B-103C. Introduction to the structure and history of the Southern Slavic languages. Required for the Ph.D. (Linguistics).

Mr. Albijanić

224. Introduction to Ukrainian and Belorussian.

Three hours weekly. Prerequisite: course 202. Introduction to the history and structure of Ukrainian and Belorussian as contrasted to Russian.

The Staff

241A-241B. Advanced Old Church Slavic.

Three hours weekly. Prerequisite: course 201. 241A. Advanced readings in canonical texts. 241B. East, West and South Slavic recensions of Church Slavic. Course 241A only is required for the Ph.D. (Linguistics).

The Staff

242. Comparative Slavic Linguistics.

Three hours weekly. Prerequisite: course 202. Indo-European to Common Slavic and the development of Common Slavic. Required for the Ph.D. (Linguistics).

The Staff

251. Introduction to Baltic Linguistics.

Three hours weekly. Prerequisite: course 202 recommended. Introduction to Baltic linguistics, with special reference to Baltic as a member of the Indo-European family and to the relationship between Baltic and the Slavic group.

The Staff

261. Slavic Paleography.

Three hours weekly. Prerequisite: course 201. Introduction to Slavic paleography: inscriptions, birchbark letters, Glagolitic and Cyrillic texts.

The Staff

262A-262B. Western Slavic Linguistics.

Three hours weekly. Prerequisite: course 222. 262A. Lekhitic. 262B. Czechoslovak, Sorbian.

The Staff

263A-263B. Southern Slavic Linguistics.

Three hours weekly. Prerequisite: course 223, 263A. Serbocroatian and Slovene. 263B. Bulgarian and Macedonian.

Mr. Albijanić

281. Seminar in Slavic Linguistics.

Three hours weekly. Selected topics in comparative and historical Slavic linguistics. May be repeated for credit with consent of the instructor and graduate adviser.

The Staff

282. Seminar in Structural Analysis.

Three hours weekly. Selected topics. May be repeated for credit with consent of the instructor and graduate adviser.

The Staff

Graduate Literature Courses

230A-230B-230C. Comparative Slavic Literature.

Three hours weekly. Recommended preparation: upper division courses in Czech, Polish, Russian and Yugoslav literatures. 230A. Middle Ages through Baroque. 230B. Classicism to Romanticism. 230C. Realism to Modernism. Two quarters required for the Ph.D. (Literature).

The Staff

290. Seminar in Comparative Slavic Literature.

Three hours weekly. Prerequisites: courses 230A-230B-230C. Selected topics. May be repeated for credit with consent of the instructor and the graduate adviser.

Mr. Eekman

295. Seminar in Literary Analysis.

Three hours weekly. Selected topics.

The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses)

Prerequisite: approval of the instructor and the Graduate adviser.

The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. (½ to 2 courses)

Prerequisite: consent of the instructor and the graduate adviser.

The Staff

599. Research for Dissertation. (½ to 2 courses)

The Staff

Bulgarian

103A-103B-103C. Elementary Bulgarian.

Basic course in the Bulgarian language.

The Staff

Czech

102A-102B-102C. Elementary Czech.
Five hours weekly. Basic course in the Czech language.
Mr. Heim

102D-102E-102F. Advanced Czech.
Prerequisite: course 102C.
Mr. Heim

155A-155B. Survey of Czech Literature.
Lectures and reading in English. **155A.** From the Middle Ages to Romanticism. **155B.** From Realism to the Present.
Mr. Heim

Polish

102A-102B-102C. Elementary Polish.
Five hours weekly. Basic course in the Polish language.
Mrs. Stone

102D-102E-102F. Advanced Polish.
Four hours weekly. Prerequisite: course 102C.
Mrs. Stone

152A-152B. Survey of Polish Literature.
Lectures and readings in English 152A. From the Middle Ages to Romanticism 152B. From Realism to the present.
Mrs. Stone

160. Polish Romanticism.
Three hours weekly. Lectures and readings in English. Comparison of Polish Romanticism with that of other Slavic countries and Western European countries.
The Staff

Russian

Language Courses

1. Elementary Russian.
Five hours weekly plus one hour per week in laboratory.
Mr. Denzler in charge

1R-2R-3R. Introduction to the Reading of Russian. (½ course each)
Three hours weekly. Emphasis on rapid acquisition of reading skills. Lectures on grammar and intensive readings in both literary and scientific texts.
Mr. Denzler in charge

2. Elementary Russian.
Five hours weekly plus one hour per week in laboratory.
Mr. Denzler in charge

3. Elementary Russian.
Five hours weekly plus one hour per week in laboratory.
Mr. Denzler in charge

4. Intermediate Russian.
Five hours weekly plus one hour per week in laboratory.
Mr. Denzler in charge

5. Intermediate Russian.
Five hours weekly plus one hour per week in laboratory.
Mr. Denzler in charge

6. Intermediate Russian.
Five hours weekly plus one hour per week in laboratory.
Mr. Denzler in charge

10A-10B-10C. Russian Conversation. (½ course each)
Russian 3 or consent of the instructor. Russian conversation designed to supplement the grammar and readings of courses 4-5-6.
The Staff

101A-101B-101C. Advanced Russian.
Prerequisite: course 6. Two hours of reading and conversation; three hours of grammar.
The Staff

102A-102B-102C. Russian Composition and Stylistics.
Prerequisite: course 101C. Emphasis on vocabulary building and writing fluency; reading and linguistic *explication de texte* of largely non-fictional material coordinated with English-Russian translation. Required for the M.A. (Linguistics, Literature).
The Staff

121. Russian Phonology.
Prerequisite: course 6. Introduction to Russian word-formation and vocabulary building.
The Staff

122. Russian Morphology.
Prerequisite: course 6. Introduction to the flexional and derivational morphology of Russian.
The Staff

123. Historical Commentary to Modern Russian.
Prerequisite: course 6. Historical explanation of the phonological and morphological anomalies of modern Russian.
The Staff

Literature Courses

119. Survey of Russian Literature to Pushkin.
Prerequisite: upper division standing. (Slavic majors should take this course during their sophomore year.) Lectures and readings in English.
The Staff

120A-120B. Survey of Russian Literature.
Prerequisite: upper division standing. (Slavic majors should take this course during their sophomore year.) Lectures and readings in English. **120A.** Nineteenth Century. **120B.** Twentieth Century.
The Staff

124A-124F. Studies in Russian Literature.
Lectures and reading in English. The following writers will be alternately discussed: A. Pushkin; B. Gogol; C. Turgenev; D. Dostoevsky; E. Tolstoy; F. Chekhov.
The Staff

125. The Russian Novel in its European Setting.
Prerequisite: upper division standing. Emphasis on nineteenth and twentieth-century novelists. Lectures and readings in English.
The Staff

126. Survey of Russian Drama.
Prerequisite: upper division standing. Major Russian plays, 18th to 20th-century. Lectures and readings in English.
The Staff

130A-130B-130C. Russian Poetry.
Prerequisite: course 6. Lectures and readings in Russian. **130A.** Introduction to analysis of poetic texts. **130B.** From mid-eighteenth century through precursors of Symbolism. **130C.** From late nineteenth century through contemporary Soviet verse.
The Staff

134. Pushkin.
Prerequisite: course 6. Major poetical works. Lectures and readings in Russian.
The Staff

140A-140D. Russian Prose.
Prerequisite: course 6. Lectures and reading in Russian. **140A.** Major writers from Karamzin to Turgenev; **140B.** Dostoevsky to Gorky; **140C.** Contemporary writers; **140D.** Advanced readings in Russian prose.
The Staff

M150. Russian Folk Literature.
(Same as Folklore M150.) Lectures and readings in Russian.
The Staff

193. Seminar in Russian Literature.
Prerequisites: Russian 6 or consent of the instructor; Russian 101C recommended. Reading and discussion of selected authors; written seminar papers will usually be required.
The Staff

Graduate Linguistics Courses

203. Higher Course in Russian. (½ course)
Prerequisite: course 102C. Reading advanced texts; advanced composition, conversation; stylistics. Required two quarters/year of all enrolled graduate students. May be repeated for credit.
The Staff

204. Introduction to the History of the Russian Literary Language.
Prerequisites: course 123, Slavic 99A-99B. Introductory survey of literary Russian in its cultural and historical setting. Required for the M.A. (Linguistics, Literature).
The Staff

210. Readings in Russian Historical Texts.
Prerequisites: Slavic 201 or consent of instructor. Readings in early Russian chronicles and other documents of historical interest.
The Staff

241. Russian Phonology.
Prerequisites: courses 102A-102B-102C, 121. Survey of taxonomic and generative theories of Russian phonology. Required for the Ph.D. (Linguistics).
The Staff

242. Russian Morphology.
Prerequisites: courses 102A-102B-102C, 122. Advanced study of flexion and derivation. Required for the Ph.D. (Linguistics).
The Staff

243A-243B. Historical Phonology and Morphology of Russian.
Three hours weekly. Prerequisite: course 123. **243A.** Survey of Russian historical phonology and grammar. **243B.** Selected topics. 243A required for the Ph.D. (Linguistics).
The Staff

263. Russian Dialectology.
Three hours weekly. Prerequisites: courses 243A-243B. Introduction to the phonology and grammar of modern Great Russian dialects.
The Staff

264. The Evolution of Literary Russian.
Three hours weekly. Prerequisites: course 204, Slavic 201. Lectures and analysis of texts. Eleventh to twentieth centuries.
The Staff

265. Russian Syntax.
Three hours weekly. Prerequisites: courses 102A-102B-102C, 121, 122. Survey of traditional and genera-

tive approaches to Russian syntax. Required for the Ph.D. (Linguistics).

The Staff

266. Russian Lexicology.

Three hours weekly. An introduction to the formal and semantic patterning of the Russian lexicon. Required for the Ph.D. (Linguistics).

The Staff

Graduate Literature Courses

211. Eighteenth Century Russian Literature.

Three hours weekly. Lectures and readings in major and secondary writers. Required for the M.A. (Literature).

The Staff

212. Nineteenth Century Russian Literature.

Three hours weekly. Lectures and readings in major and secondary writers. Required for the M.A. (Linguistics, Literature).

The Staff

213. Twentieth Century Russian Literature.

Three hours weekly. Lectures and readings in major and secondary writers. Required for the M.A. (Linguistics, Literature).

The Staff

251A-251B. Old Russian Literature.

Three hours weekly. **251A.** Survey of Old Russian Literature from the Kievan period through the Seventeenth century. **251B.** Selected topics. 251A required for the Ph.D. (Literature).

The Staff

270. Russian Poetics.

Three hours weekly. Prerequisites, courses 130A-130B-130C. Introduction to the technical study of Russian poetics and versification. Recommended as preparation for course 290.

Mr. Markov

290. Seminar in Russian Poetry.

Three hours weekly. Prerequisites: courses 130A-130B-130C. Recommended preparation: course 270. Selected authors and works. May be repeated for credit with consent of the instructor and the graduate adviser.

The Staff

291A. Seminar in Old Russian Literature.

Three hours weekly. Prerequisite: course 251.

The Staff

291B. Seminar in Eighteenth Century Russian Literature.

Three hours weekly. Prerequisite: course 211. Selected authors and works. May be repeated for credit with consent of the instructor and the graduate adviser.

The Staff

292. Seminar in Nineteenth Century Russian Literature.

Three hours weekly. Prerequisite: course 212. Selected authors and works. May be repeated for credit with consent of the instructor and the graduate adviser.

The Staff

293. Seminar in Twentieth Century Russian Literature.

Three hours weekly. Prerequisite: course 213. Selected authors and works. May be repeated for credit with consent of the instructor and the graduate adviser.

The Staff

294. Seminar in Russian Literary Criticism.

Three hours weekly. Prerequisites: courses 211, 212, 213. Selected topics. May be repeated for credit with consent of the instructor and the graduate adviser.

The Staff

Serbocroatian

103A-103B-103C. Elementary Serbocroatian.

Five hours weekly. Basic course in the Serbocroatian language.

Mr. Albijanić

103D-103E-103F. Advanced Serbocroatian.

Prerequisite: course 103C.

Mr. Albijanić

154A-154B. Survey of Yugoslav Literature.

Lectures and readings in English. **154A.** From the Middle Ages to Romanticism. **154B.** From Realism to the present, including folk literature.

Mr. Albijanić, Mr. Eekman

Slovak

222. The Structure of Slovak.

Three hours weekly. Prerequisite: Slavic 202: Slavic 222 recommended. Introduction to the phonological and morphological structure of the Slovak language, especially as contrasted with Czech.

The Staff

Ukrainian

101A-101B-101C. Elementary Ukrainian.

Basic course in the Ukrainian language.

The Staff

Non-Slavic Languages of Eastern Europe

Rumanian

101A-101B-101C. Elementary Rumanian.

Five hours weekly. Basic course in the Rumanian language.

The Staff

130. Introduction to Rumanian Civilization.

An introductory survey of the social and cultural institutions of the Rumanian people and their historical background.

The Staff

201. Rumanian as a Romance Language.

Three hours weekly. A survey of the structure and development of the Rumanian language, with special emphasis on the relations of Rumanian to other members of the Romance group.

The Staff

Related Courses in Other Departments

History 146A-146D; **Folklore** M126, **Linguistics** 100, 103, 110, 120A-120B, M150, as well as several of the graduate courses in Linguistics.

■ SOCIAL WELFARE

(Department Office, 238 Dodd Hall)

Jerome Cohen, Ph.D., *Professor of Social Welfare (Chairman, Doctoral Program Committee).*

Nathan E. Cohen, Ph.D., *Professor of Social Welfare.*

Maurice F. Connery D.S.W., *Professor of Social Welfare (Chairman).*

Jeanne M. Giovannoni, Ph.D., *Professor of Social Welfare.*

Alfred H. Katz, D.S.W., *Professor of Social Welfare and Professor of Public Health.*

Harry H. L. Kitano, Ph.D., *Professor of Social Welfare and Professor of Sociology.*

Elliot T. Studt, D.S.W., *Professor of Social Welfare.*

Eileen Blackey, D.S.W., *Emeritus Professor of Social Welfare.*

Donald S. Howard, Ph.D., L.H.D., *Emeritus Professor of Social Welfare.*

Olive M. Stone, Ph.D., *Emeritus Professor of Social Welfare.*

Warren Haggstrom, Ph.D., *Associate Professor of Social Welfare.*

Doris S. Jacobson, Ph.D., *Associate Professor of Social Welfare.*

Harry Wasserman, D.S.W., *Associate Professor of Social Welfare.*

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Rosina Becerra, Ph.D., *Acting Associate Professor of Social Welfare.*

Elsie Giorgi, M.D., *Lecturer in Human Behavior.*

Katherine M. Kolodziejski, M.S.W., *Field Work Consultant.*

Myra Koplin, M.S.W., *Field Work Consultant.*

Jane E. Kurohara, M.S.W., *Field Work Consultant.*

Manuel R. Miranda, Ph.D., *Acting Associate Professor of Social Welfare.*

Porfirio J. Miranda, M.S.S.A., *Lecturer in Social Welfare.*

Alex J. Norman, D.S.W., *Acting Associate Professor of Social Welfare.*

Gertrude Saxton, M.A., *Field Work Consultant.*

Winifred E. Smith, M.S.W., *Lecturer in and Coordinator of Field Instruction.*

Laura S. Wiltz, M.S., *Field Work Consultant.*

Graduate Courses

201A-201B-201C. Dynamics of Human Behavior I, II, III. (½ course each)

Lecture, two hours; laboratory, one hour. Credit to be given at the completion of the sequence 201A-201B; 201C will be graded separately. Biopsychosocial factors associated with individual and group behavior and development as applicable in the social functioning of individuals and groups. Emphasis is on theoretical issues and research evidence which contribute to a unified theory of human development.

Mr. J. Cohen, Mr. Connery, Miss Giorgi

202A-202B. Dynamics of Human Behavior: Deviance IV, V. (½ course each)

Prerequisite: courses 201A-201B-201C. Credit to be given only at the completion of the sequence. This course deals with deviations and pathologies or stresses in the physical, emotional and social areas of human functioning as those problems relate to the role and function of the social worker.

203. Integrative Theory and Research in Human and Social Behavior. (½ course)

An integrative course which brings together the preceding courses in the human behavior and the social environment series, by examination at an advanced level of the major theoretical strands and the identification of problem areas requiring further research.

204A. Social Systems in Social Welfare. (½ course)

The application of social system theory to the problems of social welfare and social work. Analysis of the network of community relationships, values, stratification, institutions and subcultures as related to the premises and services of social work.

204B. Small Groups in Social Welfare. (½ course)

Application of theory and knowledge of small group functioning to problems of working with groups in social work settings. Analysis of group formation, structure of interaction and communication patterns, and of leadership and morale problems. Application to family, peer and special-purpose groups.

205. Group Conflict and Change. (½ course)

Study of the phenomena of group conflict and change as they appear in the social welfare matrix of groups, communities and social institutions; relationship between conflict and social and cultural change; major research contributions in understanding of these phenomena.

210A-210B-210C. Social Ecology.

Prerequisite: Doctoral status and/or permission of the instructor. Exploration of data and theories from the biological and policy sciences regarding ecological relationships. Review of current biophysical, sociocultural, demographic, technological, economic, and political changes as they affect human society, its institutions and, more particularly, social welfare needs.

220. History and Philosophy of Social Welfare. (½ course)

The history of social work as a field: body of knowledge, method and process, and point of view analyzed within the context of the economic, political, social, philosophical and scientific climate of the period.

221A. Social Welfare Policy and Services I. (½ course)

Nature, roles and history of welfare institutions in different societies; applicable social system theory with special reference to values as seen by different components of the welfare system; theory and research about needs met and not met, about various welfare policies and organizational forms, and about social change to prevent needs.

221B. Social Welfare Policy and Services II. (½ course)

Prerequisite: consent of the instructor. Study of income-maintenance policy and services. Introduces theory and research about selected levels of living, regularity and source of income, and their relevance for family and social well-being; analysis of various income-maintenance policies and services; causes and nature of poverty. Current antipoverty legislation.

222A-222B-222C. Social Welfare Administration, I, II, III. (½ course each)

Prerequisite: graduate status and/or permission of the instructor. Study of methods by which welfare policies are formulated and translated into action; the nature of organizational and research process involved in welfare administration; role of welfare agency personnel in policy formulation, implementation and evaluation.

223. Seminar on the Social Work Profession. (½ course)

The nature and role of social work in contemporary society; relationships with other professions; probable future trends in the profession; social work ethics, professional organizations, certification licensing; professional responsibility for continued self-criticism and improvement of the profession.

224A-224B-224C. History and Philosophy of Social Welfare.

Prerequisite: Doctoral status and/or permission of the instructor. Analysis of long-term trends in welfare policies and programs in relation to political, economic, and other relevant factors. Philosophical foundations underlying social welfare theories, programs, and methods will be explored and values, assumptions, and attitudes historically affecting social welfare examined.

225A-225B-225C. Social Welfare Systems.

Prerequisite: Doctoral status and/or permission of the instructor. Analysis of theories of organizational behavior affecting social welfare systems (including supranational systems transcending national boundaries), their directions, goals, values, and relationships to social work. Application of organizational theory to planning, organizing, and administering welfare agencies will be stressed.

227A-227B-227C. Comparative Social Welfare Theories and Programs.

Prerequisite: Doctoral status and/or permission of the instructor. Analysis of interrelationships between nations' welfare services and the social, economic, religious, and broader cultural milieus within which they develop. Special attention to social theories, value systems, and other elements of culture which particularly affect welfare programs.

230A-230B-230C. Theory of Social Work Method I, II, III. (½ course each)

Concurrent social work practicum is required. An introduction to the theory of social work with individuals and small groups and to the principles of practice which are derivative of this and related theory.

231A-231B. Advanced Theory of Social Work Method IV, V. (½ course each)

Required: Concurrent social work practicum. Advanced-level, critical analysis of theories, concepts and principles underlying social casework practice. Specific attention to deviation and stress as conditions affecting functioning of individuals and groups; and to diagnostic knowledge and competence required in rehabilitation and prevention.

240A-240B-240C. Theory of Social Work Method (Community Organization) I, II, III. (½ course each)

Concurrent practicum in social work required. Covers historical and theoretical developments in community organization; understanding the community as a social system; role of the practitioner in identification, analysis and evaluation of needs, existing programs, policies, structures and strategies of intervention.

241A-241B. Advanced Theory of Social Work Method (Community Organization) IV, V. (½ course each)

Concurrent practicum in social work required. Emphasis on various patterns of community action for attaining social welfare objectives; research and field experience directed toward study of social problems within the context of community planning; emerging patterns of physical, economic and social planning within the framework of social change theory.

245A-245B-245C. Development of Social Work Practice Theory.

Prerequisite: Doctoral status and/or permission of the instructor. Critical analysis of social work practice theories in historical, social and scientific contexts, with attention to how theory becomes modified through application in practice.

280. Social Welfare Research. (½ course)

Sources, nature and uses of social work theory and research-based knowledge and of broader social data relevant to social welfare activities. Critical analysis of major methods of developing scientific knowledge.

281A-281B-281C. Advanced Social Welfare Research. (½ course each)

Credit to be given only at the completion of the sequence. Group research projects requiring intensive examination and analysis of a social problem area directed toward the development of research knowledge and techniques for social work practice. This course is offered on an In Progress basis, which requires students to complete the full three-quarters sequence, at the end of which time a grade is given for all quarters of work.

285A-285B-285C. Research in Social Welfare.

Prerequisite: Doctoral status and/or permission of the instructor. Review of areas of research of concern to social workers with special attention to design, instrument construction, data collection, data processing, data reduction, analysis and interpretation. Designs studied will include survey, panel, experimental observation, and theory development research.

286A-286B-286C. Survey of Research Methods.

Prerequisite: Doctoral status and/or permission of the instructor. Purpose to present basic concepts underlying research methods. Content includes theoretical and conceptual approaches to research problem formulation; research design, including experimental, comparative and survey; sampling; statistical methods; methods of observation and techniques of data analysis.

290A-290B-290C. Seminar in Social Work. (½ course each)

A series of seminars dealing with trends in social work and social welfare, with the focus on current social problems affecting individuals, groups, and communities and new patterns of intervention based on recent demonstrations and research.

Professional Courses

401A-401B-401C. Practicum in Social Work.

Laboratory, 20 hours weekly. Credit to be given only at the completion of the full sequence. Educationally directed practicum conducted in selected health, welfare and educational facilities. The major objective is to provide opportunities for the student to test his theoretical knowledge and to acquire a disciplined practice foundation in his profession. This course is offered on an In Progress basis, which requires students to complete the full three-quarter sequence, at the end of which time a grade is given for both quarters of work.

402A-402B-402C. Advanced Practicum in Social Work. (1½ courses each)

Laboratory, 24 hours weekly. Credit to be given only at the completion of the full sequence. Practicum in social work is arranged for the student in keeping with his major field of study. This course is offered on an In Progress basis, which requires student to complete the full three-quarter sequence, at the end of which time a grade is given for both quarters of work.

Individual Study and Research

596A. Special Study and Research for M.S.W. Degree Candidates. (½ to 2 courses)

Individual programming for selected students to permit pursuit of a subject in greater depth.

596B. Special Study and Research for D.S.W. Degree Candidates. (½ to 2 courses)
Prerequisite: Doctoral status and/or permission of the instructor.

597A. Preparation for the Comprehensive Examination for the M.S.W. Degree. (½ to 2 courses)
Prerequisite: consent of the instructor.

597B. Preparation for the Qualifying Examination for the D.S.W. Degree. (½ to 2 courses)
Prerequisite: Doctoral status and/or permission of the instructor.

599. Dissertation Research in Social Welfare for D.S.W. Degree Candidates. (½ to 2 courses)
Prerequisite: Doctoral status and/or permission of the instructor.

■ SOCIOLOGY

(Department Office, 264 Haines Hall)

Howard E. Freeman, Ph.D., *Professor of Sociology.*
Harold Garfinkel, Ph.D., *Professor of Sociology.*
Oscar Grusky, Ph.D., *Professor of Sociology (Chairman of the Department).*
Gene N. Levine, Ph.D., *Professor of Sociology.*
Richard T. Morris, Ph.D., *Professor of Sociology.*
Georges Sabagh, Ph.D., *Professor of Sociology.*
Melvin Seeman, Ph.D., *Professor of Sociology.*
Ralph H. Turner, Ph.D., *Professor of Sociology.*
Maurice Zeitlin, Ph.D., *Professor of Sociology.*
Melville Dalton, Ph.D., *Emeritus Professor of Sociology.*
Leo J. Kuper, Ph.D., *Emeritus Professor of Sociology.*
Svend Riemer, Ph.D., *Emeritus Professor of Sociology.*
Rodolfo Alvarez, Ph.D., *Associate Professor of Sociology.*
Kenneth D. Bailey, Ph.D., *Associate Professor of Sociology.*
Phillip Bonacich, Ph.D., *Associate Professor of Sociology.*
Robert M. Emerson, Ph.D., *Associate Professor of Sociology.*
Lucie C. Hirata, Ph.D., *Associate Professor of Sociology.*
John E. Horton, Ph.D., *Associate Professor of Sociology.*
Ivan H. Light, Ph.D., *Associate Professor of Sociology.*
David D. McFarland, Ph.D., *Associate Professor of Sociology.*
Valerie K. Oppenheimer, Ph.D., *Associate Professor of Sociology.*
Melvin Pollner, Ph.D., *Associate Professor of Sociology.*
Jerome Rabow, Ph.D., *Associate Professor of Sociology.*
Emanuel A. Schegloff, Ph.D., *Associate Professor of Sociology.*
Samuel J. Surace, Ph.D., *Associate Professor of Sociology.*
Warren D. TenHouten, Ph.D., *Associate Professor of Sociology.*
Donald J. Treiman, Ph.D., *Associate Professor of Sociology.*
John A. Davis, Ph.D., *Assistant Professor of Sociology.*
David E. Lopez, Ph.D., *Assistant Professor of Sociology.*
James Miller, Jr., Ph.D., *Assistant Professor of Sociology.*
Lynne G. Zucker, Ph.D., *Assistant Professor of Sociology.*
_____, *Assistant Professor of Sociology.*
_____, *Assistant Professor of Sociology.*

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Ralph L. Beals, Ph.D., *Emeritus Professor of Anthropology and Sociology.*
Michael S. Goldstein, Ph.D., *Assistant Professor of Public Health and Sociology.*
C. Wayne Gordon, Ph.D., *Professor of Education and Sociology.*
Harry H. L. Kitano, Ph.D., *Professor of Social Welfare and Sociology.*
David O'Shea, Ph.D., *Associate Professor of Education and Sociology.*
Leo G. Reeder, Ph.D., *Professor of Public Health and Sociology.*
Edwin S. Shneidman, Ph.D., *Professor of Thanatology, Medical Psychology, Psychology, and Sociology.*
Gerald H. Shure, Ph.D., *Professor of Psychology and Sociology.*

Purposes of the Major in Sociology

The primary purpose of the major in Sociology is to contribute directly to the student's capacity for critical analysis and understanding of social phenomena. It is intended at the same time to serve as a preparation for those who plan a career in areas such as the following: high school or junior college teaching, social work, architecture and urban planning, law, public health, and government service. It also provides training for advanced graduate work in Sociology and Social Psychology.

Preparation for the Major

An introductory course, Sociology 1 or 101, is required. Also required at the lower division level is a statistics course, Sociology 18. Alternatively, this requirement can be met with Mathematics 50A, Psychology 41, Economics 140, or Public Health 160A.

Also required at the lower division level are two courses from Group A: Mathematics 2, 4A; Philosophy 31; Economics 1, 2; or Linguistics 1; and two courses from Group B: Anthropology 5A, 5C, 22; History 1A, 1B, 1C; Philosophy 7, 21; Political Science 1; Psychology 10; or Geography 1B. These courses may be used to satisfy the breadth requirements of the College of Letters and Science under Plan A.

All courses required for the major in Sociology, including lower division and allied field courses, must be taken for a letter grade. A 2.0 grade-point average is required for the preparation and for the major.

The Major

Ten upper division Sociology courses are required (40 units) and four upper division allied field courses (16 units). The allied fields are: Anthropology, Economics, Geography, History, Political Science and Psychology. Of the 10 Sociology courses, one must be a general theory course (Sociology 111, 112, or 113). It is recommended that this theory course as well as the statistics course be completed before undertaking any other upper division work in Sociology.

The upper division courses are grouped into six Core Areas (109 through 169). Students must complete two courses in three different Core Areas; the remaining four Sociology courses are electives. (Note: Until additional courses are approved for Core Area VI, Sociology 160 may be applied to Core Area IV.) A Psychology course taken to fulfill the breadth requirement cannot also be used for the allied field requirement. Only eight units of Sociology 199 are allowed. At least four of the Sociology courses must be taken while in residence in the College of Letters and Science on this campus.

Courses 109, 210A and 210B are recommended for students who intend to pursue graduate work in Sociology.

Students are encouraged to consult the Undergraduate Counselor in Haines Hall 247 whenever problems arise with regard to their academic programs. This office also provides counseling for students interested in obtaining career advice.

Social Welfare

Students planning for graduate training in social welfare at this University should consult the UCLA ANNOUNCEMENT OF THE SCHOOL OF SOCIAL WELFARE.

Requirements for the Master's Degree

For the M.A. degree in sociology, the student is required (1) to complete an acceptable program of a minimum of nine upper division and graduate level courses (the equivalent of 4 quarter units each) of which at least six courses must be graduate level (200 series) in sociology; (2) to pass two departmental examinations in statistics or complete courses 210A-210B with grades of C or better; (3) to complete one of the two-quarter methodology sequences in the series numbered 212-218; and (4) to satisfy the faculty that he has an adequate command of sociological theory, methodology, and substance has been demonstrated by submission of an acceptable dossier of written papers, as prescribed in departmental regulations. Those students who plan to seek the Ph.D. are advised to complete the foreign language requirement or its equivalent some time during their first year of graduate study. The M.A. degree is especially intended to qualify students who plan to become junior college teachers. Students are encouraged to plan their programs so as to fulfill the requirements for the junior college or secondary teaching credentials. Details on credential matters may be obtained from the Credentials Counselor in the School of Education.

Requirements for the Ph.D. Degree

Candidates for the doctor's degree must conform to the general requirements set by the Graduate Division for the Ph.D. degree. It should be emphasized that the granting of the doctor's degree does not depend alone upon the satisfactory completion of a specified number of courses. The candidates must demonstrate competence as research scholars and ability to give instruction in the field.

In addition to the general requirements set by the Graduate Division, every prospective candidate for the doctor's degree must fulfill the following: 1. Pass a reading examination in French, German, Spanish, Italian, Russian, or other language approved by the Department. (a) Or, as an alternative, the student could complete course 5 of a language, or the equivalent, with a minimum grade of C, or five quarters of study of one language with a minimum grade of C in each course. (b) A second alternative is for students who might find it equally profitable for their research to study sources in an allied field such as history, political science, linguistics, psychology, economics, philosophy, or mathematics. The student would be permitted to substitute for the language requirement a set of three upper division or graduate courses offered at UCLA and passed with a grade of at least B. In order to do this, students must submit the proposed list of courses to their Ph.D. committee, or to the Executive Committee if no Ph.D. committee has been formed, with a justification for the set of courses presumably based on the potential contribution of these courses to their Ph.D. research. Only courses taken while the student is a graduate student will count toward fulfilling this requirement; and once approved, any substitution of courses for those originally approved would require full committee approval. 2. Pass two departmental examinations in statistics or complete courses 210A-210B with grades of C or better. 3. Complete two of the two-quarter methodology sequences in the series numbered 212-218. 4. Satisfy the faculty that an adequate command of sociological theory, methodology, and substance has been demonstrated by submission of an acceptable dossier of written papers, as prescribed in departmental regulations. 5. Pass written examinations in two special fields. 6. Pass a qualifying oral examination. 7. Prepare a satisfactory doctoral dissertation embodying the results of original research. 8. At the option of the certifying members of the candidate's doctoral committee, a final oral examination may be deemed necessary. Details of these requirements are described in a brochure which may be secured from the Graduate Affairs Office of the Department.

The dissertation will be in accordance with the requirements of the Graduate Division. Before the dissertation is begun, the subject must be approved in writing by the student's graduate advisers.

Lower Division Courses

1. Introductory Sociology.
No credit will be given for this course to students who have completed Sociology 101. Survey of the characteristics of social life, the processes of social interaction, and the tools of sociological investigation.
The Staff

18. Interpretation of Quantitative Data.
Prerequisite: course 1 or 101, or may be taken concurrently. Satisfies the statistics requirement for the major in sociology. The interpretation of statistical measures, tables, and graphs of the types most frequently encountered in sociological literature.
The Staff

Upper Division Courses

Course 1, or the equivalent, and upper division standing (upper division standing may be waived by permission of the instructor) are prerequisite to all upper division courses in Sociology.

101. Principles of Sociology.
Prerequisite: upper division standing. No credit will be given for this course if course 1 has been completed. 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.
The Staff

CORE AREA I: THEORY AND METHOD

109. Introduction to Sociological Research Methods.
A systematic treatment and semiquantitative skills of use in sociological research, e.g., classification, questionnaire and schedule design, content analysis, critical analysis of studies, conceptual analysis of case materials. Field work may be required for this course.
Mr. Bailey, Mr. TenHouten

111. Backgrounds of Sociological Thought.
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.
The Staff

112. Development of Sociological Theory.
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.
Mr. Horton, Mr. Morris

113. Contemporary Sociological Theory.
A critical examination of significant theoretical formulations, 1920 to the present; an analysis of the relation between theoretical development and current research emphasis.
Ms. Hirata, Mr. Morris, Mr. TenHouten

114. Marxist Sociology.
The course will stress the fundamentals of Marxist theory and method and their historical development. Attention will be given throughout to continuing debates within Marxism and to differences between Marxism and other schools of sociological thought.
Mr. Horton

115. Experimentation and Laboratory Methodology in Sociology.
Prerequisites: course 18 or equivalent introductory statistics and introductory social psychology. This course provides opportunities for students to participate as observers, subjects, and experimenters in a variety of laboratory and simulations of social and political settings and to use a number of computer-supported techniques as aids in conducting, analyzing, and interpreting their experiences in these settings.
Mr. Shure

116. Introduction to Mathematical Sociology.
Prerequisites: Mathematics 2, 4A, and Sociology 18, or equivalent. Mathematical treatments of several sociological phenomena, such as occupational mobility, population growth, organizational structure, and friendship patterns, each covered in some detail, including initial development and subsequent evaluation and modification, emphasizing both the deductive and computational aspects of mathematics.
Mr. McFarland

CORE AREA II: SOCIAL STRUCTURE AND CHANGE

120. Social Change.
A study of patterns of social change, resistance to change, and change-producing agencies and processes.
Mr. Surace

121. Organizations and Society.
Sociological analysis of organizations and their social environment. An introduction to basic theories, concepts, methods, and research on the behavior of organizations in society.
Mr. Alvarez, Mr. Grusky, Mr. Surace

122. Mass Communications.
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. Field work may be required for this course.
Mr. Levine

123. Social Stratification.
An analysis of American social structure in terms 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.
Mr. Lopez, Mr. McFarland, Mr. Treiman

124. Ethnic and Status Groups.
The characteristics of the "visible" ethnic groups, e.g., Japanese, Mexican and Negro; their organization, acculturation, and differentiation. The development, operation and effects of selective immigration and population mobility. The status of the chief minorities in the continental U. S., with comparative materials drawn from Jamaica, Hawaii, and other areas.
The Staff

125. Urban Sociology.
Urban and rural cultures, the characteristics of cities in Western civilization, with emphasis on the American metropolis.
Mr. Light

126. Social Demography.
Studies of past, present, and future trends in population growth. Sociological theories of causes and consequences of population growth and redistribution. Emphases on the correlates of fertility, mortality, and migration.
Mr. Bailey, Mr. Sabagh

128. Occupations and Professions.
Description and analysis of representative occupations and professions, with emphasis upon the contemporary United States.
Mr. Light, Ms. Oppenheimer

129. White Racism.
Verbal and metaphorical stereotyping of blacks, whites and other subdominant and dominant groups; cross-cultural comparisons; impact of media; institutional racism, educational and economic; political mobilization of black and poor communities; the study of strategies for resisting white racism.
Mr. TenHouten

CORE AREA III: COMPARATIVE SOCIETIES

130. Social Processes in Africa.
A course in comparative sociology. A study of selected processes in African societies, primarily in the fields of urban sociology, social structure and social change, involving an interdisciplinary approach.
Mr. Kuper

131. Latin American Societies.
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.

Mr. Lopez

132. Population and Society in the Middle East.

Prerequisite: upper division standing and consent of the instructor. A survey of the Middle Eastern societies; their historic and environmental bases; the contemporary demographic and cultural situation.

Mr. Sabagh

133. Comparative Sociology of the Middle East.

Prerequisite: upper division standing and consent of the instructor. A review of the unity of Middle Eastern societies in Islam and their diversity exemplified by such nomadic peoples sidered throughout.

The Staff

134. Comparative Social Institutions of East Asia.

Analysis of selected social institutions of China, Japan, and Korea. Emphasis will be on continuity and change in East Asian societies.

Ms. Hirata

135. West European Society.

Comparative study of social structure and major institutions of selected Western European nations.

Mr. Seeman, Mr. Turner

136. Structure and Process of American Society.

Analysis of interrelationships among structures and processes in American society, with emphasis on patterns of differentiation, exchange, control, and belief formation. The question of boundary definition (both analytic and real) and the question of order will be considered throughout.

The Staff

137. Comparative Studies of Jewish Communities in the U.S. and Abroad.

The history, distribution, structure, and functioning of major Jewish communities is covered, with particular focus upon North America and Israel. Interrelationships and sources of conflict between Jews and Gentiles in Western countries are taken up. More generally, the economic and social integration of Diaspora Jewish communities is treated. Field work may be required for this course.

Mr. Levine

CORE AREA IV: INSTITUTIONS

140. Political Sociology.

The contributions of sociology to the study of politics including the analysis of political aspects of social systems, the social context of action, and the social bases of power.

Mr. Kuper, Mr. Zeitlin

141. Industry and Society.

A sociological analysis of industry. Attention given to factors in the status group awareness and occupational role-learning of workers and managers; interaction between technological and social system; the interplay between official and unofficial action, and between industry and community.

Mr. Light

142. Sociology of the Family.

Theory and research dealing with the modern family, its structure and functions, including historical changes, variant family patterns, family as an institution, and the influence of the contemporary society on the family.

Mr. Morris, Ms. Oppenheimer

M143. Sociology of Education.

(Same as Education M108.) Studies of social processes and interaction patterns in educational organizations, the relationships of such organizations to aspects of society, social class and power, social relations within the school, formal and informal groups, school culture, roles of teachers, students, and administrators.

Mr. Gordon, Mr. Miller, Mr. Rabow

144A. Conversational Structures I.

An introduction to some of the structures which are employed in the organization of conversational interaction, such as turn-taking organization, the organization of repair, and some basic sequence structures with limited expansions.

Mr. Schegloff

144B. Conversational Structure II.

Prerequisite: course 144A. A consideration of some of the more expanded sequence structures, story structures, topical sequences, and the overall structural organization of single conversations.

Mr. Schegloff

145. Sociology of Deviant Behavior.

An examination of the leading sociological approaches to the study of deviation and a general survey of the major types of deviation in American society.

Mr. Emerson, Mr. Freeman, Mr. Horton

146. Criminology.

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.

Mr. Davis, Mr. Rabow

147. Control of Crime.

Theories of punishment; methods of dealing with convicts; social organization of police, courts, prisons, probation, and parole. Field work is a required feature of this course.

Mr. Rabow

148. Normal Environments.

Structural interpretation of the concerted production, management, and alteration of precievedly normal interpersonal environments. Field work is a required feature of this course.

Mr. Garfinkel, Mr. Pollner, Mr. Schegloff

149. A Study of Norms.

Properties of norms, of normatively governed conduct, of lay and professional methods for describing, producing, using, and validating norms in contrasting settings of socially organized activities; relevance of these properties for the programmatic problems of analytic sociology. Field work is a required feature of this course.

Mr. Garfinkel, Mr. Pollner, Mr. Schegloff

CORE AREA V: SOCIAL PSYCHOLOGY

150. Collective Behavior.

Prerequisite: course 1 or equivalent, course 18 or equivalent, and upper division standing. Characteristics of crowds, mobs, publics, social movements, and revolutions. Their relation to social unrest and their role in developing and changing social organization.

Mr. Seeman, Mr. Turner

151. Culture and Personality.

Prerequisite: course 1 or equivalent, course 18 or equivalent, 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.

Mr. Turner

152. Group Processes.

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.

Mr. Bonacich, Mr. Rabow, Ms. Zucker

153. Process and Socialization in the Family.

Prerequisite: course 1 or equivalent, course 18 or equivalent, and upper division standing. Examination of the processes of interaction, decision-making, role differentiation, conflict, integration, and socialization within the family and their interrelations with society.

Mr. Turner

154. Social Psychology: Sociological Approaches.

A survey of the contribution of sociologists to theory and research in social psychology including theories of social control; conformity and deviation; reference groups; and interaction process.

Mr. Grusky, Mr. Miller, Mr. Rabow

155. Intergroup Conflict and Prejudice.

A study of the causes and consequences of group conflict, with emphasis upon majority-minority relations, prejudice and discrimination. Special attention is given to alternative sociological and psychological theories of prejudice; the effects of minority status upon the individual; and the possibilities for attitude and behavior change.

Mr. Seeman

156. The Social Psychology of Encounter.

Prerequisite: upper division standing. The course will focus on the nature of encounter, the relationship of encounter to small group theory and findings, and the contrast of encounter to psychotherapy. Encountering both as a social movement and as an educational mechanism will be evaluated. An experiential component to the class may be required.

Mr. Rabow

157. Sociology of Mental Illness.

Sociological approaches to the definition, identification and treatment of the mentally ill. Distinguishing between the criminal and the insane. Worlds of the mentally ill. Insanity as a social phenomenon.

Mr. Emerson, Mr. Pollner

M158. Death and Suicide: Psychological and Sociological Aspects.

(Same as Psychology M163.) Junior required. This course is offered on both a pass/not pass and letter grade basis. The definition and taxonomy of death; the new permissiveness and taboos relating to death; the romanticization of death; the role of the individual in his own demise; the modes of death; development of ideas of deaths through the life span; ways in which ideas of death influence the conduct of lives; the impact of dying on the social structure surrounding the individual; preventive, interventive and postventive practices in relation to death and suicide; partial death; megadeath; lethality; the psychological autopsy; the death of institutions and cultures.

Mr. Shneidman

159. The Sociology of Consciousness.

Prerequisite: course 18. The course will focus on alternative forms of consciousness. The works of selected intellectual figures dealing with the nature of reality, thought and knowledge will be considered. A second aspect of the course will be upon group context of awareness. Both experiential and cognitive aspects of knowledge, reality and thought will be examined via lectures, small group discussion and class exercises.

Mr. Pollner, Mr. Rabow, Mr. TenHouten

CORE AREA VI: SOCIAL POLICY AND APPLIED SOCIOLOGY

(Note: Until additional courses are approved in this Core Area, Sociology 160 may be applied to Core Area IV.)

160. The Demography and Sociology of Women's Economic Roles.

Prerequisites: course 1, course 18, or Mathematics 50, or Psychology 41, or Economics 140 or Public Health 160A or by consent of the instructor. A demographic

and sociological analysis of the factors affecting women's economic roles in the world of work and the family. Topics to be considered include demographic determinants of women's socioeconomic roles, women's changing place in the occupational structure, men's and women's contribution to the socioeconomic status of the family, the socioeconomic position of women without men to support them, future trends, and social policy affecting women's status.

Ms. Oppenheimer

Advanced Studies

181-186. Undergraduate Seminars.

Prerequisites: upper division standing, major in Sociology, and permission of the instructor. These courses are listed under each of six core areas, with 181 in Core Area I, 182 in Core Area II, etc.

The Staff

199. Special Studies. (½ to 2 courses)

Prerequisite: senior standing, 3.0 grade-point average in major, consent of instructor and department chairman. A course of independent study designed for graduate or senior undergraduate students who (a) desire a more advanced or specialized treatment of an area covered in the regular course list and who present that course as a prerequisite; or (b) desire work in an area of sociological analysis currently not covered by an upper division course. Only 8 units may be applied on the Sociology major. See Undergraduate Counselor for course contract.

The Staff

199HA-199HB-199HC. Special Study for Honors.

Prerequisite: Admission to the Sociology Department Honors Program.

199HA. Design of a research project to serve as the student's honors thesis. A research proposal, detailed bibliography, and regular meetings with the sponsoring faculty member will be required;

199HB. Continuation of work initiated in 199HA. A series of progress reports will be prepared in consultation with the instructor;

199HC. Completion of the written report or honors thesis.

The Staff

Graduate Courses

201A-201B. Proseminar in Sociology.

Prerequisite: graduate status. A comprehensive survey of basic concepts and theories in the major fields of sociology. Designed primarily for graduate students in the first year of residence.

Mr. Lopez, Mr. Morris

210A. Intermediate Quantitative Methods I.

Prerequisites: course 18, Mathematics 50, or some other equivalent course in statistics approved by the Department. Required for the M.A. and Ph.D. degrees in Sociology. Probability, hypothesis testing, simple correlation and regression, analysis of contingency tables. Not restricted to graduate students.

Mr. Bonacich, Mr. McFarland, Mr. TenHouten

210B. Intermediate Quantitative Methods II.

Prerequisite: course 210A. A continuation of 210A. Analysis of variance, multiple regression, nonparametric statistics, selected multivariate techniques. Required for the M.A. and Ph.D. degrees in Sociology but not restricted to graduate students.

Mr. Bonacich, Mr. McFarland, Mr. TenHouten

210C. Intermediate Quantitative Methods III.

Prerequisite: 210B. Not required for the M.A. or Ph.D. degrees in sociology. This course will cover additional and more advanced multivariate techniques of particular value to sociologists.

Mr. Bonacich

212A-212B. Marxist Methodology.

Prerequisite: course 112 or consent of instructor. Practice in the dialectical method of attaining scientific knowledge about society as a process and mode of production. A critical examination of methodological issues and techniques, and practical field researches.

Mr. Horton

213A-213B. Techniques of Demographic and Ecological Analysis.

Prerequisite: course 210A or equivalent. Procedures and techniques for the collection, evaluation, and analysis of demographic and ecological data; models of population and ecological structure and change; applications to the study of social structure and social change.

Mr. Sabagh

214A-214B. The Measurement of Sociological Variables.

Prerequisite: courses 210A-210B and consent of the instructor. Theory and technique of measurement in sociology and social psychology; construction, application and evaluation of measurement techniques, especially the forms of scaling. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.

Mr. TenHouten

215A-215B. Experimental Sociology.

Prerequisite: course 210A or equivalent and consent of the instructor. A course designed to provide students with the basic fundamentals of the experimental method, particularly as it is used in social psychology. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.

Mr. Grusky, Mr. Rabow

216A-216B. Survey Research Methods.

Course in methodology and techniques: formulation of research problem; study design; hypotheses; sampling; measurement; questionnaire and schedule construction; interviewing and data collection; processing and tabulation; analysis and interpretation; presentation of findings; cross-national, replicative, panel and other complex survey designs. Students participate in survey research project. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.

Mr. Levine, Mr. Treiman

217A-217B. Ethnographic Field Work.

Prerequisite: consent of the instructor. Theories and techniques of ethnographic field work. This course will consider the kinds of problems amenable to ethnographic approaches, methods and techniques for doing field work, and ethnical problems involved in such research. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.

Mr. Emerson

218A-218B. Ethnomethodological Methods.

Prerequisite: consent of the instructor. Examination of techniques used in ethnomethodological research, practice in the critical evaluation of research, and directed experience in the conduct of an extended investigation employing ethnomethodological procedures. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.

Mr. Garfinkel

219. Theory of Sociological Inquiry.

Prerequisite: course 210A and consent of the instructor. A general review of procedures followed by social scientists in attempts to achieve valid theoretical knowledge. Focuses on inductive inference and theory testing: control and randomization, experimental and nonexperimental research designs, association and causality, models, measurement theory, sampling theory.

Mr. TenHouten

220. Role Theory.

Prerequisite: graduate status and consent of the instructor. A review of theories and research dealing with social soles, with special emphasis on roles in social interaction and in formation of the social self.

Mr. Turner

222. The Sociology of Adolescence.

Prerequisite: graduate status and consent of the instructor. An examination of the historical development of adolescent subcultures in primitive, familistic, and modern societies; the transition to adulthood, involving socialization by parents, siblings, peers, and teachers; academic performance, and educational and occupational plans of American youth.

Mr. Davis, Mr. TenHouten

224. Problems in Social Psychology.

Survey of theories and problems in social psychology with emphasis on the major sociological contributions to this area.

Mr. Grusky, Mr. Rabow, Mr. Seeman

226. Leadership and Comparative Social Structure.

A comparative analysis of leadership in different social structures with particular attention to the development, maintenance, and disintegration of leadership corps and cadres.

Mr. Surace

227. The Sociology of Knowledge.

Prerequisite: graduate status or consent of the instructor. A survey of theories and research concerning social determinants of systems of knowledge and the role of intellectual and artistic elites in Western societies.

Mr. Horton

230. Theories of Deviance.

An examination of various sociological approaches to the study of deviant behavior with emphasis on anomie theory as the major orientation today. Special attention given to the problems of defining deviance and the articulation of sociological and psychological levels of explanation.

Mr. Emerson, Mr. Rabow, Mr. Surace

234. Sociology of Community Organization.

Prerequisite: graduate status and consent of the instructor. A survey of recent and classical research and literature dealing with predominantly political institutions, the problem of order, and the organization of communal life in the village and the metropolis.

The Staff

235. Social Structure and Social Movements.

Prerequisite: graduate status or consent of the instructor. A survey of some social science theories bearing on the analysis of large scale social movements and upheavals. The causes, course and consequences of selected social movements, insurrections and revolutions will be examined.

Mr. Kuper, Mr. Surace

236. Social Change in the Middle East.

An analysis of the sources, extent, and types of social change in the Middle East with an emphasis on the origin and consequences of industrialization and urbanization.

Mr. Sabagh

237. Social Stratification in the Middle East.

Modes of social differentiation in traditional Middle Eastern societies, localism and tribalism, the counter influence of processes leading to the recurrent emergence of societies of large scale and their distinctive structural characteristics.

Mr. Sabagh

238A-238B. Field Work in Minority Communities.

Prerequisite: graduate standing and consent of the instructor. This two-quarter sequence is designed to

supply graduate students with the theoretical and methodological equipment necessary for studying disadvantaged minority communities. Special emphasis is given to the Black ghetto and the barrio. Nonstandard language forms (mainly Black English, and Chicano) are especially focused upon instrumentally. In the field students will gather empirical data that sheds light on the ways in which data of greater validity and practical utility might be collected among these groups. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.

Mr. Levine

M249A. Sociocultural Aspects of Health and Illness.

(Same as Public Health M249A.) Prerequisite: Public Health 149 or graduate standing in sociology, anthropology or psychology, and consent of the instructor. The relationship between the sociological, cultural, and psychosocial factors in thetiology occurance, and distribution of morbidity and mortality. Emphasis is on life styles and other socioenvironmental factors associated with disease and mortality.

Mr. Goldstein, Mr. Reeder

M249B. Sociocultural Aspects of Health and Illness.

(Same as Public Health M249B.) Prerequisite: graduate standing and consent of instructor. A sociological examination of the concepts of "health" and "illness" and role of various health professionals, especially physicians. Attention given to meaning of professionalization and professional-client relationships within a range of organizational settings.

Mr. Goldstein, Mr. Reeder

M249C. Sociocultural Aspects of Health and Illness.

(Same as Public Health M249C.) Prerequisite: graduate standing and consent of the instructor. Sociocultural factors in illness behavior. Emphasis on the processes affecting differential patterns of use of health services.

Mr. Reeder

Seminars

250. Methodological Problems.

Mr. Bailey, Mr. Seeman

251. Topics in the Problem of Social Order.

Mr. Garfinkel

252. Criminology.

Mr. Davis, Mr. Rabow

253. Quantitative Methods in Sociology.

Mr. Bailey, Mr. Bonacich, Mr. Freeman

254A-254B. Sociology of Law.

Social control functions of law and legal institutions with particular attention to the contrast between lawways of stateless and tribal societies and contemporary American legal processes and institutions, primarily those of criminal law.

Mr. Emerson

255A-255B. Systematic Sociological Theory.

Course 255A is prerequisite to 255B.

Mr. Kuper

256. Demography.

Mr. Bailey, Mr. Sabagh

257. Sociology of the Arts.

Mr. Horton

258. Sociology of Religion.

Mr. Kuper

259. Social Structure and Economic Change: Historical and Comparative Perspectives.

Ms. Hirata, Mr. Surace

260. Industry and Society.

Mr. Light, Mr. Surace

261. Ethnic Minorities.

Mr. Levine, Mr. Seeman

262. Selected Problems in Urban Sociology.

Mr. Light

263. Social Stratification.

Mr. Morris

264. Professions in the American Society.

Ms. Oppenheimer

265. Problems in Organization Theory.

Mr. Grusky, Ms. Zucker

266. Selected Problems in the Analysis of Conversation.

Prerequisite: course 144 or consent of the instructor.

Mr. Schegloff

267. Selected Problems in Communication.

Mr. Pollner, Mr. Schegloff

268. Historical and Interpretive Sociology.

Mr. Surace

269. Collective Behavior.

Mr. Turner

270. Selected Problems in Socialization.

Mr. Turner

271. Ethnomethodology.

Mr. Garfinkel

272. Topics in Political Sociology.

Mr. Kuper

273. Attitudes and Social Structure.

Mr. Seeman

274. Selected Problems in the Sociology of Africa.

Prerequisite: graduate standing and consent of the instructor. Selection of problems in the sociology of Africa from among the following fields: urbanization, racial and ethnic relations, national integration, and political change.

Mr. Kuper

275. Seminar in Comparative Social Structure: Developed Societies.

The comparison of social structures among developed societies, including the comparative analysis of the main institutional features, social class arrangements, social mobility characteristics, and the like. Comparisons will involve the U.S. and developed countries in Western Europe, Asia and Oceania.

The Staff

276. Selected Topics in the Sociology of East Asia.

Prerequisite: graduate standing and consent of the instructor. The seminar will analyze selected problems in China, or in China and Japan comparatively. Possible topics include: 1. China's Great Proletarian Cultural Revolution; 2. Internal contradictions in Chinese society: male-female relations, the city and the countryside, minority nationalities, class struggle under socialism, etc.; 3. China and Japan: two models of development.

Ms. Hirata

277. Sociology of Science.

The Staff

278. Selected Problems in the Sociology of Alcohol Behavior.

Prerequisite: graduate standing and consent of the instructor.

Mr. Grusky, Ms. Hirata, Mr. Rabow

279. Sociology of the Theatre.

Seminar on different movements in the theatre, or expressions of the Theater (e.g., Theatre of the Absurd, Contemporary Experimental Theatre), with emphasis on the theatrical performance as it relates to the environing society, responds to, or reacts against, theatrical conventions, socializes the players to the performance, and creates its own social world.

Mr. Horton, Mr. Kuper

280. Seminar in Evaluation Research.

Prerequisite: graduate standing. The seminar covers both the technical and political aspects of implementing evaluation research studies. The role of evaluation research in social policy development is considered as well as procedures for undertaking process and impact evaluations. Graded S/U.

Mr. Freeman

281. Selected Problems in Mathematical Sociology.

Prerequisite: Mathematics 2C or consent of the instructor. An exploration of some mathematical models of sociological processes. Possible topics include models of small groups, social mobility, kinship relations, organizations, social interaction.

Mr. Bonacich, Mr. McFarland

282. Organizations and the Professions.

The Staff

291. Moral Solidarity in Communities.

Comparative analysis of social solidarity and the collapse of social solidarity in voluntary and traditional communities. Contrasts more and less solidary types with special reference to utopian communities and developmental processes.

Mr. Light

292A-292B-292C. Research Development.

The Staff

495. Supervised Teaching of Sociology.

Prerequisites: Teaching Assistant status in the Department of Sociology, or equivalent. A special course for teaching assistants. It is designed to deal with the problems and techniques of teaching introductory sociology.

The Staff

Individual Study and Research

596. Directed Research and Study in Sociology. (½ to 2 courses)

The Staff

597. Individual Study for Examinations.

Preparation for the dossier for the master's degree or the qualifying examination for the Ph.D.

The Staff

599. Research in Sociology for Ph.D. Degree Candidates. (1 to 2 courses)

The Staff

■ SPANISH AND PORTUGUESE

(Department Office, 5303 Rolfe Hall)

José R. Barcia, Lic. F. y L., *Professor of Spanish.*

Rubén Angel Benítez, Ph.D., *Professor of Spanish.*

Claude L. Hulet, Ph.D., *Professor of Spanish and Portuguese.*

C. P. Otero, Ph.D., *Professor of Spanish and Romance Linguistics.*

Julio Rodríguez-Puértolas, Ph.D., *Professor of Spanish.*

Stanley L. Robe, Ph.D., *Professor of Spanish.*

Aníbal Sánchez-Reulet, Ph.D., *Professor of Spanish.*
Hermenegildo Corbató, Ph.D., *Emeritus Professor of Spanish.*
John A. Crow, Ph.D., *Emeritus Professor of Spanish.*
John E. Englekirk, Ph.D., *Emeritus Professor of Spanish.*
Donald F. Fogelquist, Ph.D., *Emeritus Professor of Spanish.*
Marion Albert Zeitlin, Ph.D., *Emeritus Professor of Spanish and Portuguese.*
Shirley L. Arora, Ph.D., *Associate Professor of Spanish.*
Carroll B. Johnson, Ph.,D., *Associate Professor of Spanish (Chairman of the Department).*
Gerardo Luzuriaga, Ph.D., *Associate Professor of Spanish.*
Richard M. Reeve, Ph.D., *Associate Professor of Spanish.*
Enrique Rodríguez-Cepeda, Ph.D., *Associate Professor of Spanish.*
Paul Smith, Ph.D., *Associate Professor of Spanish.*
Alfonso Cervantes, Ph.D., *Assistant Professor of Spanish.*
Susan Plann, Ph.D., *Assistant Professor of Spanish.*
Robert S. Rudder, Ph.D., *Assistant Professor of Spanish.*
María L. de Lowther, M.A., *Assistant Professor of Spanish, Emeritus.*

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José M. Cruz-Salvadores, M.A., *Lecturer in Spanish.*
E. Mayone Dias, Ph.D., *Lecturer in Spanish and Portuguese.*
Isabel L. Herwig, M.A., *Lecturer in Spanish and Portuguese.*
Antonio Loera, M.A., *Lecturer in Spanish.*
Walter F. Starkie, *Professor of Spanish and Folklore in Residence, Retired.*
George L. Voyt, J.D., *Lecturer in Spanish.*

The following courses are primarily designed to serve the department's three B.A. programs: the B.A. in Spanish, Plan A and Plan B and the B.A. in Portuguese, as well as to prepare students for its three graduate programs: the M.A. in Spanish, the M.A. in Luso-Brazilian Studies, and the Ph.D. in Hispanic Languages and Literatures. The department's courses are also functionally supportive of such extra-departmental programs as the Teaching Credential in Spanish, the B.A. and M.A. programs in Latin American Studies, and the M.A. and Ph.D. programs in Romance Linguistics and Literature.

Spanish

Preparation for the Major

Courses 5, 25, M42, and M44, or their equivalents. (Plan A, Language and Literature)

The Major

The Major, Plan A (Language and Literature)

Linguistics 100 is prerequisite to Spanish 100 and 103. Spanish majors may take it Pass/Non Pass or for a letter grade. It is applicable to the Breadth Requirement as a course in Social Sciences.

Fifteen upper division courses distributed as follows: eight required courses: 100 or 103, 105 or 109, 115 or M118, 120A-120B, 121A-121B and 127; seven elective courses, one in language and chosen from 100, 103, 105, 109, 115, M118, 170C, one in Spanish literature, one in Spanish American literature, and four selected from other Department offerings not including 160A-160B-160C.

The Major, Plan B (Spanish and Linguistics)

In addition to the normal preparation for the major, Plan B requires completion of six quarters of work in one other foreign language or three quarters in each of two other languages. Portuguese is recommended.

The major consists of thirteen upper division courses distributed as follows: four required courses in Spanish: 100, 103, 105 or 109, 119; six required courses in Linguistics: 100, 103, 110, 120A, 120B, 140; three electives in Spanish.

General College Regulation

No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition.

Honors Program

To qualify for graduation with departmental honors, students must achieve a 3.0 overall grade-point average, a 3.50 grade-point average in the major, and have completed two of the three Senior Seminars, 170A, 170B, 170C.

Requirement for Teaching Credentials

Consult the UCLA ANNOUNCEMENT OF THE GRADUATE SCHOOL OF EDUCATION.

The Master's Degree in Spanish

General Requirements. See Master's Degrees. The Department favors the Comprehensive Examination Plan, but, with departmental approval, the Thesis Plan may be followed.

Departmental Requirements—Comprehensive Examination Plan. (1) Foreign Language Requirements: a reading knowledge of one other foreign language approved by the graduate adviser. Portuguese is acceptable. This requirement must be met at least one quarter before the awarding of the degree. (2) Course Requirement: ten courses with a minimum of seven in the 200 series, of which one must be a seminar. With the approval of the graduate adviser, a maximum of two courses may be taken at the graduate level in closely related fields. (3) The Comprehensive Examination: two three-hour written examinations to be given the next-to-the-last week preceding the final examination period of the Fall and Spring quarters. The M.A. consists of three fields: Linguistics, Spanish Literature, and Spanish-American Literature. The student chooses one as his major field, the other two becoming his minor fields. He is examined for three hours in the major and one-and-one-half hours in each minor. Reading lists which constitute the basis of the examinations will be available to the student. Only those students who pass these examinations with distinction (High Pass) will be automatically eligible to enter the Ph.D. program.

Departmental Requirements—Thesis Plan. (1) Guidance Committee: the preparation and examination of each candidate will be the responsibility of a guidance committee composed of three members of the Department. The chairman of the committee will be the instructor under whom the candidate proposes to write his thesis. The other two members will be appointed by the chairman of the Department after consultation with the candidate and the chairman of the committee. The committee members shall be appointed to represent three different fields of interest within the Department. No committee shall be appointed before a candidate has completed one full quarter of work in graduate standing, including no less than seven courses in the Department, of which at least one must be in the 200 series. (2) Foreign Language Requirement: the same as the Comprehensive Examination Plan. (3) Course Requirement: nine courses of which a minimum of six must be in the 200 series. With the approval of the guidance committee a maximum of two courses may be taken at the graduate level in closely related fields. (4) Thesis and Examination: the subject and general plan of investigation for the thesis must be approved by the department and the instructor concerned before a guidance committee can be appointed. After completion of the thesis, the candidate must pass a three-hour oral examination testing his knowledge of the field of his thesis and his general competence. A reading list which will constitute the basis for part of this examination will be available to the student. Only those students who pass these examinations with distinction (High Pass) will be automatically eligible to enter the Ph.D. program.

Ph.D. Degree in Hispanic Languages and Literatures

General Requirements. See Doctoral Degrees.

Guidance Committee: normally in the fifth quarter of graduate studies a guidance committee will be appointed, composed of five members of the Department, to assist the doctoral candidate in planning his program. The chairman of the committee will be the instructor under whom the student proposes to write his dissertation. The other four members will each represent a minor field. Doctoral candidates entering the Department with an M.A. degree (or an equivalent title) from another institution will not be assigned guidance committees until their second quarter of studies in the Department; such assignment will depend upon a positive recommendation by the instructors already familiar with the candidate's work and potential.

Foreign Language Requirement. In addition to Spanish and Portuguese, the candidate must have a reading knowledge of at least two other foreign languages to be chosen with the approval of the guidance committee in the light of the candidate's field of specialization. The candidate must pass the test in one of these two languages not later than in the third quarter of graduate studies and the other not later than in the seventh quarter.

Fields of Specialization. The Department recognizes the following fields of specialization, from which one major and four minor fields shall be selected: (a) Medieval and Renaissance Literature; (b) The Golden Age; (c) 18th and 19th Century Spanish Literature; (d) 20th Century Spanish Literature; (e) Colonial and 19th Century Spanish American Literature; (f) 20th Century Spanish American Literature; (g) Portuguese Literature; (h) Brazilian Literature; (i)

Spanish and Portuguese Philology and Linguistics; (j) Spanish and Luso-Brazilian Folklore. The field in which the candidate intends to present a dissertation will be designated as his major field. The minimum course requirement for the major field will be determined by the candidate's guidance committee. The minimum course requirement for a minor field is one graduate course (series 200-249) followed by a corresponding seminar (series 251-286) or the equivalent.

Course Requirements. Three upper division courses in Portuguese or Brazilian literature and a minimum, after the B.A., of 18 graduate courses and seminars, including Spanish M200, M201, M203A, and one additional graduate course in one of the above fields of specialization not chosen as a major or minor. Those students who choose philology and linguistics as their major fields must also include Portuguese M203B, and have a specific knowledge of Classical and Vulgar Latin and of Old French or Old Italian.

Qualifying Examinations. The qualifying examinations will be given during the fifth and sixth weeks of the Fall, Winter, and Spring quarters and will consist of: (a) a three-hour written examination in the candidate's major field; (b) four one-hour written examinations in the minor fields; and (c) a two-hour oral examination. The qualifying examinations are normally taken no later than nine quarters after the B.A. and six quarters after receiving the M.A. At the time of the qualifying examination, or subsequently, the committee may specify whether or not an oral examination is required after the acceptance of the dissertation in its final form.

The Dissertation. The dissertation may be on any subject within the general area of Spanish and Portuguese languages and literatures. If five years have elapsed since any of the requirements have been taken, these requirements must be revalidated by the Department.

Lower Division Courses

Lower Division Spanish at UCLA offers two methods of instruction in Spanish 1, 2 and 3, in order to appeal to two types of learners. The *Communicating in Spanish* method is for the student who must understand structure before he can assimilate language and the *Lengua y Cultura* method is for the student who accepts language more instinctively. Neither method is better. Each caters to different learning preferences.

Communicating in Spanish presents an intellectual approach to the learning of language by transferring the basic knowledge of English in order to facilitate the learning of Spanish. The text guides the student through a course of programmed instruction. The student is expected to complete the lessons outside of the classroom. The role of the instructor is then to reinforce new material and to aid in the practice of spoken Spanish.

Lengua y Cultura relies on an intuitive aptitude for the learning of language. This is Spanish taught entirely in Spanish—the student simultaneously learns to speak, listen, read, and write. New material is presented in class by the instructor, who continuously builds on the existing framework. There is an emphasis on feeling the language and in the development of native-like responses. The text presents an integrated approach to language and culture. Odd-numbered sections of Spanish 1, 2, and 3 are for *Communicating in Spanish*. Even-numbered sections are for *Lengua y Cultura*.

1. Elementary Spanish.
Meets five hours weekly; laboratory one hour. This course corresponds to the first year of high school Spanish.
The Staff

1G. Reading Course for Graduate Students. (No credit)
Meets five hours weekly.
The Staff

2. Elementary Spanish.
Meets five hours weekly; laboratory one hour. Prerequisite: course 1 or one year of high school Spanish, or equivalent.
The Staff

2G. Reading Course for Graduate Students. (No credit)
Meets five hours weekly. Prerequisite: course 1G or equivalent.
The Staff

3. Elementary Spanish.
Meets five hours weekly; laboratory one hour. Prerequisite: course 2, or two years of high school Spanish, or equivalent.
The Staff

4. Intermediate Spanish.
Meets five hours weekly; laboratory one hour. Prerequisite: course 3, or three years of high school Spanish, or equivalent.
The Staff

5. Intermediate Spanish.
Meets five hours weekly; laboratory one hour. Prerequisite: course 4 or four years of high school Spanish, or equivalent.
The Staff

8A-8B. Spanish Conversation. (½ course each)
Beginning each quarter. Meets three hours weekly. Prerequisite: course 8A is open to those who have completed course 4, or equivalent. Students who have completed course 3 with grade B or better may be admitted.
The Staff

9A-9B. Advanced Conversation. (½ course each)
Beginning each quarter. Meets three hours weekly. Prerequisite: course 8B or equivalent.
The Staff

25. Advanced Spanish.
Prerequisite: course 5 or equivalent. Concentration on the building of vocabulary and the attainment of a high degree of comprehension in preparation for the courses in literature.
The Staff

M42. Civilization of Spain and Portugal.
(Same as Portuguese M42.) Highlights of the Civilization of Spain and Portugal, with emphasis on their artistic, economic, social and historical development as background for upper division courses. Conducted in English. Required for the major.
Mr. Cruz-Salvadores

M44. Civilization of Spanish America and Brazil.
(Same as Portuguese M44.) Highlights of the Civilization of Spanish America and Brazil with emphasis on their artistic, economic, social and historical development as background for upper division courses. Conducted in English. Required for the major.
Mrs. Arora, Mr. Reeve

Upper Division Courses

The basic prerequisite to all upper division courses except 160A-160B-160C is Spanish 25 or the equivalent.

100. Phonology and Pronunciation.
Prerequisite: Linguistics 100. Meets four hours weekly, including one hour laboratory. Analysis of the phonetic and phonemic systems of Spanish with special emphasis on the correlation between the phonemic and graphemic systems. Interrelation of phonological and morphological phenomena. Exercises and drills directed toward individual needs.
Ms. Plann

103. Syntax.
Prerequisite: Linguistics 100. A study of sentence types and their variations. The lexicon and its features. Interrelation of syntactic, semantic and morphological phenomena.
Mr. Otero, Ms. Plann

105. Intermediate Composition.
Prerequisite: course 103. Paraphrasing, summarizing, and study of idiomatic expressions.
The Staff

109. Advanced Composition.
Prerequisite: course 103. Correction of student's original compositions and analysis of basic stylistic elements.
The Staff

115. Applied Linguistics.
Prerequisite: course 103. Meets three hours weekly. Survey of the major linguistic problems faced by the teacher of Spanish.
Ms. Plann

M118. History of the Portuguese and Spanish Languages.
Prerequisite: Spanish 100. (Same as Portuguese M118.) Meets four hours weekly. Major features of the development of the Portuguese and Spanish languages from the origins in Vulgar Latin to modern times. Contributions of other languages to the formation of Portuguese and Spanish.
Mr. Dias, Mr. Otero, Mr. Smith

119. Literary Analysis.
(Formerly numbered 147.) An introduction to the study of literary devices, figures of speech and the differentiation of literary genres. Strongly recommended as preparation for the required courses in literature.
Mr. Rudder

120A-120B. Survey of Spanish Literature.
Prerequisite: M42 for Spanish majors. Beginning each quarter. An introduction to the principal authors, works and movements of Spanish literature. Required for the major.
Mr. Cervantes, Mr. Rodriguez-Cepeda, Mr. Rudder

121A-121B. Survey of Spanish American Literature.
Prerequisite: Spanish M44 for Spanish majors. Beginning each quarter. An introduction to the principal authors, works, and movements of Spanish American literature. Required for the major.
Mrs. Arora, Mr. Lazuriaga, Mr. Reeve

122. Medieval and Renaissance Literature.
The main genres of Medieval and Renaissance Spanish literature with emphasis on at least one representative work for each. Recommended preparation 120A.
Mr. Rodriguez-Puértolas

124. The Golden Age.
The main genres of the Golden Age with emphasis on at least one representative work for each. Recommended preparation 120A.
Mr. Rodriguez-Cepeda, Mr. Rudder

127. Don Quijote.
Directed reading and intensive study of the novel. Required for the major. Recommended preparation 120A.
Mr. Johnson, Mr. Rodriguez-Cepeda, Mr. Rudder

128. Neoclassicism and Romanticism in Spain.
The main manifestations of thought and literature from 1700 to 1850 with emphasis on representative works. Recommended preparation 120B.
Mr. Benitez

130. Spanish Literature from 1850 to 1898.
The development of post-Romantic literature with emphasis on representative works. Recommended preparation 120B.
Mr. Smith

132A. Spanish Literature in the 20th Century: Poetry and Drama.
Spanish poetry and theater since 1898 with emphasis on several representative works for each genre. Recommended preparation 120B.
Mr. Barcia, Mr. Benitez, Mr. Cervantes

132B. Spanish Literature in the 20th Century: Fiction and the Essay.
Spanish prose genres since 1898, with emphasis on representative novels, short stories and essays. Recommended preparation 120B.
Mr. Barcia, Mr. Benitez, Mr. Cervantes

137. The Literature of Colonial Spanish America.
A study of the most important authors and movements in the various regions of Spanish America to 1810. Recommended preparation 121A.
Mrs. Arora

139. 19th Century Spanish American Literature.
A detailed study of the important writers and movements from 1810 to 1860. Recommended preparation 121A.
Mrs. Arora, Mr. Luzuriaga, Mr. Reeve

141. Mexican Literature.
Meets three hours weekly, including one hour discussion. A study of the major Mexican literary contributions to the development of a national culture.
Mr. Cervantes, Mr. Loera

142A. Spanish American Literature in the 20th Century: Poetry and Drama.
A detailed study of the important lyrical and dramatic movements in Spanish America since 1880. Recommended preparation 121B.
Mr. Loera, Mr. Luzuriaga

142B. Spanish American Literature in the 20th Century: Fiction and the Essay.
Spanish American prose genres since 1880, with representative novels, short stories and essays. Recommended preparation 121B.
Mr. Reeve, Mr. Sánchez-Reulet

M149. Folk Literature of the Hispanic World.
(Same as Folklore M149.) A study of the history and present dissemination of the principal forms of folk literature throughout the Hispanic countries.
Mrs. Arora

151. Folk Song in Spain and Spanish America. (½ course)
Meets three hours weekly. 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.
The Staff

160A-160B-160C. Hispanic Literatures in Translation.
(Formerly numbered 150A-150B.) Class readings and analysis of selected works in translation. Classroom discussion, papers and examinations will be in English. Meets three times weekly.
160A. Spain and Portugal.
Mr. Rudder
160B. Spanish America and Brazil.
Mr. Hulet
160C. *Don Quijote* in English Translation.
Class reading and analysis of Cervantes: *Don Quijote*.
Mr. Johnson, Mr. Rudder

170A. Senior Seminar: Topics in Spanish Literature.
Prerequisite: Spanish major, senior standing, 3.50 G.P.A. in the major. Directed research on topics within the general area of Spanish literature. Two senior seminars are required for Departmental Honors. Given Fall Quarter only.
Mr. Barcia, Mr. Benitez, Mr. Rodriguez-Puértolas

170B. Senior Seminar: Topics in Spanish American Literature.
Prerequisite: Spanish major, senior standing, 3.50 G.P.A. in the major. Directed research on topics within the general area of Spanish American literature. Two senior seminars are required for Departmental Honors. Given Winter Quarter only.
Mrs. Arora, Mr. Sánchez-Reulet

170C. Senior Seminar: Topics in Hispanic Linguistics.
Prerequisite: Spanish major, senior standing, 3.50 G.P.A. in the major. Directed research on topics within the general area of Hispanic linguistics. Two senior seminars are required for Departmental Honors. Given Spring Quarter only.
Mr. Otero, Mr. Robe, Mr. Smith

199. Special Studies. (½ to 1 course)
Prerequisite: consent of adviser and instructor. A maximum of two full courses may count toward the major.
The Staff

Graduate Courses

M200. Bibliography.
(Same as Portuguese M200.) Meets three hours weekly. Identification and analysis of bibliographical sources for work by doctoral candidates in their fields of specialization.
Mr. Benitez, Mr. Rodriguez-Cepeda

M201. Literary Criticism.
(Same as Portuguese M201.) Meets three hours weekly. Definition and discussion of methods of literary criticism.
Mr. Benitez, Mr. Otero

M203A-203B. The Development of the Portuguese and Spanish Languages.
(Same as Portuguese M203A-M203B.) Prerequisites: course M118, 100 or consent of instructor. Intensive study of the historical development of the Portuguese and Spanish languages from their origin in spoken Latin.
Mr. Otero, Mr. Smith

204A-204B. Transformational Grammar.
Meets three hours weekly. Prerequisite: course 204A is prerequisite to 204B, or consent of the instructor. A transformational approach to the Spanish language, with some consideration of the bearing of syntax, semiology, and phonology on style, metaphor and meter.
Mr. Otero

208. Linguistics.
Meets three hours weekly. Prerequisite: course 115 or equivalent. A study of theoretical synchronic linguistics as applied to Spanish.
Mr. Otero, Ms. Plann

209. Dialectology.
Meets three hours weekly. Prerequisite: course 100 or 115 or equivalent. The major dialect areas of Peninsular and American Spanish, with the distinguishing features of each. Influence and contribution of cultural and historical features, including indigenous languages, to their formation.
Mr. Robe

222. Medieval and Renaissance Poetry.
Meets three hours weekly. Readings and lectures on Spanish poetry from the beginnings to 1550.
Mr. Rodriguez-Puértolas

223. Medieval and Renaissance Prose.
Meets three hours weekly. Readings and lectures on Spanish prose from the beginnings to 1550.
Mr. Rodriguez-Puértolas

224. The Poetry of the Golden Age.
Meets three hours weekly. Readings and lectures on the main poets and poetic movements of the Golden Age.
Mr. Rodriguez-Cepeda

225. The Drama of the Golden Age.
Meets three hours weekly. Readings and lectures on the "comedia."
Mr. Rodriguez-Cepeda

226. Prose of the Golden Age.
Meets three hours weekly. Readings and lectures on fictional, didactic, religious, and historial writings.
Mr. Johnson

227. Cervantes.
Meets three hours weekly. Readings and lectures on the works of Cervantes.
Mr. Johnson

230. Neoclassicism and Romanticism.
Meets three hours weekly. Readings and lectures on representative works of the period.
Mr. Benitez

231. The 19th Century Novel.
Meets three hours weekly. Readings and lectures on the novel of the 19th century.
Mr. Benitez, Mr. Smith

232. The Generation of 1898.
Meets three hours weekly. Readings and lectures on representative works of the generation.
Mr. Barcia

233. Contemporary Spanish Drama.
Meets three hours weekly. Readings and lectures on the theater since 1898.
Mr. Barcia

234. Contemporary Spanish Poetry.
Meets three hours weekly. Readings and lectures on poetry since 1898.
Mr. Barcia

235. Contemporary Spanish Prose.
Meets three hours weekly. Readings and lectures on the novel, the short story, and the essay since 1898.
Mr. Barcia

237. Chroniclers of the Americas.
Meets three hours weekly. Readings and lectures on the "Cronistas de Indias."
Mrs. Arora, Mr. Robe

239. Neoclassic and Romantic Prose and Poetry in Spanish America.
Meets three hours weekly. Intensive study of Neoclassicism and Romanticism in Spanish America.
Mr. Sánchez-Reulet

240. The Modernist Movement.
Meets three hours weekly. An intensive study of the important writers of this movement during the period 1880-1916.
The Staff

243. Contemporary Spanish American Poetry.
Meets three hours weekly. Intensive study of the important poets of Spanish America since 1916.
The Staff

244. Contemporary Spanish American Novel and Short Story.
Meets three hours weekly. A study of the important novelists and short story writers from Modernism to the present.
Mr. Reeve

245. Contemporary Spanish American Essay.
Meets three hours weekly. Intensive study of the important essayists of the 20th century.
Mr. Sánchez-Reulet

246. Contemporary Spanish American Theater.
Meets three hours weekly. A study of the principal dramatists and theater movements in the twentieth century.
Mr. Luzuriaga

M249. Hispanic Folk Literature.
(Same as Folklore M249 and Portuguese M249.) Meets three hours weekly. An intensive study of folk literature as represented in a) ballad and poetry; b) narrative and drama; c) speech.
Mrs. Arora, Mr. Robe

Seminars

M251. Studies in Galegan-Portuguese and Old Spanish.
(Formerly numbered 253 and same as Portuguese M251.) Prerequisite: course M203A-203B. Problems related to the historical development of Galegan-Portuguese and Old Spanish.
Mr. Otero

256A-256B. Studies in Linguistics and Dialectology.
256A. Studies in Linguistics.
Prerequisite: course 206.
Mr. Otero
256B. Studies in Dialectology.
Prerequisite: course 209.
Mr. Robe
Meets two hours weekly. Problems in the analysis and description of the contemporary language. Directed toward independent research.

262A-262B-262C. Studies in Medieval and Renaissance Literature.
262A. Lyric Poetry.
Meets two hours weekly. Prerequisite: course 222.
Mr. Rodriguez-Puértolas
262B. Epic Poetry.
Meets two hours weekly. Prerequisite: course 222.
Mr. Rodriguez-Puértolas
262C. Prose Writers.
Meets two hours weekly. Prerequisite: course 223.
Mr. Rodriguez-Puértolas

264A-264D. Studies in the Golden Age.
264A. Poetry.
Meet two hours weekly. Prerequisite: course 224.
Mr. Johnson, Mr. Rodriguez-Cepeda
264B. The "Comedia."
Meets two hours weekly. Prerequisite: course 225.
Mr. Rodriguez-Cepeda, Mr. Johnson
264C. Studies in Prose of the Golden Age.
Meets two hours weekly. Prerequisite: course 226.
Mr. Rodriguez-Cepeda, Mr. Johnson
264D. Don Quijote.
Meets two hours weekly. Prerequisite: course 227.
Mr. Rodriguez-Cepeda, Mr. Johnson

270A-270B. Studies in 18th and 19th Century Spanish Literature.
270A. Poetry, Drama and Prose.
Meets two hours weekly. Prerequisite: course 230.
Mr. Benitez
270B. The Novel.
Meets two hours weekly. Prerequisite: course 231.
Mr. Benitez, Mr. Smith

272A-272D. Studies in 20th Century Spanish Literature.
272A. The Novel.
Meets two hours weekly. Prerequisite: course 232 or 235.
Mr. Barcia
272B. The Theater.
Meets two hours weekly. Prerequisite: course 233.
Mr. Barcia
272C. Poetry.
Meets two hours weekly. Prerequisite: course 234.
Mr. Barcia
272D. The Essay.
Meets two hours weekly. Prerequisite: course 235.
Mr. Barcia

277. Studies in Colonial Spanish American Literature.
Meets two hours weekly. Prerequisite: course 237.
Mrs. Arora

278. Studies in 19th Century Spanish American Literature.
Meets two hours weekly. Prerequisite: course 239.
Mr. Sánchez-Reulet

280A-280D. Studies in Contemporary Spanish American Literature.
280A. Modernist Poetry.
Meets two hours weekly. Prerequisite: course 240.
The Staff
280B. Post-Modernist Poetry.
Meets two hours weekly. Prerequisite: course 243.
The Staff
280C. Novel and Short Story.
Meets two hours weekly. Prerequisite: course 244.
Mr. Reeve
280D. The Essay.
Meets two hours weekly. Prerequisite: course 245.
Mr. Sánchez-Reulet

M286A-286B-286C. Studies in Hispanic Folk Literature.
(Same as Folklore M286A-286B-286C.)
286A. The Romancero.
Meets two hours weekly. Prerequisite: course 222.
Mr. Rodriguez-Puértolas
286B. Narrative and Drama.
Meets two hours weekly. Prerequisite: course 239 or M249.
Mrs. Arora, Mr. Robe
286C. Ballad, Poetry and Speech.
Meets two hours weekly. Prerequisite: course M249.
Mrs. Arora, Mr. Robe

Professional Courses

310. The Teaching of Spanish in the Elementary School.
Meets three hours weekly. Prerequisite: course 115.
The Staff

370. The Teaching of Spanish in the Secondary School.
Meets three times weekly. Prerequisite: course 115.
The Staff

372. The Language Laboratory. (½ course)
Meets three hours weekly. Preparation of materials. Equipment, techniques, and problems related to the operation of the language laboratory.
Mr. Otero

M495. Teaching Methodology.
(Same as Portuguese M495.) Meets three hours weekly. Prerequisite: graduate standing. A critical analysis of currently used elementary texts aimed at developing a practical and eclectic teaching methodology. Preparation for teaching at the college and university level.
The Staff

Individual Study and Research

596. Directed Individual Study or Research. (1 to 2 courses)
Prerequisite: approval of graduate adviser and of Chairman of the Department. Study or research in areas or on subjects not offered as regular courses. Work evaluated on letter grade basis. No more than one full course may count toward the M.A. course requirement. Limited to a maximum of two full courses in any graduate program.
The Staff (F,W,Sp)

597. Preparation for Graduate Examinations. (1 to 2 courses)
Prerequisite: official acceptance of candidacy by the department, and approval of graduate adviser. Individual preparation for the comprehensive examination for the M.A. degree or the qualifying examinations for the Ph.D. degree. Graded satisfactory/unsatisfactory. May be taken only once for each degree examination.
The Staff (F,W,Sp)

598. Research for M.A. Thesis. (1 to 2 courses)
Prerequisite: consent of the guidance committee. Research in preparation of the master's thesis. Graded satisfactory/unsatisfactory.
The Staff (F,W,Sp)

599. Research for Ph.D. Dissertation. (1 to 2 courses)
Prerequisite: restricted to those who have passed the qualifying examinations for the doctor's degree. Research for and preparation of the Ph.D. dissertation. Graded satisfactory/unsatisfactory.
The Staff (F,W,Sp)

Portuguese

Preparation for the Major

Courses 3, 25, M42 and M44, or their equivalent.

The Major in Portuguese

Thirteen upper division courses distributed as follows: Seven required courses: 100, 103, M118, 120A, 120B, 121A, 121B. The remaining six courses may consist of six electives in Portuguese, or four electives in Portuguese plus two courses supportive of the student's program and approved by the department in history, philosophy, linguistics, or another language or literature.

General College Regulation. No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition.

Requirement for Teaching Credentials. Consult the UCLA ANNOUNCEMENT OF GRADUATE SCHOOL OF EDUCATION.

The Master's Degree in Luso-Brazilian Studies

General Requirements. See the Graduate Division. The Department favors the Comprehensive Examination Plan, but, with departmental approval, the Thesis Plan may be followed. See Thesis and Comprehensive Examination.

Departmental Requirements—Comprehensive Examination Plan. (1) Foreign Language Requirements: a reading knowledge of one other foreign language approved by the graduate adviser. Spanish is acceptable. This requirement must be met at least one quarter before the awarding of the degree. (2) Course Requirements: Nine upper division and graduate level courses of which a minimum of six will be graduate courses in the 200 series, including one seminar; two graduate courses in closely related fields may be taken with the approval of the graduate adviser; a maximum of three upper division courses, exluding those required or elective courses in the preparation of the major, may be taken. (3) The examination will be divided into three major parts. In the first, the student will be expected to show a general knowledge of the history and structure of the Portuguese language. In the second and third parts, the student will be expected to show a thorough acquaintance with the authors, works, and movements of both Portuguese and Brazilian literature, Reading lists which will constitute the basis for the second and third examinations will be available to the student. Only those students who pass these examinations with distinction will be encouraged to proceed to the candidacy for the Ph.D.

Departmental Requirements—Thesis Plan. (1) Guidance Committee: the preparation and examination of each candidate will be the responsibility of a guidance committee composed of three members of the Department. The chairman of the committee will be the instructor under whom the candidate proposes to write his thesis. The other two members will be appointed by the chairman of the Department after consultation with the candidate and the chairman of the committee. The committee members shall be appointed to represent three different fields of interest within the Department. No such committee shall be appointed before a candidate has completed one full quarter of work in graduate standing, including no less than two courses in the Department, of which at least one must be in the 200 series. (2) Foreign Language Requirement: the same as for the Comprehensive Examination Plan. (3) Course Requirements: same as for the Comprehensive Examination Plan, except that the student will be required to enroll in Portuguese 598, Research on Master's Thesis, which will count as one of the nine required courses. (4) Thesis and Examination: the subject and general plan of investigation for the thesis must be approved by the Department and the instructor concerned before a guidance committee can be appointed. After completion of the thesis, the candidate must pass a three-hour oral examination testing his knowledge of the field of his thesis and his general competence. A reading list which will constitute the basis for part of this examination will be available to the student. Only those students who pass these examinations with distinction will be encouraged to proceed to candidacy for the Ph.D.

Ph.D. Degree in Hispanic Languages and Literatures.

General Requirements. See the Graduate Division.

Lower Division Courses

1. Elementary Portuguese.
Meets five hours weekly; laboratory one hour.
The Staff

2. Elementary Portuguese.
Meets five hours weekly; laboratory one hour. Prerequisite: course 1 or equivalent.
The Staff

3. Intermediate Portuguese.
Meets five hours weekly; laboratory one hour. Prerequisite: course 2 or equivalent.
The Staff

8A-8B. Portuguese Conversation. (½ course each)
Meets three discussion hours weekly. Prerequisite: open to students who have completed Portuguese 3 with Grade B or better.
The Staff

25. Advanced Portuguese.
Meets four hours weekly. Prerequisite: course 3 or equivalent.
The Staff

M42. Civilization of Spain and Portugal.
(Same as Spanish M42.) Highlights of the Civilization of Spain and Portugal, with emphasis on their artistic, economic, social and historical development as background for upper division courses. Conducted in English. Required for the major.
Mr. Cruz-Salvadores

M44. Civilization of Spanish America and Brazil.
(Same as Spanish M44.) Highlights of the Civilization of Spanish America and Brazil with emphasis on their artistic, economic, social and historical development as background for upper division courses. Conducted in English. Required for the major.
Mrs. Arora, Mr. Reeve

Upper Division Courses

100. Phonology and Pronunciation.
Meets four hours weekly, including one hour in laboratory. Analysis of the phonetic and phonemic systems of Portuguese with special emphasis on the correlation between the phonemic and graphemic systems. Exercises and drills directed toward individual needs.
Mr. Dias

101A. Advanced Reading and Conversation.
Meets three hours weekly. Reading and discussion of writings by modern Brazilian and Portuguese authors.
Mr. Hulet

101B. Advanced Composition and Style.
Meets three hours weekly. Correction of student's composition and analysis of basic stylistic elements.
Mr. Hulet

102A-102B. Intensive Portuguese.
Prerequisite: advanced foreign language experience (other than Portuguese) or consent of the instructor. An intensive course stressing both speaking and reading skills designed to cover the equivalent of four quarters of the traditional pattern, to meet the peculiar needs of advanced (upper division and graduate) students who are specializing primarily in foreign languages, linguistics, comparative or romance literature.
The Staff

103. Syntax.
Meets four hours weekly. A review of the patterns of the Portuguese language: the verb system, syntax of prepostion, word pattern and word distribution.
Mr. Dias

M118. History of the Portuguese and Spanish Languages.
(Same as Spanish M118.) Meets four hours weekly. Prerequisite: Portuguese 100. Major features of the development of the Portuguese and Spanish languages from their origins in Vulgar Latin to modern times. Contributions of other languages to the formation of Portuguese and Spanish.
Mr. Dias, Mr. Otero, Mr. Smith

120A. Survey of Portuguese Literature.
Meets four hours weekly. First half of an introduction to the principal movements, authors, and works of Portuguese Literature.
Mr. Dias

120B. Survey of Portuguese Literature.
Meets four hours weekly. Second half of an introduction to the principal movements, authors, and works of Portuguese Literature.
Mr. Dias

121A. Survey of Brazilian Literature.
Meets four hours weekly. First half of an introduction to the principal movements, authors and works of Brazilian Literature.
Mr. Hulet

121B. Survey of Brazilian Literature.
Meets four hours weekly. Second half of an introduction to the principal movements, authors, and works of Brazilian Literature.
Mr. Hulet

124. Medieval Portuguese Literature.
The main genres of Medieval Portuguese and Galician literature with emphasis on at least one representative work for each.
Mr. Dias

126. Renaissance and Baroque Portuguese Literature.
The main genres of Renaissance and Baroque literature with emphasis on at least one representative work for each.
Mr. Dias

127. Colonial Brazilian Literature.
A study of the most important authors and literary currents to 1830.
Mr. Hulet

128. 18th and 19th Century Portuguese Literature.
The main manifestations of thought and literature from 1700 to 1900 with emphasis on representative works.
Mr. Dias

129. Romanticism in Brazil.
A study of representative trends and authors.
Mr. Hulet

135. Naturalism, Realism and Parnasianism in Brazil.
A study of representative trends and authors.
Mr. Hulet

136. Contemporary Portuguese Literature.
A study of representative trends and authors.
Mr. Dias.

137. Contemporary Brazilian Literature.
A study of representative trends and authors.
Mr. Hulet

199. Special Studies. (½ to 1 course)
Prerequisite: consent of adviser and instructor. A maximum of two full courses may count toward the major.
The Staff

Graduate Courses

M200. Bibliography.
(Same as Spanish M200.) Meets three hours weekly. Identification and analysis of bibliographical sources for work by doctoral candidates in their fields of specialization.
Mr. Benitez, Mr. Rodriguez-Cepeda

M201. Literary Criticism.
(Same as Spanish M201.) Meets three hours weekly. Definition and discussion of methods of literary criticism.
Mr. Benitez, Mr. Otero

M201A-203B. The Development of the Portuguese and Spanish Languages.
(Same as Spanish M203A-M203B.) Prerequisite: course 100 and 118 or consent of instructor. Intensive study of the historical development of the Portuguese and Spanish languages from their origin in spoken Latin.
Mr. Otero

242A. Medieval and Renaissance Literature.
Meets two hours weekly. Prerequisite: consent of the instructor. Special topics in Portuguese Literature.
Mr. Dias

242B. 18th and 19th Century Literature.
Meets two hours weekly. Prerequisite: consent of the instructor. Special topics in Portuguese Literature.
Mr. Dias

242C. 20th Century Literature.
Meets two hours weekly. Prerequisite: consent of the instructor. Special topics in Portuguese Literature.
Mr. Dias

243A. Colonial Literature.
Meets two hours weekly. Prerequisite: consent of the instructor. Special topics in Brazilian Literature.
Mr. Hulet

243B. 19th Century Literature.
Meets two hours weekly. Prerequisite: consent of the instructor. Special topics in Brazilian Literature.
Mr. Hulet

243C. 20th Century Literature.
Meets two hours weekly. Prerequisite: consent of the instructor. Special topics in Brazilian Literature.
Mr. Hulet

M249. Hispanic Folk Literature.
(Same as Folklore and Spanish M249.) Meets three hours weekly. An intensive study of folk literature.
Mrs. Arora, Mr. Robe

M251. Studies in Galegan-Portuguese and Old Spanish.
(Same as Spanish M251.) Prerequisite: course M203A-M203B. Problems related to the historical development of Galegan-Portuguese and old Spanish.
Mr. Otero

252A. Special Studies in Portuguese Literature: The Novel.
Meets two hours weekly. Prerequisite: consent of instructor.
Mr. Dias

252B. Special Studies in Portuguese Literature: The Poetry.
Meets two hours weekly. Prerequisite: consent of instructor.
Mr. Dias

252C. Special Studies in Portuguese Literature: The Theater.
Meets two hours weekly. Prerequisite: consent of instructor.
Mr. Dias

252D. Special Studies in Portuguese Literature: The Short Story and Essay.
Meets two hours weekly. Prerequisite: consent of instructor.
Mr. Dias

253A. Special Studies in Brazilian Literature: The Novel.
Meets two hours weekly. Prerequisite: consent of instructor.
Mr. Hulet

253B. Special Studies in Brazilian Literature: The Poetry.
Meets two hours weekly. Prerequisite: consent of instructor.
Mr. Hulet

253C. Special Studies in Brazilian Literature: The Theater.
Meets two hours weekly. Prerequisite: consent of instructor.
Mr. Hulet

253D. Special Studies in Brazilian Literature: The Short Story and Essay.
Meets two hours weekly. Prerequisite: consent of instructor.
Mr. Hulet

370. The Teaching of Portuguese in the Secondary School.
For future teachers in this field.
Mr. Hulet

M495. Teaching Methodology.
(Same as Spanish M495.) Meets three hours weekly. Prerequisite: graduate standing. A critical analysis of currently used elementary texts aimed at developing a practical and eclectic teaching methodology. Preparation for teaching at the college and university level.
The Staff

Individual Study and Research

596. Directed Individual Study or Research. (1 to 2 courses)
Prerequisite: approval of graduate adviser and of Chairman of the Department. Study or research in areas or on subjects not offered as regular courses. Work evaluated on letter grade basis. No more than two full courses may count toward the M.A. course requirement. Limited to a maximum of three full courses in any graduate program.
The Staff

597. Preparation for Graduate Examination. (1 to 2 courses)
Prerequisite: official acceptance of candidacy by the department, and approval of graduate adviser. Individual preparation for the comprehensive examination for the M.A. degree. Graded satisfactory/unsatisfactory. May be taken only once.
The Staff

598. Research for M.A. Thesis. (1 to 2 courses)
Prerequisite: consent of the guidance committee. Research in preparation of the master's thesis. Graded satisfactory/unsatisfactory.
The Staff

599. Research on Dissertation. (½ to 2 courses)
Research for and preparation of the doctoral dissertation. Restricted to those who have passed the Qualifying Examinations for the doctor's degree. Graded S/U.
The Staff

■ SPEECH

(Department Office, 232 Royce Hall)

Donald Erwin Hargis, Ph.D., *Professor of Communication Studies.*

Waldo Woodson Phelps, Ph.D., *Professor of Speech.*

Harrison Manly Karr, Ph.D., *Emeritus Professor of Speech.*

Charles Wyatt Lomas, Ph.D., *Emeritus Professor of Communication Studies.*

Daniel Vandraegen, Ph.D., *Emeritus Professor of Speech.*

Ralph Richardson, Ph.D., *Associate Professor of Speech.*

Paul Irwin Rosenthal, Ph.D., *Associate Professor of Communication Studies (Chairman of the Department).*

♦

Harry Howell III, Ph.D., *Lecturer in Speech.*

The Department of Speech is in the process of being phased out and is no longer offering degree programs. The courses listed below are offered by the faculty as a service to the general instructional program of the University.

Lower Division Courses

1. Principles of Oral Communication.
Prerequisite: Subject A. Theory and practice of informal public speaking, including selection of content, organization of ideas, language and delivery; practice in extemporaneous and manuscript speaking; training in critical analysis through reading and listening to contemporary speeches.
The Staff

2. Public Speaking and Discussion.
Prerequisite: course 1. A continuation of course 1, with special emphasis on group discussions, panels, symposia, debates, and formal public speaking. Critical analysis of speeches in both contemporary and historical settings.
The Staff

Upper Division Courses

101. Introduction to Public Address.
Analysis of rhetorical principles. Application to informative and persuasive speaking, to problem-solving discussion, and to the criticism of contemporary speeches. Open to upper division students who do not have credit for Speech 1 and 2. May not be counted as part of upper division major.
The Staff

103. Phonetics of English.
A study of the physical production and acoustic characteristics of the sounds of American English.
Mr. Hargis

107. Principles of Argumentation.
Analysis of propositions, tests of evidence, briefing. Study of hindrances to clear thinking, ambiguity of terms, and prejudices. The critical analysis of selected argumentative speeches.
Mr. Howell

108. The Deliberative Process.
The nature and function of deliberative speaking in public meetings and parliamentary bodies. Rules of parliamentary speaking. Parliamentary debate on public issues. Critical analyses of selected speeches.
The Staff

109. Principles of Audience Analysis.
Theory of audience analysis and adaptation. Preparation and delivery of the occasional speech.
Mr. Phelps

112. Oral Interpretation of Literature.
A study of the literary, aesthetic, and oral bases for the analysis of communication of (112A.) prose and (112B.) poetry.
Mr. Hargis

113. Readers Theater.
The concepts and practices of the oral interpretation of non-dramatic literature within the framework of the readers theater. Lectures, readings, reports, and performance practice.
Mr. Hargis

137A-137B. American Public Address.
Critical study of speeches by leading American orators. Relationships of speakers to issues and social movements of their day.
137A. Colonial period to 1865; 137B. 1865-1930.
Mr. Richardson

138. Contemporary American Public Address.
Critical study of American oratory from 1930 to the present with emphasis upon movements and issues such as the Depression, World War II, Civil Rights, and the Cold War, etc. Selected foreign speakers are studied insofar as they affect American issues.
Mr. Phelps

M144. Speech and Community Action.
(Same as CPS M144.) Consent of the instructor required. An intensive laboratory-based, observation-oriented study of speech and communication practices of action groups, protest groups, and public officials involved with the metropolitan Los Angeles urban crises.
Mr. Richardson

170. Rhetoric of Winston Churchill.
An intensive study of the speeches of Winston-Churchill during the wilderness years the 30's and during the wartime years. The background and the impact of these speeches also are examined.
Mr. Phelps

175. The Speeches of Abraham Lincoln.
Students will be introduced to the full span of Lincoln's speaking career. His methods of preparation, the influence of associates, his style, his delivery, and lastly, his effect upon the nation will be studied.
Mr. Richardson

190A-190B. Forensics. (½ course each)
Prerequisite: consent of the instructor. May be repeated once for credit.
The Staff

191. Analysis and Briefing. (½ course)
Intensive study of selected political or social issues; preparation of bibliography; analysis and evaluation of issues and arguments. May be repeated once for credit.
The Staff

197. Proseminar in Rhetoric: The Rhetoric of Harry Truman.
Prerequisite: consent of instructor. An intensive study of the rhetoric of Harry Truman with major emphasis on the 1948 presidential campaign. Tapes of major campaign speeches and of the Whistle Stops will be played and analyzed. Public opinion and impact data will be presented and discussed. Selected speeches of Dewey will be included. Students will write a term paper and take a final examination.
Mr. Phelps

199. Special Studies. (½ to 1 course)
Prerequisite: senior standing and consent of instructor.
The Staff

Graduate Courses

237. Modern Rhetorical Theory; 1850 to the Present.
Mr. Phelps, Mrs. Rich

Individual Study and Research

596. Directed Individual Study or Research. (½ to 1 course)
The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree or for the Qualifying Examination for the Ph.D. (½ to 1 course)
The Staff

599. Research for and Preparation of the Doctoral Dissertation. (¼ to 2 courses)
The Staff

Professional Course in Methods

370. The Teaching of Speech in the Secondary School.
Required of candidates for the general secondary credential with the major or minor in speech.
Mr. Phelps

490. Exposition for College Teaching.
The nature of oral communication, its theory and application; preparation and delivery of information; observation and critical evaluation of oral communication experiences. Closed circuit television for various communication projects.
Mr. Phelps

495. Teaching Rhetoric in Colleges and Universities.
Study of problems and methodologies associated with teaching rhetorical communication. Includes observation of selected classroom situations.
Mr. Richardson

■ STATISTICS

Studies in statistics and related areas are possible in various academic departments. Detailed information may be found in the announcements of the individual departments listed below.

Anthropology

Course in statistical methods.

Biomathematics

Stochastic models in biology.

Economics

Upper division and graduate offerings in econometrics.

Education

Graduate offerings in experimental design and in measurement.

Engineering

Upper division and graduate offerings in statistics and probability.

Management

Master of Science and Ph.D. degree programs with specialization in business statistics offered by the Quantitative Methods Division.

Mathematics

Probability and statistics available as a field in the Ph.D. program in mathematics and the applied mathematics program.

Pharmacology

Bioassay.

Political Science

Upper division course in quantitative methods.

Psychology

Course work in statistics, factor analysis, scaling.

Public Health

Introductory and advanced courses in biostatistics. A Master of Science and Ph.D. degree in Biostatistics is given by the Biostatistics Division.

Sociology

Offerings in statistics, measurement, demography.

■ SUBJECT A: ENGLISH COMPOSITION

(Department Office, 306 Royce Hall)
Everett L. Jones, M.A., *Supervisor of Instruction in Subject A.*

Subject A. (No credit)

Fee, $45.00. Four hours weekly for one quarter. Although this course yields no credit, it displaces 4 units on the student's program. Every student who does not satisfy the Subject A requirement by presenting transfer credit or by passing an acceptable examination is required to take, in the quarter immediately following his admission to the University, the course in Subject A. Sections are limited to thirty students. Training in correct writing, including drill in sentence and paragraph construction, diction, punctuation, usage, and spelling. Weekly compositions and written tests on the text.
The Staff

■ THEATER ARTS

(Department Office, 2310 Macgowan Hall)
Robert F. Corrigan, M.A., *Professor of Theater Arts.*
Arthur B. Friedman, Ph.D., *Professor of Theater Arts.*
Henry Goodman, Ph.D., *Professor of Theater Arts.*
Michael Gordon, M.F.A., *Professor of Theater Arts.*
Richard C. Hawkins, M.A., *Professor of Theater Arts.*
Edward Hearn, M.A., *Professor of Theater Arts.*
Melvyn B. Helstien, Ph.D., *Professor of Theater Arts.*
John H. Jones, M.A., *Professor of Theater Arts.*
Walter K. Kingson, Ed.D., *Professor of Theater Arts.*
Darrell E. Ross, M.F.A., *Professor of Theater Arts.*
Abe V. Wollock, Ph.D., *Professor of Theater Arts.*
John W. Young, M.A., *Professor of Theater Arts (Chairman of the Department).*
Walden P. Boyle, Ph.D., *Emeritus Professor of Theater Arts.*
Hugh J. Gray, Ph.D., *Emeritus Professor of Theater Arts.*
William W. Melnitz, Ph.D., *Emeritus Professor of Theater Arts.*
George M. Savage, Ph.D., *Emeritus Professor of Theater Arts.*

Samuel Selden, Litt.D., *Emeritus Professor of Theater Arts.*
William B. Adams, M.A., *Associate Professor of Theater Arts.*
John R. Cauble, M.A., *Associate Professor of Theater Arts.*
Donald B. Crabs, M.A., *Associate Professor of Theater Arts.*
William Froug, B.J., *Associate Professor of Theater Arts.*
Robert H. Hethmon, Ph.D., *Associate Professor of Theater Arts.*
James Kerans, Ph.D., *Associate Professor of Theater Arts.*
Frank D. LaTourette, M.Litt., *Associate Professor of Theater Arts.*
William H. Menger, M.A., *Associate Professor of Theater Arts.*
Carl R. Mueller, Ph.D., *Associate Professor of Theater Arts.*
Ruth E. Schwartz, Ph.D., *Associate Professor of Theater Arts.*
Louis C. Stoumen, B.A., *Associate Professor of Theater Arts.*
Howard Suber, Ph.D., *Associate Professor of Theater Arts.*
Gary A. Gardner, Ph.D., *Assistant Professor of Theater Arts.*
Stephen D. Mamber, Ph.D., *Assistant Professor of Theater Arts.*
William D. Ward, M.F.A., *Assistant Professor of Theater Arts.*
_____, *Assistant Professor of Theater Arts.*

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Theodore Apstein, Ph.D., *Lecturer in Theater Arts.*
John D. Boehm, M.A., *Lecturer in Theater Arts.*
David S. Bradley, B.A., *Lecturer in Theater Arts.*
Edgar L. Brokaw, B.A., *Lecturer in Theater Arts.*
Gordon Davidson, M.A., *Lecturer in Theater Arts.*
Anthony DeLongis, B.A., *Lecturer in Theater Arts.*
Hugh L. Grauel, M.A., *Lecturer in Theater Arts.*
H. Peter Guber, LL.M., *Lecturer in Theater Arts.*
John Ingle, M.A., *Lecturer in Theater Arts.*
Robert E. Lee, D.Litt., *Lecturer in Theater Arts.*
Mark McCarty, M.A., *Lecturer in Theater Arts.*
Dan F. McLaughlin, M.A., *Lecturer in Theater Arts.*
Sylvia E. Moss, B.A., *Lecturer in Theater Arts.*
Maidie R. Norman, B.A., *Lecturer in Theater Arts.*
Thomas J. Orth, M.F.A., *Lecturer in Theater Arts.*
Robert Rosen, M.A., *Lecturer in Theater Arts.*
Delia N. Salvi, Ph.D., *Lecturer in Theater Arts.*
Robert Trachinger, *Lecturer in Theater Arts.*
Lyne S. Trimble, M.S., *Lecturer in Theater Arts.*
Frank A. Valert, *Lecturer in Theater Arts.*
George Van Buren, *Lecturer in Theater Arts.*
Charles Vernon, *Lecturer in Theater Arts.*
William T. Wheatley, Ph.D., *Lecturer in Theater Arts.*
Margaret L. Wilbur, M.F.A., *Lecturer in Theater Arts.*

The Department of Theater Arts bases its work in theater, motion pictures, and television on a solid foundation in the liberal arts. The purpose of the curriculum is to develop in its students a scholarly, creative and professional approach to the theater arts. The aim of the Department is to train graduates who will eventually make original contributions in the field of their work.

The student majoring in theater arts must complete the requirements of the College of Fine Arts and the requirements under one of the three specializations: theater, secondary teaching credential, motion picture/television.

Preparation for the Major

Theater. Courses 5A-5B-5C, 10, 20 and English 90.

Secondary Teaching Credential. Courses 5A, 5B, 5C, 10, 20 and English 90.

Motion Picture/Television Specialization. Students electing to specialize in motion picture/television for their B.A. degrees should complete the general University and College Requirements before entering the program.

The Major

Theater. Courses 130A, 140A, 141A, 142A, 143A, 160A, 170, 172 (repeated four times), two units chosen from 122, 144A, 146B, 149A, 174, 190A or 190B; and 24 units of approved upper division Theater Arts electives, to bring the total to 60 upper division units. Through certain required courses listed above, all students during each quarter of residence are responsible for completing specific production assignments related to production activity of the Theater curriculum.

Secondary Teaching Credential. Courses 100, 130A, 140A, 141A, 142A, 143A, 160A, 160B or 161, 170, 172 (repeated four times), two units chosen from 122, 144A, 146B, 149A, 174, 190A or 190B; and 16 or 18 units of approved upper division Theater Arts electives, to bring the total to 60 units. In addition to the above program, the student must interview a credential adviser in the Graduate School of Education concerning required courses in education, a teaching minor and the year of graduate study.

Motion Picture/Television. Admission to this specialization is not automatic. Applicants may not apply until just prior to achieving full status as a Junior in the University. They must obtain departmental permission by 1) filing a letter of intention; 2) giving evidence of creative or critical ability when requested; 3) and provide additional material as determined by the department.

No student in Motion Picture/Television may begin the major, consisting of 60 upper division units, before the Junior year, and during their Junior and Senior years they must take 108, 134, 179A (double course), 185, 2 courses selected from 106A, 106B, 106C, 106D, 106E, and 110, and one upper division course chosen from the history, theory, and/or criticism course listings in Theater Arts. It is recommended that the majority of these required courses be completed during the Junior year.

In addition to the required courses, students must take a minimum of 28 units of upper division Motion Picture/Television electives which may include advanced classes in the fields of filmmaking, writing, animation, television production, news and documentary, and critical studies. Students must consult with the Department undergraduate counselor to plan a program. Admission to advanced classes frequently requires consent of the instructor or senior standing. The student should be mindful of the exigencies inherent in filmmaking, and be prepared to meet the additional demands of time and costs.

NOTE: Students are required to perform assignments on each other's projects. In addition, the Department of Theater Arts reserves the right to hold for its own purposes, examples of any work done in classes and to retain for distribution such examples as may be selected.

Admission to Graduate Status

Most areas in the Department of Theater Arts accept students into the Graduate Program in the Fall Quarter only. However, the M.A., and Ph.D. programs in Motion Picture/Television may consider applications for admission at other times, depending on available openings. Consult the Department for further information.

In addition to meeting the general requirements of the Graduate Division, the student will usually be expected to have completed his or her bachelor's degree in theater arts or its equivalent. Students whose theater arts preparation is deficient, as determined by the appropriate admissions committee, will be required to take work additional to the degree program to make up such deficiencies.

The applicant who has done his or her preparatory work elsewhere must provide the Department with the results of certain diagnostic tests and letters of reference. Further information should be obtained from the Graduate Secretary of the Department at least eight months prior to the beginning of the quarter in which the student plans to enroll.

A student pursuing a M.A. degree in Motion Picture/Television may, at the option of the Critical Studies Committee, be required to demonstrate competence in a foreign language if necessary to support the research in the student's area of specialization.

Requirements for the Master of Arts Degree

In planning a course of study, the student will place his or her emphasis on theater, motion pictures or television.

Theater. The Theater Program follows the Thesis Plan. This program requires the completion of a minimum of nine and one-half courses (38 units) in at least one year (three quarters) of intensive study and laboratory exercises and research leading to the completion of a written thesis in the history, aesthetics, criticism or techniques of theater. The student in Theater is required to take an active part in the production program of the Department as partial fulfillment of the degree requirements. The required courses

are 171A or 171B, 200 and 245A-245B. After being advised, the student will select six courses, including one from each of the following two groups: Group I: 201, 205A or 205B; Group II: 213, 240, 241, 290A or 290B. A handbook of regulations for the M.A. in Theater may be obtained from the Graduate Secretary of the Department.

Motion Picture/Television. The Motion Picture/Television Program follows the Comprehensive Plan. The general requirements are: (1.) Completion of a minimum of nine courses, five of which must be 200 level courses in film and/or television history, theory, criticism, and in addition one course in research methodology, all of which must be completed with grades of "B" or better; the specific courses are selected in consultation with an advisor; (2.) Passing of a two-part Comprehensive Examination, the first part of which consists of a written test of a broad body of knowledge and the second part of which consists of a scholarly essay of some fifty pages dealing with an area of specialization chosen by the student in consultation with the faculty; (3.) Demonstration, by submission of the student's personally created film, television program, and script, of his or her knowledge of the basic skills of production and scriptwriting.

Students who have completed the B.A. program in Motion Picture/Television at UCLA will already have demonstrated their basic knowledge of production, scriptwriting, and history. Students entering the program from elsewhere may submit for consideration film and television work done at other universities - confirmed by the instructors originally involved as the student's personal work - as evidence of their history background and their production and scriptwriting competence. Or, alternatively, students may be required to take such courses as will fulfill these requirements, though these courses will not count towards the minimum of nine courses required for the M.A. degree. The student's program will be determined in consultation with an advisor and is subject to the approval of the Critical Studies Committee. The Comprehensive Examination will reflect course work, individual interests, and a broad knowledge of film and/or television. Students will be provided with guidelines and a suggested bibliography and filmography by the Department. Part I of the Comprehensive Examination, testing the student's breadth of knowledge, may be taken no earlier than the end of the third quarter of residence or its equivalent and no later than the end of the fifth quarter of residence or its equivalent.

Concurrently with their efforts to obtain a broad understanding of film and television studies, students will develop an area of specialization requiring intensive individual work. Part II of the Comprehensive Examination consists of the writing of a scholarly essay of some fifty pages under faculty guidance on this specialized topic. The essay must be completed and approved by the Critical Studies Committee no later than two quarters after the student has completed Part I of the Comprehensive Examination. Upon completion of both Parts I and II of the Comprehensive Examination, the Critical Studies Committee will render one of the following judgments: (1.) Pass with Distinction; 2. Pass; 3. Fail. If one or more sections of Part I of the examination are not passed, the student may repeat such parts one more time in the following quarter. The maximum residency allowed for this program is seven quarters.

Master of Fine Arts Degree

The Department offers a two-year program leading towards an M.F.A. degree in either theater, motion pictures or television. (See below for requirements by subject area.) In addition to formal courses the student must complete certain projects in writing, direction, acting, design or technical direction.

For admission to the program a student must have completed the UCLA undergraduate program in theater arts in the area of his proposed specialization, or its equivalent. Candidates for the M.F.A. programs in theater or motion picture/television must provide a portfolio of creative work. Students with a portfolio may be admitted to the program with deficiencies when an undergraduate degree has been completed in some field other than theater arts, or when an undergraduate degree in theater arts has had different requirements. In such cases the student can anticipate spending some time in limited status while removing the deficiencies.

Theater. The Department of Theater Arts follows the Comprehensive Plan for the M.F.A. in theater. The M.F.A. projects may be in writing, direction, scenic design, costume design, acting, technical direction, puppetry or management, and a candidate must arrange with his adviser a program of a minimum of 18 courses which involve him in the successful completion of required work and his project series. A handbook of regulations for the M.F.A. in the theater may be obtained from the graduate secretary of the Department.

Motion Picture/Television. The M.F.A. in motion pictures or television can be taken in either filmmaking, television production or writing. There is a minimum residence of two years. A program of a minimum of 18 courses must be arranged with a graduate adviser.

1. *Filmmaking.* The base of this program is the B.A. in motion picture production at UCLA or its equivalent (see undergraduate programs above).

2. *Television Production.* The base of this program is the B.A. in television at UCLA or its equivalent (see undergraduate programs above).

Students entering motion picture/television graduate studies from other disciplines or other institutions may be required to take make-up courses in deficient areas. Additional courses will be determined in consultation with a graduate adviser. The end projects at the graduate level will be one or more major productions, demonstrating originality and the creative ability of the student as well as his professional mastery of the medium.

3. *Writing.* The base of this program is successful completion of an undergraduate program in writing (see UCLA requirements under description of undergraduate curriculum). The thesis project will be a feature length script, a one-hour television script, or an equivalent amount of writing, in fictional or documentary forms.

In addition to the filmmaking, television production, and writing specializations, there are other programs available to the student seeking the M.F.A. degree. Entrance into these programs requires faculty approval.

Doctor of Philosophy Degree in Theater Arts

The program of study for the Ph.D. in Theater Arts has two specializations: studies of history, theory and criticism in Theater and studies of history, theory and criticism in Motion Picture/Television. One foreign language is required and other languages are demanded if needed for the individual's studies and dissertation subject.

A limited number of students will be accepted each year for the Ph.D. in Theater Arts. Admission will depend both on scholarship and evidence of professional competence in the applicant's chosen specialization. Proof of completion of a M.A. or M.F.A. degree is required; for the theater program this degree must have been achieved in theater.

Italian Majors please note under Italian Department listing for Area Studies in Theater courses.

Lower Division Courses

THEATER AREA

5A. History and Drama of the Theater from Primitive Times to 1640.

Lecture, three hours; discussion, one hour. Required of theater specialization and secondary teaching credential majors. The history of the influence of different cultures, traditions and technologies on the development of theater as a social institution.

Mr. Mueller

5B. History and Drama of the Theater from 1640 to 1900.

Lecture, three hours; discussion, one hour. Required of theater specialization and secondary teaching credential majors. The history of the influence of different cultures, traditions and technologies on the development of theater as a social institution.

Mr. Mueller

5C. History and Drama of the Theater from 1900 to the Present.

Lecture, three hours; discussion, one hour. Required of theater specialization and secondary teaching credential majors. The history of the influence of different cultures, traditions and technologies on the development of theater as a social institution.

Mr. Mueller

10. Fundamentals of Theater Production.

Lecture, three hours; laboratory, three hours. Required in the first quarter of residency for theater arts majors specializing in theater and general secondary credential. A basic study of the relationship of acting, stage management, scenery, lighting, costume and sound to the production of the play. Emphasis will be placed on the planning, procedures, materials, equipment and disciplines of theater production.

20. Acting Fundamentals.

Lecture/laboratory, four hours. Required of theater specialization, and secondary teaching credential majors. An introduction to the interpretation of drama through the art of the actor. Development of individual insights, skills, and disciplines in the presentation of dramatic material to an audience.

Upper Division Courses

THEATER AND GENERAL SECONDARY CREDENTIAL AREAS

100. The Teaching of Theater.

Lecture, three hours. Prerequisites: 160A and 160B or consent of instructor. Required of theater specialzation secondary teaching credential majors. Study of current methods and problems of production as related to the secondary level.

Mr. Ingle

101. Introduction to Theater Arts. (½ course)

Lecture, two hours; laboratory, two hours. Not open for credit to theater arts majors. A survey of theater, motion pictures, television and radio, together with critical analysis of their roles in contemporary culture, leading to an appreciation and understanding of the theater arts. A nontechnical presentation for the general student. To be taken on a Pass/Not Pass basis only.

102A. Selected Topics on the History of the European Theater.

Lecture, three hours. Prerequisite: course 5A or the equivalent and/or consent of the instructor. An investigation in-depth of a selected area of study in theater history from the Greeks through the Renaissance. May be repeated for a maximum of 12 units of credit.

Mr. Mueller

102B. Selected Topics on the History of the European Theater.

Lecture, three hours. Prerequisite: course 5B or the equivalent and/or consent of the instructor. An investigation in-depth of a selected area of study in theater history from the Baroque to the present. May be repeated for a maximum of 12 units of credit.

Mr. Mueller

102D. History of the European Theater.

Lecture, three hours. Prerequisite: consent of the instructor. A survey of the development of the theater from the Greeks to the present. May not be taken for credit by students who have had more than one course form the 5A, 5B, and 5C series.

Mr. Mueller

102E. Theater of the Non-European World.

Lecture, three hours; discussion, one hour. A survey of theater forms of the non-European world in which primary attention will be concentrated on an examination and analysis of the traditional dance-drama and puppet theaters of East Asia, Southeast Asia, South Asia, the Middle East and Africa. Analogous forms from European theater will be included for comparative purposes.

Mr. Helstien

103A. Black People's Theater in America, Slavery to 1930.

Lecture, three hours. An exploration of all extant materials on the history and literature of the theater as developed and performed by Black artists in America from Slavery to 1930.

Ms. Norman

103B. Black People's Theater in America, 1930 to the Present.

Lecture, three hours. An exploration of all extant materials on the history and literature of the theater as developed and performed by Black artists in America from 1930 to the present.

Ms. Norman

104A. History of the American Theater.

Lecture, three hours. The history of the American theater from the Revolutionary War to WWI.

Mr. Hethmon

104B. History of the American Theater.

Lecture, three hours. The history of the American theater from WWI to the present.

Mr. Hethmon

105. Main Currents in Theater.

Lecture, three hours. Prerequisite: consent of instructor. Critical examination of the leading theories of theater from 1887 to the present. Study and discussion of modern styles of production.

Mr. Mueller

117. The Puppet Theater. (½ course)

Lecture/laboratory, four hours. Prerequisite: 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 productions as laboratory practice. May be repeated for a maximum of six units credit.

Mr. Helstien

118A. Creative Dramatics.

Lecture/laboratory, four hours. Studies of the principles and procedures of the improvisational approach to drama as done with children from nursery school to Junior High.

118B. Advanced Creative Dramatics. (½ course)

Discussion, one hour; laboratory, two hours. Prerequisites: course 118A or consent of instructor. Practical application of the methods and principles introduced in 118A. May be repeated for a maximum of six units.

119. Theater for the Child Audience.

Lecture/laboratory, four hours. Principles of production and performance for the child audience.

120. Acting for the Stage.

Lecture/laboratory, four hours. Prerequisites: course 20 and consent of instructor. Study and practice of the art of acting through scenes from dramatic literature throughout the ages. May be repeated for a maximum of 12 units. No student may receive more than 12 units of credit for any combination of courses 120, 120A-120B-120C, 121A-121B-121C, and/or 137A-137B-137C.

122. Make-up for the Stage. (½ course)

Studio, two hours. The art of make-up and its relation to the production as a whole. History, aesthetics, materials, and procedures of make-up.

Mr. Jones

124. Voice for the Stage.

Lecture/laboratory, six hours. Prerequisite: consent of instructor. Development of voice techniques for the stage. Includes work on relaxation, limbering, breathing, articulators, and resonators.

Ms. Wilbur

125. Movement for the Actor.

Lecture/laboratory, six hours. Physical awareness for the actor, concentrating on warming up the body, relaxation, control, stunts and gymnastics.

Mr. Orth

130A. Fundamentals of Playwriting I.

Lecture, three hours. Required of theater specialization and secondary teaching credential majors. Course designed to stimulate the student's critical and creative faculties through the preparation of original material for the theater. Guidance in the completion of a one-act play.

Mr. Gardner

130B. Fundamentals of Playwriting II.

Lecture, three hours plus conference. Prerequisites: course 130A and consent of writing staff. Study in original material for the theater, its preparation and development. The course is designed to give further insight into the critical and creating aspects of the short and full-length play and guidance in the completion of the one act and full-length play. May be repeated for a maximum of twelve units credit.

Mr. Gordon

132. Manuscript Evaluation for the Theater.

Lecture, three hours. Prerequisite: course 130A and consent of the instructor. May be repeated for a maximum of eight units. Principles and practices in the evaluation of manuscripts for theater.

Mr. Gordon

136. Intermediate Acting for the Stage.

Lecture/laboratory, four hours. Prerequisites: course 20, upper division standing and consent of instructor. Designed for students as an evaluation course for entrance into the continuum course in acting. Not open for credit to students who have taken 120C.

137A-137B-137C. Continuum Study in Acting for the Stage.

Lecture/laboratory, four hours. Prerequisite: consent of instructor. The technique of characterization and performance in advanced and complex acting styles. No student may receive more than 12 units of credit for any combination of 120, 120A-120B-120C, 121A-121B-121C and/or 137A-137B-137C.

138. Special Problems in Performance Techniques.

Lecture/laboratory, four hours. Prerequisite: consent of instructor. Study of complex problems in voice, movement and acting. May be repeated for a maximum of 12 units. Not open for credit for students who have taken 121D-121E-121F.

140A. Scenic Techniques for the Stage.

Lecture, three hours; laboratory, six hours. Prerequisites: course 10 and consent of instructor. Required of theater specialization and secondary teaching credential majors. An intensive study of scenic materials, construction techniques, production organization and the rigging of scenery. (Course 140A, 141A and 142A may be taken in any sequence, but not concurrently).

140B. Advanced Scenery for the Stage.

Lecture/laboratory, four hours. Prerequisite: course 140A. Advanced study of technical problems in staging theater productions, including design analysis and planning related to rigging, shifting and construction techniques.

141A. Lighting Techniques for the Stage.

Lecture, three hours; laboratory, six hours. Prerequisites: course 10 and consent of instructor. (Courses 141A, 140A, and 142A may be taken in any sequence, but not concurrently). Required of theater specialization and secondary teaching credential majors. An intensive study of theater lighting with emphasis on the relationship of lighting instruments and control equipment to lighting design.

Mr. Ward

141B. Advanced Lighting for the Stage.

Lecture/laboratory, four hours. Prerequisite: course 141A. The detailed study of stage lighting as an art, with emphasis given to design concepts. The interpretation of a script or score through the control of light and color in relation to actor and audience.

Mr. Crabs, Mr. Ward

142A. Theater Costuming Techniques.

Lecture, three hours; laboratory, six hours. Prerequisites: course 10 and consent of instructor. (Courses 142A, 140A, and 141A may be taken in any sequence, but not concurrently). Required of theater specialization and secondary teaching credential majors. The study of costumes analysis and the interpretation of theatrical costume design through the use of patterns, fabrics, and related costume materials.

Ms. Moss

142B. Advanced Costuming for the Stage.

Lecture, three hours; laboratory, four hours. Prerequisite: course 142A or consent of the instructor. Special problems in the procuring, designing, construction and management of costumes used in theatrical productions.

Ms. Moss

143A. Scenic Design for the Theater. (½ course)

Lecture, two hours. Prerequisites: course 10 and consent of instructor. Required of theater specialization and secondary teaching credential majors. Basic principles of design as applied to the interpretation and presentation of the visual aspects of dramaturgy. Study of styles, techniques and methods of design for the theater arts. The translation of ideas into visual forms.

Mr. Corrigan, Mr. Crabs

143B. Advanced Scenic Design for the Theater.

Lecture, two hours; laboratory, four hours. Prerequisites: course 143A and consent of the instructor. Further study of the design of scenery for the theater, and translation of the design into actual visual form. Solving design problems for the complicated play. Consideration of experimental ideas, and the investigation of new materials.

Mr. Corrigan

144A. Theater Sound Techniques. (½ course)

Lecture, two hours; laboratory, two hours. Prerequisite: course 10 or approved equivalent. A study of the equipment and techniques utilized in the recording and reproduction of sound for the theater.

Mr. Ward

144B. Advanced Theater Sound.

Lecture, four hours; laboratory four hours. Prerequisite: course 144A or consent of the instructor. A detailed study of theater sound with emphasis on the composition and execution of theater sound tracks, recording techniques, and acoustic reinforcement.

Mr. Ward

145. Costume Design for Theater.

Lecture/laboratory, four hours. Prerequisite: consent of the instructor. Design of costumes for theatrical presentations. The study of the use of silhouette, fabrics, color, and decoration as related to theatrical characterizations.

Mr. Jones

146B. Scene Painting Techniques. (½ course)

Lecture/laboratory, three hours. Prerequisite: consent of the instructor. The study of scenic painting techniques and materials, and their relation to the realization of color design and elevations.

Mr. Corrigan

148. Special Courses in Design and Technical Theater.

Lecture, three hours. Prerequisite: consent of the instructor. Group study of selected subjects in design and technical theater. May be repeated for a maximum of 12 units. Not open for credit to students who have taken 148A-148B-148C.

149A. Basic Drafting Techniques for the Stage. (½ course)

Lecture/laboratory, tour hours. Prerequisite: course 10 or consent of instructor. Studies of the basic skills and techniques of drafting for the stage, through the execution of floor plans and elevation drawings.

Mr. Ward

149B. Advanced Drafting for Theater Arts.

Lecture/laboratory four hours. Prerequisite: course 149A or consent of instructor. An advanced course in the technical sketching and drafting of working drawings essential in the development of the design of sets and properties for theater, television and motion picture productions.

Mr. Corrigan

160A. Fundamentals of Play Direction.

Lecture/laboratory, four hours. Required of theater specialization and secondary teaching credential majors. Basic theories of play direction and their application through the preparation of scenes under rehearsal conditions.

Mr. Gordon, Mr. Helstien, Mr. Kerans

160B. Intermediate Play Direction. (½ course)

Lecture/discussion, two hours; laboratory, five hours. Prerequisite: course 160A and consent of the instructor. Required of theater arts majors with specialization in the secondary teaching credential. A course in the application of stage direction techniques to the one-act play. Each student will direct a one-act play to be performed under rehearsal conditions. Material will be drawn from published sources.

161. Advanced Play Direction.

Lecture, four hours; laboratory, six hours. Prerequisites: course 160A and consent of the instructor. May be substituted for 160B by a theater arts major with specialization in the secondary teaching credential. Special problems in the direction of original one-act plays under production conditions. May be repeated for a maximum of eight units credit, with consent of the instructor.

Mr. Hearn

170. Theater Laboratory.

Lecture, four hours; laboratory, eight hours. Prerequisites: courses 140A, 141A, 142A, and 143A. Required of theater specialization and secondary teaching credential majors. Laboratory in theater production under supervision. The translation of ideas and concepts into the dramatic form.

171A. Advanced Theater Laboratory. (½ or 1 course)

Hours to be arranged. Prerequisite: consent of the instructor. May be taken for a maximum of one course. Creative participation as an actor or stage manager in the public presentation of departmental productions.

171B. Advanced Theater Laboratory. (½ or 1 course)

Hours to be arranged. Prerequisite: consent of the instructor. May be taken for a maximum of one course. Creative participation in the realization of production elements related to the public presentation of department productions.

172. Technical Theater Laboratory. (½ course)

Hours to be arranged. Prerequisite: consent of the instructor. Required of theater specialization majors and secondary teaching credential majors. A laboratory in various aspects of theater production. The student must repeat the course four times, each assignment to be made in a different aspect of production. Maximum 8 units credit.

174. Techniques of Stage-Managing. (½ course)

Lecture, four hours. The professional duties of the stage manager. The problems of unions, professional auditions, organization, scheduling, out-of-town openings, Broadway openings, and the responsibilities of a lengthy run.

190A. The Role of the Producer in the Professional Theater. (½ course)

Lecture, two hours. A study of the structure governing the economic and artistic decision-making processes in the professional theater of America.

Mr. Cauble

190B. The Role of Management in the Educational and Community Theater. (½ course)

Lecture, two hours. A study of the artistic, social and economic criteria in the administration of educational and community theater.

Mr. Cauble

191. The Touring Company. (2 or 3 courses)

Lecture, 20 hours; laboratory, 22 hours. Prerequisite: consent of instructor. Rehearsal and technical preparation of a theatrical work for touring, and the performance of that work on tour.

Mr. Jones

MOTION PICTURE/TELEVISION AREAS

106A. History of the American Motion Picture.

Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. An historical and critical survey, with examples, of the American motion picture both as a developing art form and as a medium of mass communication. May be repeated for credit (maximum 2 courses) with departmental consent.*

Mr. Suber

106B. History of the European Motion Picture.

Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. An historical and critical survey, with examples, of the European motion picture both as a developing art form and as a medium of mass communication. May be repeated for credit (maximum 2 courses) with departmental consent.*

106C. History of African, Asian and Latin American Film.

Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. A critical, historical, aesthetic and social study together with an exploration of the ethnic significance of Asian, African, Latin American and Mexican films.

106D. The Development of Film in Europe and the United States: From WWI through the Depression.

Lecture/screening, eight hours; discussion, one hour. Prerequisite: consent of instructor. An interdisciplinary and comparative approach to the development of film in Europe and the United States from the silent era through the depression. Particular stress will be given to the interrelationship of film with its historical context and to the social dimensions of film structure, aesthetics, and language. (Part of two quarter sequence, that can be taken jointly or separately.) Not open for credit to students who have taken 198B in Winter Quarter, 1975.

Mr. Rosen

106E. The Development of Film in Europe and the United States: From WWII to the Present.

Lecture/screening, eight hours; discussion, one hour. Prerequisite: consent of instructor. An interdisciplinary and comparative approach to the development of film in Europe and the United States from the end of the 30's through the present. Particular stress will be given to the interrelationship of film with its historical context and to the social dimension of film structure, aesthetics, and language. (Part 2 of the two quarter sequence, but may be taken separately.) Not open for credit to students who have taken 198C in Spring Quarter, 1975.

Mr. Rosen

107. Experimental Film.

Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. A study and analysis of unconventional developments in the motion picture.

Mr. Suber

108. History of Documentary Film.

Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of instructor. The philosophy of the documentary approach in the motion picture. The

*Determined on basis of change in course content.

development of critical standards, and an examination of the techniques of teaching and persuasion used in selected documentary, educational, and propaganda films.

110. History of Television and Radio.

Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. Critical survey of television and radio history here and abroad. Consideration of the social responsibilities and educational implications of broadcasting.

Ms. Schwartz

111. Film Distribution and Exhibition.

Lecture, three hours; laboratory, to be arranged. Prerequisite: consent of instructor. History and theory of organization of theatrical and nontheatrical distribution and exhibition of motion pictures and analysis of their interrelationships with production practices.

112. Film and Social Change.

Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. The development of documentary and dramatic films in relations to and as a force in social development.

113. Film Authors.

Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. May be repeated for credit (maximum 2 courses) with departmental consent. *A study in depth of a specific film author (director or writer).

Mr. Bradley, Mr. Suber

114. Film Genres.

Lecture and screening, six hours; discussion, one hour. Prerequisite: Consent of the instructor. May be repeated for credit with departmental consent (maximum 2 courses). *Study of a specific film genre, e.g., the Western, the gangster cycle, the musical, the silent epic, the comedy, the social drama.

Mr. Bradley, Mr. Suber

115. Producers and Their Films.

Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. A consideration of the individual or corporate producers as they have affected the art and industry of the motion picture. Course content will vary, considering the work of a studio such as Paramount, Metro-Goldwyn-Mayer, Warner Brothers, etc. or of an individual such as Samuel Goldwyn, Stanley Kramer, Hal Wallis, etc. May be repeated for credit (maximum 2 courses).

116. Criticism.

Lecture, four hours; laboratory, to be arranged. May be repeated for credit (maximum 2 courses) with departmental consent.* Study of and practice in criticism for the theater, motion pictures and television.

126A. Advanced Acting for Television and Motion Pictures.

Laboratory, six hours. Prerequisite: course 20 or consent of the instructor. Projects in acting for television and motion pictures. Video tape recording of selected acting exercises and readings. May be repeated for credit for a maximum of 12 units.

126B. Broadcast Speech.

Laboratory six hours. Intensive study of effective speech for the actor, commentator and announcer in television and radio. Audio and video tape recording of selected acting exercises and readings.

Mr. Kingson

*Determined on basis of change in course content.

127. The Film Image.

Lecture, one hour; discussion, two hours; laboratory, one hour. Prerequisite: course 179A and consent of the instructor. Pro-seminar in the craft of film aesthetics. The Visual Revolution. Biophysical nature of perception. Lenses, perspective, graphic styles. Principles of composition, screenwriting, sound, editing. Problems of time and movement. How a director views his work and his world.

Mr. Stoumen

131. Non-Theatrical Motion Picture/Television Writing.

Discussion, three hours. Prerequisites: 179A and/or consent of instructor. A course in the research and writing of documentary, technical, educational, industrial and propaganda scripts. May be repeated for a maximum of three courses.

134. Motion Picture/Television Writing.

Discussion, four hours. Prerequisites: Admission to MP/TV major and consent of instructor. Introduces students to problems in motion picture/television writing and is required for advancement in the writing specialization.

135. Advanced Motion Picture/Television Writing. (2 courses)

Discussion, three hours. Prerequisite: course 134 and consent of instructor. A course in motion picture/television writing offered each quarter. Original motion picture/television material to be developed. May be repeated for a maximum of 24 units. No student may receive more than 24 units of credit for any combination of 135, 135A, 135B, 135C.

150A. Basic Motion Picture/Television Photography.

Lecture/laboratory, eight hours. Prerequisites: course 179A, restricted to Motion Picture/Television majors. Introduction to image control in film photography through exposure, lighting, and selection of film, camera, and lens. Supervised projects in photography to complement material covered in the lecture.

150B. Advanced Motion Picture/Television Photography.

Lecture, three hours: laboratory, to be arranged. Prerequisites: courses 150A, and consent of instructor; restricted to Motion Picture/Television majors. Supervised exercises in studio and location film photography to develop skill in lighting and management of the photographic process as applied to motion pictures and television. May be repeated for a maximum of 12 units.

151. Design for Motion Picures and Television.

Lecture, three hours; laboratory to be arranged. Prerequisites: course 179A and consent of instructor; restricted to Motion Picture/Television majors. The techniques of art direction. If the course is repeated, the student is required to design and complete a short film. May be repeated for a maximum of 12 units.

152A. Motion Picture/Television Sound Recording.

Lecture, six hours; laboratory, to be arranged. Prerequisites: course 179A, restricted to Motion Picture/Television majors. Introduction to principles and practices of motion picture and television sound recording, including supervised exercises.

152B. Motion Picture/Television Sound Re-Recording.

Lecture, six hours: laboratory, to be arranged. Prerequisites: course 152A and consent of the instructor; restricted to Motion Picture/Television majors. Introduction to re-recording studio procedures, including track and cue sheet preparation, and responsibilities and functions of the re-recording mixer. Course includes supervised practical exercises. May be repeated for a maximum of 12 units.

153C. Color Cinematography.

Lecture, three hours. Prerequisite: consent of instructor. History and theories of color photography with emphasis on present-day methods in motion picture and television production. A comparative study of additive and subtractive systems as employed by Technicolor, Ansco, Kodak, and others.

Mr. Trimble

154A. Motion Picture/Television Editing.

Lecture, three hours; laboratory, to be arranged. Prerequisites: course 179A, restricted to Motion Picture/Television majors. A study of the role of editing the fictional and nonfictional production with emphasis on the techniques and procedures used in manipulation of the visual image for both dynamic and continuity effects.

Mr. Broksw

154B. Motion Picture/Television Editing.

Lecture, three hours; laboratory—to be arranged. Prerequisites: courses 154A, and consent of the instructor; restricted to Motion Picture/Television majors. A study of the role of editing the fictional and nonfictional production with emphasis on the techniques and procedures used in manipulation of the sound track in sync dialog cutting, post-syncing, and music and sound effects cutting, including offscreen narration, dialogue substitution and playback tracks.

Mr. Broksw

154C. Motion Picture/Television Editing.

Lecture, three hours; laboratory, to be arranged. Prerequisites: courses 154B, and consent of the instructor; restricted to Motion Picture/Television majors. A study of the role of editing the fictional and non-fictional production with emphasis on the finishing stages including title preparation, the use of optical effects and blowups, preparation for and supervision of the mix, and the cutting of originals for single strand and A&B printing.

Mr. Broksw

163. Direction of Actors for Motion Pictures/Television.

Laboratory, six hours. Prerequisites: course 179A and consent of the instructor. Exercises in analysis of script and character for the purpose of directing actors in motion picture and television productions. Emphasis on eliciting the best possible performance from the actor. May be repeated for a maximum of 12 units credit.

Ms. Salvi

164. Direction for Motion Pictures.

Laboratory, to be arranged. Prerequisites: course 179A and consent of the instructor. A study of the problems faced by a motion picture director and various approaches to their solution. May be repeated for a maximum of 12 units credit.

165. Direction for Television.

Laboratory, six hours. Prerequisites: courses 134, 179A, 185 and 186A. Instruction and supervised exercises in television direction with emphasis on the creative use of cameras, sound, composition, and communication with those in front of and behind the camera. May be repeated for credit; maximum three courses.

167A-167B-167C. Television and Radio News Writing.

Discussion, three hours. Prerequisites: course 179A and consent of the instructor. Instruction and supervised exercises in writing radio and television news, features, editorials, and public affairs and documentary programs.

Mr. LaTourette

179A. Film Project 1. (2 courses)

Hours, to be arranged. Prerequisites: junior standing and completion of all lower division requirements of the University and the College of Fine Arts. Restricted to the Motion Picture/Television majors. The completion of a first film, including its writing, production and editing. Required in the Motion Picture/Television major.

Production Faculty

179B. Motion Picture Production. (1, 2 or 3 courses)

Hours to be arranged. Prerequisites: course 179A and consent of Production Faculty. The completion of a sync sound production, including its writing, production and editing, using synchronous sound recording equipment.

Production Faculty

179C. Motion Picture Production. (1, 2 or 3 courses)

Hours to be arranged. Prerequisites: course 179A and consent of Production Faculty. The completion of a post-sync sound production, including its writing, production and editing, using non-synchronous sound recording equipment.

Production Faculty

179D. Motion Picture Production.

Hours, to be arranged. Prerequisites: courses 179A and 179B or 179C, and consent of the instructor. A course to augment the production skills of students demonstrating difficulties in basic techniques. May not be repeated. May not be applied to the major.

Production Faculty

179E. Motion Picture/Television Production. (1 or 2 courses)

Hours to be arranged. Prerequisites: course 179A and consent of instructor. Completion of a group film or videotape production with three or more students collectively responsible for its conception, writing, direction and production.

180A-180B-180C. Workshop in Broadcast News and Documentary.

Discussion, three hours; laboratory, five hours. Prerequisites: course 179A and consent of the instructor. Instruction and supervised exercises in writing, reporting, editing, and producing radio and television news, public affairs, and documentary programs.

Mr. LaTourette

181A. Animation Design in Theater Arts.

Lecture, three hours; laboratory, three hours. Prerequisite: consent of the instructor. History and use of speech, rhythm, and graphic design to form effective communication on film.

Mr. McLaughlin

181B. Writing for Animation. (1 or 2 courses)

Lecture, six hours; laboratory to be arranged. Prerequisites: course 181A, consent of the instructor and a storyboard at the first class meeting. Research and practice in creative writing and planning for the animated film. May be repeated for credit; maximum four courses (16 units).

Mr. McLaughlin

181C. Animation Workshop. (1 or 2 courses)

Lecture, six hours; laboratory to be arranged. Prerequisites: course 181A, consent of the instructor and a storyboard at the first class meeting. Organization and integration of the various creative arts used in animation to form a complete study of a selected topic. May be repeated for credit; maximum four courses (16 units).

Mr. McLaughlin

182. Television Portapack Production. (1 or 2 courses)

Lecture, three hours, laboratory three hours, additional field work. Prerequisite: consent of instructor. The conception and execution of an individual project in the half-inch medium, including: theory of videotape recording and technical considerations of half-inch systems; basic grammar of audio and video on location; viewing of alternate media materials from a variety of approaches and standards. May be repeated for a maximum of two courses credit for a total of 8 Units.

Mr. McCarty

M183A. Production for Community Cable Television.

(Same as CPS M138A.) Lecture, two hours, laboratory, two hours, and field work in community. Prerequisite: consent of instructor. Studies in the public access media, including field work in a local community. Instructional procedures for the use of the television media for feedback to a community. Practice in the instruction of members of a community to generate their own documentary material. Not open for credit to students who have taken Theater Arts M198T or Anthropology M198D in Fall 1973.

Mr. McCarty

M183B-183C. Production for Community Cable Television.

(Same as CPS M138B-138C.) Lecture, two hours, laboratory, two hours, and field work in community. Prerequisites: M183B: M183A (same as CPS M138A) and consent of the instructor; M183C: M183B (same as CPS M138B) and consent of instructor. M183B. Advanced studies in the training of students in the public access media (television). Advanced instruction in assisting the community to create television outlets. Credit for B will be granted only upon completion of C. Not open for credit to students who are enrolled in Anthropology M198A/CPSP M171A Winter Quarter 1974. M183C. Culminating studies in the public access media, including studies in the final synthesis of individual television projects. Continued training in the instruction of community members for the use of local television outlets. Not open for credit to students who are enrolled in Anthropology M198B/CPSP M171B Spring Quarter 1974.

Mr. McCarty

184A-184B-184C. Community Television Programming and Management.

Laboratory, eight hours. Prerequisite: consent of the instructor. Supervised operation and programming of a community television station. Class participation in semi-weekly campus broadcasts.

Mr. LaTourette

185. Television Production.

Laboratory, eight hours. Prerequisite: junior standing. Required in the Motion Picture/Television major. Instruction and supervised exercises in the basic technique of using cameras, lighting, and sound in the production of television programs.

186A-186B-186C. Television Laboratory. (2 courses each)

Laboratory, sixteen hours. Prerequisites: courses 179A, 185 and consent of the instructor. The conception, direction, and production of an original television program.

187A-187B-187C. Remote Television Broadcasting. (1 course each)

Laboratory, three hours plus additional hours to be arranged. Prerequisite: consent of instructor. Instruction and supervised exercises in the planning and production of remote on-location television programs.

Mr. Trachinger

188. The Aesthetics of Visual Communication.

Lecture, three hours. Prerequisites: upper division standing and consent of instructor. An introduction to the study of communication in art, with an emphasis on the problem of aesthetic perception and its proper role in the experience of contemporary visual arts.

193A. Film Curatorship.

Lecture, two hours; discussion, two hours; laboratory, four hours. Prerequisite: consent of the instructor. Study of the principles and techniques of film curatorship and research, including but not limited to acquisitions, cataloguing, storage and retrieval systems. Special attention will be devoted to the application of new technology, equipment, and program materials to film archival-library design for research and teaching. Not open for credit to those who have taken course 194A.

193B. Television Curatorship.

Lecture, two hours; discussion, two hours; laboratory, four hours. Prerequisites: consent of the instructor. Study of the principles and techniques of television curatorship and research, including but not limited to acquisitions, cataloguing, storage and retrieval systems. Special attention will be devoted to the application of new technology, equipment, and program materials to television archival-library design for research and teaching. Not open for credit to those who have taken 194B.

Ms. Schwartz

SPECIAL STUDIES FOR ALL SPECIALIZATIONS

199. Special Studies in Theater Arts. (½ to 2 courses)

Hours to be arranged. Prerequisites: senior standing and consent of the instructor. May be repeated for a total of two courses.

Graduate Courses

Certain graduate courses concerned with individual student projects may be repeated for credit upon recommendation of the departmental graduate adviser. Not open to undergraduate students. See College of Fine Arts, Unit Requirements.

200. Bibliography and Methods of Research in Theater Arts.

Section 1. Theater.

Mr. Hethmon

Section 2. Motion Pictures.

Mr. Suber

Section 3. Television-Radio.

Ms. Schwartz

201. Seminar in Modern Production Theories.

Lecture, three hours. Selected topics from European and American theater studies.

Mr. Hethmon

202A. Seminar in Classical Theater.

Discussion, three hours. Prerequisite: graduate standing and consent of the instructor. Studies of the development of theatrical production and dramatic form in the Greek, Hellenistic, and Roman periods.

Mr. Hethmon, Mr. Mueller

202B. Seminar in Medieval Theater.

Discussion, three hours. Prerequisite: graduate standing and consent of the instructor. Studies of theatrical production and dramatic form in the Middle Ages.

Mr. Goodman, Mr. Mueller

202C. Seminar in Renaissance and Baroque Theater.

Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Studies in theater architecture, theatrical production, and dramatic form in English and Continental theater from 1485 to the early 18th century.

Mr. Goodman, Mr. Wollock

202D. Seminar in 18th and 19th Century Theater.
Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Studies in theater architecture, theatrical production, and dramatic form in English and Continental theater from 1700 to 1870.
Mr. Goodman, Mr. Hethmon

202E. Seminar on the Modern Consciousness in Theater.
Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of the prototypes of modern experience as encountered in the work of Ibsen and Strindberg.
Mr. Goodman, Mr. Kerans, Mr. Mueller

202F. Seminar in Naturalism and Expressionism.
Discussion, three hours. Prerequisite: graduate standing and consent of the instructor. Study of the modern theater's response to scientific thought and industrialism.
Mr. Goodman, Mr. Kerans

202G. Seminar in Symbolism.
Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Adaptations of the religious impulse in such artists as Maeterlinck, Yeats, Meyerhold, Appia, Craig, Andreyev, Claudel, and Eliot.
Mr. Goodman, Mr. Hethmon

202H. Seminar in Surrealism.
Discussion, three hours. Prerequisite: graduate standing and consent of the instructor. Study of the development from Rimbaud to the present of the basic concepts of Surrealism as they relate to the theater. The seminar will deal with certain major writers such as Apollinaire, Jarry, and Cocteau, but will also take up the theatrical techniques which the movement has fostered.
Mr. Kerans

202J. Seminar on Theater and Social Order.
Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of the concept of order as it underlies theater which attempts to correct, reform, explain, or argue with the ethical or metaphysical condition of the period. The work of such playwrights as Shaw, Brecht, Sartre, and Arthur Miller will be investigated together with the theatrical styles the movement developed.
Mr. Kerans

202K. Seminar in Colonial and 19th Century American Theater.
Discussion, three hours. Prerequisite: graduate standing and consent of the instructor. Studies in the development of theatrical production and dramatic writing in American theater from 1665 to the 20th Century.
Mr. Hethmon, Mr. Wollock

202M. Seminar in 20th Century American Theater.
Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of the American theater's search to define the place of American experience in the modern world.
Mr. Hethmon

202N. Seminar in Theater Architecture from the Baroque Playhouse to the Present.
Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of the influence of modern experience on architectural thought in the modern theater.
Mr. Crabs, Mr. Hearn

203. Seminar in Film and the Fine Arts.
Discussion, three hours; laboratory, six hours. Prerequisites: graduate standing and consent of the instructor. Studies in the interrelationship between film and the fine arts, with particular emphasis on the ways in which contemporary theories and practices in painting, music, and dance have influenced the evolving art of film.

204. Seminar in Film and the Performing Arts.
Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Studies in the interrelationship between film and theater, in its broadest sense, with particular emphasis on the impact of acting and mise-en-scene in contemporary and past films.

205A. The Background of Theatrical Art.
An analysis of the aesthetic principles and content of the tragic theater.

205B. The Background of Theatrical Art.
An analysis of the aesthetic principles and content of the comic theater.

206A. Seminar in European Motion Picture History.
Prerequisites: course 106B and consent of the instructor.

206C. Seminar in American Motion Picture History.
Prerequisites: course 106A and consent of the instructor. May be repeated for a maximum of two courses (8 units) credit.

207A. Seminar in Realism, Naturalism, and the Film.
Prerequisites: graduate standing and consent of the instructor. Study of the influence of the Realist and Naturalist movements in literature on form and content of both the silent and the sound film in America and Europe, and particularly on the work of such directors as Von Stroheim, Renoir, and Feyder.

207B. Seminar in Expressionism and Film.
Prerequisites: graduate standing and consent of the instructor. Study of the impact of the Expressionist school in literature, art, and architecture, and its effect on the form and content of motion pictures, especially in the decade following World War I on such directors as Lang, Murnau, and Pabst.

207C. Seminar in Social Realism and Film.
Prerequisites: graduate standing and consent of the instructor. Study of art in the service of ideology as illustrated by the effect of new standards of social, political, and aesthetic values on the development and content of motion pictures, especially in the Marxist countries from 1917 to the present day.

207D. Seminar in Surrealism and Film.
Prerequisites: graduate standing and consent of the instructor. Study of the influence of the Surrealist movements as articulated by Breton and Apollinaire and reflected in the films of such directors as Germaine Dulac, Antonin Artaud, Luis Bunuel, and Arthur Penn.

207E. Seminar in Neo-Realism and Film.
Prerequisites: graduate standing and consent of the instructor. Study of the development of cinema after World War II, notably in Italy, under the influence of French directors such as Renoir and the novels of Hemingway, Dos Passos, Faulkner, and Malraux, and climaxing in the work of such directors as Fellini, Antonioni, and Pasolini.

208A. Seminar in Film Structure.
Prerequisites: graduate standing and consent of instructor. An examination of various film conventions, both fictional and nonfictional, and of the role of structure in the motion picture.

208B. Film Aesthetics.
Prerequisite: graduate standing and consent of the instructor. Study and analysis of the film in relation to other art forms.

208C. Advanced Aesthetics.
Prerequisites: course 208B graduate standing and consent of the instructor. Detailed examination and evaluation through study of selected films of the aesthetics of motion pictures as formulated to date and as the foundation for further development of the arts.

209A. Seminar in Documentary Film.
Prerequisite: graduate standing and consent of the instructor. The nonfictional film and its relation to contemporary culture.

209B. Seminar in Fictional Film.
Prerequisite: graduate standing and consent of the instructor. Film as fiction and its relation to contemporary culture. May be repeated for a maximum of two courses (8 units) credit.

M209C. Seminar in Ethnographic Film.
(Same as Anthropology M294A.) Prerequisites: graduate standing and consent of instructor. The ethnographic film as a form of realist cinema and its relations to cultural anthropology. Offered in the fall quarter.
Mr. Boehm, Mr. Hawkins

210. Seminar in Contemporary Broadcast Media.
Prerequisite: graduate standing and consent of instructor. Recent and current developments in radio, television, satellites, cable and cartridge television, and telecommunication centers. Commercial broadcasting and alternative systems at home and abroad.
Mr. Kingson

211. Historiography.
Prerequisites: graduate standing and consent of the instructor. Examination of the function and methods of writing film and television history as seen in the works of key historians in the United States and Europe. The development of the discipline from a journalistic pursuit of disparate facts to a coherent examination of the development of the media will be examined in relation to the principles that have guided leading writers.

212. Theory of Action and Motive in Drama.
Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Examination of the history and meaning of these basic concepts. Study of a variety of approaches to definition of these and related terms.
Mr. Kerans

213. Seminar in the History of Scenic Design.
Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of principal designers and modes of scenic expression.
Mr. Corrigan, Mr. Jones

214. Seminar on Social and Economic Factors in Contemporary American Theater.
Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of the background of theater in terms of community support,

foundation support, independent financing, community planning, audience development, and other factors affecting artistic presentations.

Mr. Cauble

216. Seminar in Critical Methods.

Discussion, four hours. Prerequisites: graduate standing and consent of instructor. Examination of the principal contemporary modes of criticism, including archetypal, sociological, phenomenological, and Aristotelian, with particular emphasis on their value in the study of theater and film.

Mr. Kerans

217. Seminar in the Puppet Theater.

Lecture, three hours. Prerequisites: consent of instructor. Studies in the puppet theaters of the world: techniques, literature, aesthetics.

Mr. Helstien

219. Film, Television and Society.

Prerequisites: graduate standing and consent of the instructor. Studies in the ways in which film and television affect the attitudes, beliefs, standards, and behavior of society, and the means by which society in turn shapes the evolution and production of film and television.

221. Seminar in Film Authors.

Prerequisites: graduate standing and consent of the instructor. Intensive examination of the works of outstanding creators of film.

222. Seminar in Film Genres.

Prerequisite: graduate standing and consent of the instructor. Studies of coherent patterns, styles, and themes as they have defined selected genres such as the Western, gangster, war, and science fiction film.

223. Seminar in Visual Perception.

Prerequisite: graduate standing and consent of the instructor. The aesthetic, psychological, and physiological principles of vision as they relate to the ways in which man "sees" film and television, with emphasis on the ways in which these are different from other visual experiences.

224. The Expanding Visual Media.

Prerequisites: graduate standing and consent of the instructor. Studies of the means by which technological and aesthetic advances are re-defining the future of film, television, and the other visually-oriented means of communication and expression. The implications of such developments as mixed-media, video cassettes, holography, satellite relays, and computer-generated images may receive special attention.

230A-230B-230C. Advanced Playwriting.

Lecture, three hours. Prerequisite: course 130A, graduate standing and consent of instructor. Guided completion of a full-length play, or study and preparation for the writing of a thesis play.

Mr. Gardner

240. The Contemporary Playhouse.

Discussion, four hours. Prerequisites: graduate standing and consent of instructor. Advanced study of the concept, form and function of the contemporary playhouse and its equipment.

Mr. Hearn

241. Research in Technical Theater.

Lecture, four hours. Prerequisites: graduate standing and consent of instructor. Research in technical processes and equipment in theater.

Mr. Hearn

243A-243B-243C. Advanced Problems in Design for the Theater.

Lecture, four hours. Prerequisites: graduate standing and consent of instructor. Advanced study and practice in the design of stage productions. Determination of approach and style in scenic design.

Mr. Corrigan

245A-245B. Production Planning in Theater.

Lecture, two hours; laboratory, two hours. Prerequisites: graduate standing and consent of instructor. Development of planning procedures through the execution of a complete plan for producing a multi-scene production. Courses must be taken in sequence.

Mr. Corrigan, Mr. Crabe

247. Production Planning in Television.

Seminar, three hours; plus field studies in professional motion picture and television studios.

251. Advanced Design for Motion Pictures. (½ to 1 course)

Hours to be arranged. Prerequisites: course 151 and/or consent of the instructor. May be repeated for a maximum of three courses credit. Advanced study and practice of techniques and methods of design for motion pictures. Art direction for advanced workshop productions in the project sequence.

264. Seminar in Film and Television Direction.

Prerequisite: graduate standing and consent of instructor. A study, with professional guests, of their work, attitudes, and solutions to problems in directing fictional and documentary films and television.

M265A-265B. Ethnographic Film Direction. (1 or 2 courses each)

(Same as Anthropology M294B-294C.) Prerequisites: course 209C, graduate standing and consent of the instructor. Advanced study of problems in the production of ethnographic films. M265A is offered in the winter quarter and M265B is offered in the spring quarter.

Mr. Boehm, Mr. Hawkins

270. Seminar in Film and Television Criticism.

Prerequisites: graduate standing and consent of the instructor. An analysis of key aesthetic questions and their application to criticism of motion pictures and television as evidenced in the writing of students in the course and professional critics.

272A-272B-272C. Production and Performance Laboratory. (½ course)

Laboratory, to be arranged. Prerequisites: admission to the M.A. program in theater specialization and consent of instructor. Credit for creative production assignments required of all M.A. students during the first three quarters of residence. Credit will be granted only upon completion of TA 272C.

275A. Seminar in Television Drama.

Prerequisite: graduate standing and consent of instructor. A critical survey and analysis of the drama written and produced specifically for television from the so-called Golden Age of the medium to the present.

275B. Seminar in Television Documentary.

Prerequisite: graduate standing and consent of instructor. A critical survey and analysis of the structure and content of the documentary as specifically created, written, and produced for television.

288. Seminar in Educational Television.

Prerequisite: graduate standing and consent of the instructor. An historical survey and critical analysis of public, educational, and instructional television in the United States and abroad.

Mr. Kingson

290A. The Role of Management in Artistic Decision Making in the Theater.

Lecture, four hours. Prerequisite: consent of instructor. A descriptive study of the criteria for decision making in artistic institutions including the role of the institution in society, the economic environment of the arts, and the artistic value systems of arts organizations.

Mr. Cauble

290B. Programming and Planning Policies in the Theater.

Lecture, four hours. Prerequisite: consent of instructor. An analysis of the social, artistic and economic roles of the arts as reflected in programming policy. An examination of the social goals pursued in establishing relationships between the arts and their environment.

Mr. Cauble

291. The Role of Management in Motion Pictures.

Prerequisite: graduate standing and consent of instructor. A study of the artistic, social, and economic criteria for decision making in the production and distribution of motion pictures.

298A-298B. Special Studies in Theater Arts. (½ or 1 course each)

Lecture/discussion, two or four hours. Prerequisites: graduate standing and consent of instructor. May be repeated once for credit. Seminar study of problems in theater arts, organized on a topic basis.

Professional Courses

420A. Advanced Techniques in Acting.

Lecture/laborator, six hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Exercises in sense memory, personalization, and objectives to help the student respond truthfully to real and imaginary stimuli by developing concentration, awareness, imagination and spontaneity

Ms. Salvi

420B. Advanced Techniques in Acting.

Lecture/laboratory, six hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Extended work in improvisations and exercises in order to apply these techniques to a role. Beginning with monologues the work progresses to two-person scenes. Through these efforts the student will begin to personalize the character's emotional needs and drives.

Ms. Salvi

420C. Advanced Techniques in Acting.

Lecture/laboratory, six hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Preparation and presentation of two-person scenes utilizing sensory work and "objectives" on a more refined basis. The student will not be able to find the similarities and differences between himself and the character and be able to play these elements truthfully and spontaneously.

Ms. Salvi

421A. Advanced Projects in Acting. (1 or 2 courses)

Lecture/laboratory, six hours. Prerequisites: restricted to M.F.A. acting students in Theater and consent of instructor. Preparation, presentation, and critique of scenes. Systematic role analysis and exercises in acting.

421B. Advanced Projects in Acting. (1 or 2 courses)

Lecture/laboratory, six hours. Prerequisites: restricted to M.F.A. acting students in Theater and consent of instructor. Preparation, presentation and critique of scenes. Systematic role analysis and exercises in acting.

421C. Advanced Projects in Acting. (1 or 2 courses)

Lecture/laboratory, six hours. Prerequisites: restricted to M.F.A. acting students in Theater and consent of instructor. Class exercises in acting. Preparation and presentation of roles under performance conditions.

423. Advanced Directing of the Actor for Motion Pictures and Television.

Laboratory, eight hours. Prerequisites: course 163 and consent of the instructor. The Director learns how to build scenes and characters logically and how to sustain these along with emotional and physical continuity. This class utilizes a video-tape recorder in order to simulate the conditions of directing actors before the camera. May be repeated for a maximum of 12 units credit.

Ms. Salvi

424A-424B-424C. Advanced Techniques in Voice for the Stage. (½ course each)

Lecture/laboratory, four hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Development of voice techniques for the stage. Includes work on relaxation, limbering, breathing, articulators, and resonators. Special vocal problems for the actor.

Ms. Wilbur

424D-424E-424F. Special Problems in Voice for the Actor. (½ course each)

Lecture/laboratory, four hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. An extension of the first year work with increased demands on voice. Range and breathing capacity extension. Articulation and the phonetic alphabet. Advanced voice problems.

Ms. Wilbur

425A-425B-425C. Advanced Techniques in Movement for the Stage. (½ course each)

Studio, four hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Physical awareness for the actor. Special emphasis on: warming up the body, relaxation, gymnastics (balance, falls, stunts), movement techniques and stage combat.

Mr. Orth

425D-425E-425F. Special Problems in Movement for the Actor. (½ course each)

Studio, four hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Physical awareness for the actor, concentrating on individual problems in terms of space, movement, and time. Special emphasis: natural rhythms, relaxation and balance.

Mr. Orth

430A-430B-430C. Advanced Studies in Playwriting.

Seminar, to be arranged. Prerequisites: courses 230A-230B-230C and consent of instructor. Guidance in the completion of thesis plays.

Mr. Apstein

432. Manuscript Evaluation.

Lecture, four hours; laboratory, to be arranged. Prerequisites: course 132 and consent of instructor or admission to M.F.A. writing program and consent of the instructor. May be taken twice for credit (once each year of M.F.A. residence). Evaluation of manuscripts of beginning writers including but not limited to those produced in the beginning writing course Theater Arts 134.

434. Advanced Motion Picture/Television Writing. (2 courses)

Discussion, three hours. Prerequisite: course 135 and consent of the instructor. Advanced problems in the writing of original motion picture/television material. May be repeated for a maximum of 24 units.

437. Nontheatrical Writing for Motion Picture/Television.

Discussion, three hours. Prerequisite: consent of the instructor. Advanced problems in the field of documentary and special feature programs with emphasis on research and pre-production.

442A-442B-442C. Advanced Problems in Costume Design.

Lecture/discussion, four hours. Prerequisite: consent of the instructor. Study of costume design for theatrical productions. Development of costume designs from theatrical scripts with emphasis upon production styles and character revelation. The scripts vary in period and style to give design practice in the major costume periods and artistic styles. Restricted to M.F.A. candidates.

Mr. Jones

443. Problems in Design.

Lecture/laboratory, four hours. Prerequisite: consent of instructor. Study and practice in design techniques for the theater. May be repeated for a maximum of 12 units.

Mr. Corrigan

444. The Development of Costume Design Construction Technologies for Theater.

Discussion, three hours. Prerequisites: restricted to M.F.A. candidates and consent of instructor. A study of the effect of artistic and stylistic ideas on the mode and dress of men and women. May be repeated for a maximum of 12 units.

Mr. Jones

446. Production Planning in Motion Pictures. (½ or 1 course)

Lecture, three hours; laboratory to be arranged. Prerequisite: consent of the instructor.

Mr. Grauel

452A. Advanced Motion Picture/Television Sound.

Lecture, four hours; laboratory, four hours. Prerequisites: course 152A and/or consent of the instructor. Applications of electronic and acoustic theory to film and television recording and reproduction, including practical demonstrations.

452B. Music Recording Workshop.

Lecture, four hours; laboratory, eight hours. Prerequisites: course 452A and/or consent of the instructor. Supervised exercises in studio music recording techniques, with emphasis on special requirements for motion pictures and television.

452C. Advanced Motion Picture/Television Sound Re-Recording.

Laboratory, eight hours. Prerequisites: courses 152B, 452A, and/or consent of the instructor. Techniques of preparation and execution of re-recording using multitrack pickup recording technology, including supervised operational experience.

457. Design for Television.

Lecture, one hour; laboratory, three hours. Prerequisite: consent of the instructor. Study and practice in design of television productions. Consideration of style as it relates to all elements of design in live and recorded television programs.

Mr. Wollock

460A. Problems in Advanced Direction for the Stage.

Lecture, to be arranged. Prerequisites: restricted to M.F.A. candidates and consent of instructor. Preparation and presentation of a published one-act play or its equivalent under rehearsal conditions. Discussion and critique of work in progress.

Mr. Gordon

460B. Problems in Advanced Direction for the Stage.

Lecture, to be arranged. Prerequisites: restricted to M.F.A. candidates and consent of instructor. Preparation and presentation of a published play under rehearsal conditions. Discussion and critique of work in progress.

Mr. Gordon

460C. Problems in Advanced Direction for the Stage.

Lecture, to be arranged. Prerequisites: restricted to M.F.A. candidates and consent of instructor. Preparation and presentation of a full-length original play under rehearsal conditions. Discussion and critique of work in progress.

Mr. Gordon

462. Production Project in Direction for the Stage.

Lecture, to be arranged. Prerequisites: restricted to M.F.A. students and consent of instructor. Preparation and presentation of an original play under minimal production conditions. Discussion and critique of work in progress.

Mr. Kerans

463. Production Project in Direction for the Stage. (2 courses)

Prerequisite: consent of the instructor. Preparation and presentation of play under fully produced theater conditions. Restricted to M.F.A. students.

Mr. Kerans

464A-464B. Motion Picture Direction. (1 or 2 courses each)

Hours to be arranged. Prerequisite: consent of the instructor. Special problems in the direction of fictional and documentary motion pictures.

466A-466B. Advanced Television Direction. (1 or 2 courses each)

Lecture, two hours; laboratory, six hours. Prerequisite: consent of the instructor. Special problems in the direction of dramatic and documentary television programs.

472. Production and Performance Laboratory. (½ course)

Hours to be arranged. Prerequisite: admission to the M.F.A. program. Credit for creative production projects required of all M.F.A. students during the first three quarters of residence. May be repeated for credit.

479A-479B-479C. Film Project 3. (1, 2 or 3 courses each)

Hours to be arranged. Prerequisite: consent of the instructor. The completion of a third film, including its writing, design, production and editing.

480A-480B-480C. Workshop in Radio and Television News.

Laboratory, eight hours. Prerequisite: consent of the instructor. Instruction and supervised exercises in re-

porting, writing, editing, and producing radio and television news, public affairs, and documentary programs.

Mr. LaTourette

482A-482B. Advanced Animation Workshop. (1 or 2 courses each)

Lecture, three hours; laboratory to be arranged. Prerequisites: courses 181A-181B-181C and consent of the instructor. Organization and integration of various creative arts used in animation, resulting in the production of a complete animated film.

Mr. McLaughlin

485A-485B-485C. Advanced Television Production. (1 or 2 courses each)

Laboratory, 16 hours. Prerequisites: Project 1 (course 179A), 185, 186A-186B-186C and consent of instructor. Instruction in the creation, preparation, and production of advanced television programs.

488A-488B-488C. Educational Television Workshop.

Laboratory, eight hours. Prerequisite: consent of instructor. Instruction and supervised exercises in directing and producing television programs for educational purposes.

495A. Problems in the Teaching of Theater Arts.

Lecture/laboratory, to be arranged. Prerequisites: graduate standing and consent of the instructor. Study of and practice in the teaching of Theater Arts at the college and university level.

495B. Problems in the Teaching of Theater Arts.

Lecture/laboratory, to be arranged. Prerequisites: graduate standing and consent of the instructor. Demonstration of competence in theater, film, or television production through successful completion of a major teaching production assignment as theater director, technical director, designer, or filmmaker.

498. Professional Internship in Theater Arts. (1 or 2 or 3 courses)

Full or part-time at a studio or on a professional project. Prerequisites: Graduate status plus advanced standing in the M.F.A. program and consent of instructor. An internship at various film, television or theater facilities accentuating the creative contribution, the organization and the work of professionals in their various specialties. Given only when projects can be scheduled.

Individual Study and Research

596A. Directed Individual Studies: Research. (½ to 3 courses)

Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

596B. Directed Individual Studies: Writing. (½ to 3 courses)

Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

596C. Directed Individual Studies: Directing. (½ to 3 courses)

Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

596D. Directed Individual Studies: Design. (½ to 3 courses)

Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

596E. Directed Individual Studies: Acting. (½ to 3 courses)

Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

596F. Directed Individual Studies: Production. (½ to 3 courses)

Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

597. Preparation for the Qualifying Examination for the Ph.D. in Theater Arts. (½ to 2 courses)

May be repeated for a total of three courses.

598. M.A. Thesis in Theatre Arts. (½ to 2 courses)

Research and writing for the M.A. thesis. Limited to students who have been advanced to candidacy. May be repeated for a total of three courses.

599. Dissertation in Theater Arts. (½ to 2 courses)

Research and writing for the doctoral dissertation. Limited to students who have been advanced to candidacy. May be repeated for a total of three courses.

Related Courses in Other Departments

Classics 142. Ancient Drama.

Dance 152A. Lighting Design for Dance Theater.
152B. Costume and Scenic Design for Dance Theater.

English 10A-10B-10C. English Literature.
90. Shakespeare.
112. Children's Literature.
135A-135B-135C. Creative Writing: Drama.
167. The Drama, 1842 to the Present.

Humanities 1A-1B. World Literature.

Integrated Arts 1A-1B-1C.

Music 72A-72B-72C. Opera Workshop.
135A-135B-135C. History of Opera.
172A-172B-172C. Opera Workshop.

■ ZOOLOGY

The departments of Botanical Science and Zoology have merged to form the Department of Biology. Students currently enrolled as majors in Botanical Science or Zoology may complete requirements as stated in the 1971-1972 General Catalog (or the Supplement to the 1971-1972 General Catalog), or they may petition to change their majors to Biology.

Advising appointments and sample curricula are available in the Biology Student Affairs Office.

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INDEX